Oakley Logistics Center Project

SCH# 2019029113

Draft Environmental Impact Report

Volume I of II
(Chapters 1 through 8 & Appendices A through C)

Prepared for
City of Oakley

OAKLEY
CALIFORNIA

October 2019

Prepared by

RANEY PLANNING & MANAGEMENT, INC. 20 years

1501 Sports Drive, Suite A, Sacramento, CA 95834

Oakley Logistics Center Project
Draft Environmental Impact Report

SCH# 2019029113

Lead Agency

City of Oakley
Community Development Department
3231 Main Street
Oakley, CA 94561

Joshua McMurray
Community Development Director
(925) 625-7000

Prepared By

Raney Planning and Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834
(916) 372-6100

Contact:
Rod Stinson
Division Manager/Air Quality Specialist

Table of Contents

TABLE OF CONTENTS

CHAPTER **PAGE**

APPENDICES – VOLUME I

APPENDICES – VOLUME II

LIST OF FIGURES

FIGURE **PAGE**

LIST OF TABLES

TABLE **PAGE**

2. Executive Summary

3. Project Description

4.1 Air Quality

4.2 Biological Resources

4.3 Hydrology and Water Quality

TABLE **PAGE**

4.4 Transportation and Circulation

4.5 Utilities and Service Systems

6. Alternatives Analysis

1. Introduction

1. INTRODUCTION

1.1 INTRODUCTION

The Oakley Logistics Center Project Environmental Impact Report (EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970, Pub. Res. Code §§ 21000-21178, as amended and the Guidelines for Implementation of the California Environmental Quality Act, Cal. Code Regs. Title 14, §§ 15000-15387 (CEQA Guidelines). The City of Oakley is the lead agency for the environmental review of the Oakley Logistics Center project (proposed project) evaluated herein and has the principal responsibility for approving the project. As required by Section 15121 of the CEQA Guidelines, this EIR will (a) inform public agency decision-makers, and the public generally, of the significant environmental effects of the project, (b) identify possible ways to minimize the significant adverse environmental effects, and (c) describe reasonable and feasible project alternatives which reduce environmental effects. The public agency shall consider the information in the EIR along with other information that may be presented to the agency.

1.2 PROJECT SUMMARY

The property that is the subject of the proposed project (subject property) is located on the northwest side of the City of Oakley, adjacent to State Route (SR) 160, on Bridgehead Road, north of Main Street and the Burlington Northern Santa Fe (BNSF) Railroad, with entrance provided from Bridgehead Road on to Wilbur Avenue. The property address is 6000 Bridgehead Road and is identified by Assessor's Parcel Numbers (APNs) 037-020-008, -009, -010, -014, through -022. The subject property is located south of the San Joaquin River and east of Antioch city limits.

The subject property is site of the former DuPont Chemical Plant that produced chlorofluorocarbons, fuel additive anti-knock compounds (AKCs) and titanium dioxide between 1956 to 1997. The facility was demolished in 1999, less two dilapidated buildings and some remnant utility infrastructure. The site has been undergoing remedial and cleanup work for soil and groundwater contamination. The site is highly disturbed from its precious use as a chemical plant and as a result of the remediation efforts.

The entire subject property consists of approximately 375.7 acres; however, the logistics center would only develop on approximately 143.3 acres within the southwest portion of the property. The 143.3-acre development area is referred to throughout this EIR as the project site. Outside of the 143.3-acre project site, the remaining 232.4 acres of the subject property (hereinafter referred to as the remainder area) would remain natural, less some potential soil borrowing on areas that are both immediately adjacent to the 143.3-acre project site and outside of any wetland or marsh areas.

The subject property is currently designated Light Industrial (LI), Utility Energy (UE), Business Park (BP), and Delta Recreation (DR) per the City of Oakley 2020 General Plan Land Use Map and is zoned Specific Plan (SP-3).

The proposed project would include construction of five buildings across the project site ranging in size from 150,000 square feet (sf) to 642,960 sf for a total of approximately 2.0 million sf. The proposed project would include demolition of the existing structures and utility remnants and construction of the proposed buildings over two phases. Specific uses for the proposed buildings would be subject to site-specific development standards in the proposed Planned Unit Development. Access to the project site would be provided by a main entrance located at the intersection of Wilbur Avenue and Bridgehead Road and two secondary access points on Bridgehead Road. The proposed project would include the widening of Bridgehead Road from the site boundary with the PG&E property to the south, north to the site boundary with the Lauritzen Yacht Harbor storage property. Furthermore, Wilbur avenue would be extended eastward by approximately 1,170 feet into the project site. Both the widened portion of Bridgehead Road as well as the extension of Wilbur Avenue would be dedicated to the City as public roadways, along with A Street, B Street, C Street, and D Street within the project site. Additional off-site improvements associated with the proposed project would include construction of a new sew pump station at Wilbur Avenue, a new six-inch force main within Bridgehead Road, and improvements at the existing Bridgehead Pump Station and Bridgehead Force Main.

The proposed project would require the following discretionary actions by the City of Oakley:

- <u>Certification of the Environmental Impact Report, including adoption of Findings of Fact and a Statement of Overriding Considerations.</u> Before the City can approve the proposed project, the City must certify that the EIR was completed in compliance with the requirements of CEQA, that the decision-making body has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the City of Davis. The City would also be required to adopt Findings of Fact, and for any impacts determined to be significant and unavoidable, a Statement of Overriding Considerations, as part of project approval.
- <u>Adoption of the Mitigation Monitoring and Reporting Program.</u> Certification of the EIR requires adoption of a Mitigation Monitoring and Reporting Plan (MMRP), which specifies the methods for monitoring mitigation measures required to eliminate or reduce the project's significant effects on the environment.
- <u>Approval of a General Plan Amendment (map and text) (GP 04-18).</u> The proposed project would require a General Plan Amendment to amend the land use designation of the 143.3-acre project site from Light Industrial/Business Park/Utility Energy to Light Industrial, and to remove the proposed extension of Live Oak Avenue from Figure 3-1, Circulation Diagram, of the General Plan (see Figure 3-7).
- <u>Approval of a Rezone (RZ 08-18).</u> The proposed project would require a rezone to amend the zoning designation of the 375.7-acre subject property from Specific Plan (SP-3) to Planned Unit Development (P-1).
- <u>Approval of a Vesting Tentative Map (TM 05-18).</u> The proposed project would include a Vesting Tentative Map to create eight parcels within the 375.7-acre subject property;
- <u>Approval of Final Development Plan.</u> Because the project would rezone the 143.3-acre project site to P-1, the project would require approval of a Final Development Plan pursuant to Section 9.1.1002 of the City of Oakley Municipal Code. Standards and conditions, including permitted and conditionally permitted uses, would be provided for both the 143.3-acre project site and the 232.4-acre remainder area.
- <u>Approval of a Design Review (DR 12-18).</u> The proposed project would be subject to the City's Design Review process in accordance with Section 9.1.1604 of the City of Oakley Municipal Code. The purpose of the Design Review process is to review and analysis of the project's design, including site plans, architectural elevations, conceptual landscape plans, and other physical development.

- Approval of a Development Agreement (DA 01-18). The proposed project includes a request for approval of a Development Agreement for the proposed development. The agreement would be between the City of Oakley and the project applicant.
- Approval of a Tree Removal Permit. The proposed project would require approval of a tree removal permit in accordance with Section 9.1.1112 of the City of Oakley Municipal Code.

Please refer to Chapter 3, Project Description, of this EIR for a detailed description of the proposed project and entitlements, as well as a full list of the project objectives.

1.3 PURPOSE OF THE EIR

As provided in the CEQA Guidelines Section 15021, public agencies are charged with the duty to avoid or minimize environmental damage where feasible. The public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social issues.

CEQA requires the preparation of an EIR prior to approving any project that may have a significant effect on the environment. For the purposes of CEQA, the term *project* refers to the whole of an action, which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378[a]). With respect to the proposed project, the City has determined that the proposed development is a project within the definition of CEQA.

The lead agency, which is the City of Oakley for this project, is required to consider the information in the EIR along with any other available information in deciding whether to approve the application. The basic requirements for an EIR include discussions of the environmental setting, environmental impacts, mitigation measures, alternatives, growth inducing impacts, and cumulative impacts.

The CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. This EIR has been prepared as a project-level EIR pursuant to CEQA Guidelines Section 15161, which is an analysis that examines the environmental impacts of a specific development project. A project-level EIR focuses primarily on the changes in the environment that would result from the development of the project, and examines all phases of the project including planning, construction, and operation.

1.4 EIR PROCESS

The EIR process begins with the decision by the lead agency to prepare an EIR, either during a preliminary review of a project or at the conclusion of an Initial Study (see Appendix A). Once the decision is made to prepare an EIR, the lead agency sends a Notice of Preparation (NOP) to appropriate government agencies and, when required, to the State Clearinghouse (SCH) in the Office of Planning and Research (OPR), which will ensure that responsible and trustee State agencies reply within the required time. The SCH assigns an identification number to the project, which then becomes the identification number for all subsequent environmental documents on the project. Commenting agencies have 30 days to respond to the NOP and provide information regarding alternatives and mitigation measures they wish to have explored in the Draft EIR and to provide notification regarding whether the agency will be a responsible agency or a trustee agency for the project.

The NOP (see Appendix B) for the proposed project was prepared and circulated to agencies and the public from February 20, 2019 to March 21, 2019. In addition, the City held an NOP scoping meeting during the 30-day review period, on March 6, 2019, for the purpose of receiving comments on the scope of the environmental analysis to be prepared for the proposed project. Eight comment letters were received during the NOP public review period and one comment letter was received after the NOP public review period. The comment letters are provided as Appendix C to this EIR. See Section 1.7 below for a summary of the comments received on the NOP.

Upon completion of the Draft EIR and prior to circulation to State and local agencies and interested members of the public, a notice of completion will be filed with the SCH and a public notice of availability will be published to inform interested parties that a Draft EIR is available for agency and public review. In addition, the notice will provide information regarding the location of copies of the Draft EIR available for public review and any public meetings or hearings that are scheduled. The Draft EIR will be circulated for a minimum period of 45 days, during which time reviewers may submit comments on the document to the lead agency. The lead agency must respond to comments in writing. If significant new information, as defined in CEQA Guidelines Section 15088.5, is added to an EIR after public notice of availability is given, but before certification of the EIR, the revised EIR or affected chapters must be recirculated for an additional public review period with related comments and responses.

A Final EIR will be prepared, containing the Draft EIR or a revision thereof as well as comments and responses to comments on the Draft EIR. Before approving a project, the lead agency shall certify that the EIR (consisting of the Draft EIR and Final EIR) has been completed in compliance with CEQA, and that the EIR has been presented to the decision-making body of the lead agency, which has reviewed and considered the EIR. The lead agency shall also certify that the EIR reflects the lead agency's independent judgment and analysis.

The findings prepared by the lead agency must be based on substantial evidence in the administrative record and must include an explanation that bridges the gap between evidence in the record and the conclusions required by CEQA. If the decision-making body elects to proceed with a project that would have unavoidable significant impacts, then a Statement of Overriding Considerations explaining the decision to balance the benefits of the project against unavoidable environmental impacts must be prepared.

1.5 SCOPE OF THE EIR

This EIR constitutes a project-level analysis, and pursuant to CEQA Guidelines Section 15161, covers "all phases of the project including planning, construction, and operation." The CEQA Guidelines, Section 15126.2(a), states in pertinent part:

> An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced.

An Initial Study was prepared on February 20, 2019 and is included as Appendix A to this EIR. The Initial Study determined that the proposed project could have a potentially significant environmental impact on the following topic areas:

- Air Quality and GHG Emissions;
- Biological Resources;
- Hydrology and Water Quality;

- Transportation and Circulation; and
- Utilities and Service Systems.

The evaluation of effects is presented on a resource-by-resource basis in Chapters 4.1 through 4.5 of the EIR. Each chapter is divided into the following four sections: Introduction, Existing Environmental Setting, Regulatory Context, and Impacts and Mitigation Measures. Impacts that are determined to be significant in Chapters 4.1 through 4.5, and for which feasible mitigation measures are not available to reduce those impacts to a less-than-significant level, are identified as *significant and unavoidable*. Chapter 5 presents a discussion of growth-inducing impacts, a summary of cumulative impacts, a discussion of energy related impacts, and significant irreversible as well as significant unavoidable environmental changes associated with the project. Alternatives to the proposed project are discussed in Chapter 6 of the EIR.

1.6 NOTICE OF PREPARATION AND SCOPING

As noted above, in accordance with CEQA Guidelines Section 15082, an NOP was circulated to the public, local, State and federal agencies, and other known interested parties for a 30-day public and agency review period on February 20, 2019 (included as Appendix B). The purpose of the NOP was to provide notification that an EIR for the proposed project was being prepared and to solicit public input on the scope and content of the document.

1.7 COMMENTS RECEIVED ON THE NOTICE OF PREPARATION

During the NOP public review period from February 20, 2019 to March 21, 2019, the City of Oakley received nine comment letters, one of which was received after the public review period. A copy of each letter is provided in Appendix C of this EIR. In addition, verbal comments were received at the public scoping meeting held on March 6, 2019. The comment letters were authored by the following representatives of State and local agencies, groups, and residents/members of the general public:

State Agencies

- California Department of Conservation – Charlene L. Wardlow;
- California Department of Transportation (Caltrans) – Patricia Maurice;
- Department of Toxic Substances Control (DTSC) – Robert Irving; and
- Native American Heritage Commission – Gayle Totton.

Local Agencies

- Bay Area Air Quality Management District – Greg Nudd;
- East Bay Regional Park District – Devan Reiff; and
- TRANSPLAN Committee – Jamar Stamps.

Groups/General Public

- Henri and Karen Abbadie; and
- Chris Lauritzen.

The following list, categorized by issue, summarizes the concerns in the comment letters and through verbal comments and where the comments are addressed within this EIR:

Air Quality and GHG Emissions	Concerns related to: • GHG emissions during construction and long-term operation, and ability of project to meet the State's reduction targets. • Truck routes and number of diesel-powered trucks entering and leaving the center. • Dust emissions from construction. • Potential health risks from criteria and toxic pollutants. • Connection of the site to pedestrian networks.
Biological Resources	Concerns related to: • Fill of wetlands and loss of tree habitat.
Hydrology and Water Quality	Concerns related to: • Stormwater runoff patterns.
Transportation and Circulation	Concerns related to: • Increased trips at nearby intersections. • Use of transit services and bicycle and pedestrian facilities. • Reducing vehicle miles traveled. • Truck traffic along Bridgehead Road. • Traffic impacts to patrons of the Delta recreation area.
Utilities and Service Systems	Concerns related to: • Past use of wells on the property. • Increased need for sewer, water, electrical, and gas services.
Initial Study (Appendix A)	Concerns related to: • Compatibility of proposed General Plan land use amendment with the City's General Plan. • Increase in light and glare on surrounding areas. • Visual character, height, and design of buildings. • Cultural resources and compliance with Assembly Bill 52 and Senate Bill 18. • Truck noise along Bridgehead Road.

1.8 ORGANIZATION OF THE DRAFT EIR

The proposed project EIR is organized into the following sections:

Chapter 1 – Introduction

Provides an introduction and overview describing the intended use of the EIR and the review and certification process, as well as summaries of the chapters included in the EIR and summaries of the issues and concerns received from the public and public agencies during the NOP review period.

Chapter 2 – Executive Summary

Summarizes the elements of the project and the environmental impacts that would result from implementation of the proposed project, describes proposed mitigation measures, and indicates the level of significance of impacts after mitigation. Acknowledges alternatives that would reduce or avoid significant impacts and areas of known controversy.

Chapter 3 – Project Description

Provides a detailed description of the proposed project, including the project's location, background information, major objectives, and technical characteristics.

Chapter 4 – Environmental Impacts and Mitigation Measures

Contains a project-level and cumulative analysis of environmental issue areas associated with the proposed project. The section for each environmental issue contains an introduction and description of the setting of the project site, identifies impacts and recommends appropriate mitigation measures.

Chapter 5 – Statutorily Required Sections

Provides discussions required by CEQA regarding impacts that would result from the proposed project, including a summary of potential growth-inducing impacts, significant irreversible changes to the environment, impacts related to energy, and significant and unavoidable impacts.

Chapter 6 – Alternatives Analysis

The Alternatives Analysis chapter of the EIR describes and evaluates the alternatives to the proposed project.

Chapter 7 – EIR Authors and Persons Consulted

The EIR Authors and Persons Consulted chapter of the EIR lists EIR and technical report authors who provided technical assistance in the preparation and review of the EIR.

Chapter 8 – References

The References chapter of the EIR provides bibliographic information for all references and resources cited.

Appendices

The Appendices include the IS, NOP, comments received during the NOP comment period, and technical reports prepared for the proposed project.

2. Executive Summary

2. EXECUTIVE SUMMARY

2.1 INTRODUCTION

The Executive Summary chapter of the EIR provides an overview of the proposed project (see Chapter 3, Project Description, for further details) and provides a table summary of the conclusions of the environmental analysis provided in Chapters 4.1 through 4.5. This chapter also summarizes the alternatives to the proposed project that are described in Chapter 6, Alternatives Analysis, and identifies the Environmentally Superior Alternative. Table 2-1 contains the environmental impacts associated with the proposed project, the significance of the impacts, the proposed mitigation measures for the impacts, and the significance of the impacts after implementation of the mitigation measures.

2.2 SUMMARY DESCRIPTION OF THE PROPOSED PROJECT

The subject property is located on the northwest side of the City of Oakley, adjacent to State Route (SR) 160, on Bridgehead Road, north of Main Street and the Burlington Northern Santa Fe (BNSF) Railroad, with entrance provided from Bridgehead Road on to Wilbur Avenue. The property address is 6000 Bridgehead Road and is identified by Assessor's Parcel Numbers (APNs) 037-020-008, -009, -010, -014, through -022. The subject property is located south of the San Joaquin River and east of Antioch city limits.

The subject property is site of the former DuPont Chemical Plant that produced chlorofluorocarbons, fuel additive anti-knock compounds (AKCs) and titanium dioxide between 1956 to 1997. The facility was demolished in 1999, less two dilapidated buildings and some remnant utility infrastructure. The site has been undergoing remedial and cleanup work for soil and groundwater contamination. The site is highly disturbed from its previous use as a chemical plant and as a result of the remediation efforts.

The entire subject property consists of approximately 375.7 acres; however, the logistics center would only develop on approximately 143.3 acres within the southwest portion of the property. The 143.3-acre development area is referred to throughout this EIR as the project site. Outside of the 143.3-acre project site, the remaining 232.4 acres of the subject property (hereinafter referred to as the remainder area) would remain natural, less some potential soil borrowing on areas that are both immediately adjacent to the 143.3-acre project site and outside of any wetland or marsh areas.

The subject property is currently designated Light Industrial (LI), Utility Energy (UE), Business Park (BP), and Delta Recreation (DR) per the City of Oakley 2020 General Plan Land Use Map and is zoned Specific Plan (SP-3).

The proposed project would include construction of five buildings across the project site ranging in size from 150,000 square feet (sf) to 642,960 sf for a total of approximately 2.0 million sf. The proposed project would include demolition of the existing structure and utility remnants and construction of the proposed buildings over two phases. Specific uses for the proposed buildings would be subject to site-specific development standards in the proposed Planned Unit Development. Access to the project site would be provided by a main entrance located at the intersection of Wilbur Avenue and Bridgehead Road and two secondary access points on Bridgehead Road. The proposed project would include the widening of Bridgehead Road from the site boundary with the PG&E property to the south, north to the site boundary with the Lauritzen Yacht Harbor storage property. Furthermore, Wilbur avenue would be extended eastward by approximately 1,170 feet into the project site. Both the widened portion of Bridgehead Road as well as the extension of Wilbur Avenue would be dedicated to the City as public roadways, along with A Street, B Street, C Street, and D Street within the project site. Additional off-site improvements associated with the proposed project would include construction of a new sew pump station at Wilbur Avenue, a new six-inch force main within Bridgehead Road, and improvements at the existing Bridgehead Pump Station and Bridgehead Force Main.

The proposed project requests the following discretionary actions by the City of Oakley:

- Certification of the Environmental Impact Report, including adoption of Findings of Fact and a Statement of Overriding Considerations. Before the City can approve the proposed project, the City must certify that the EIR was completed in compliance with the requirements of CEQA, that the decision-making body has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the City of Davis. The City would also be required to adopt Findings of Fact, and for any impacts determined to be significant and unavoidable, a Statement of Overriding Considerations, as part of project approval.
- Adoption of the Mitigation Monitoring and Reporting Program. Certification of the EIR requires adoption of a Mitigation Monitoring and Reporting Plan (MMRP), which specifies the methods for monitoring mitigation measures required to eliminate or reduce the project's significant effects on the environment.
- Approval of a General Plan Amendment (map and text) (GP 04-18). The proposed project would require a General Plan Amendment to amend the land use designation of the 143.3-acre project site from Light Industrial/Business Park/Utility Energy to Light Industrial, and to remove the proposed extension of Live Oak Avenue from Figure 3-1, Circulation Diagram, of the General Plan (see Figure 3-7).
- Approval of a Rezone (RZ 08-18). The proposed project would require a rezone to amend the zoning designation of the 375.7-acre subject property from Specific Plan (SP-3) to Planned Unit Development (P-1).
- Approval of a Vesting Tentative Map (TM 05-18). The proposed project would include a Vesting Tentative Map to create eight parcels within the 375.7-acre subject property;
- Approval of Final Development Plan. Because the project would rezone the 143.3-acre project site to P-1, the project would require approval of a Final Development Plan pursuant to Section 9.1.1002 of the City of Oakley Municipal Code. Standards and conditions, including permitted and conditionally permitted uses, would be provided for both the 143.3-acre project site and the 232.4-acre remainder area.
- Approval of a Design Review (DR 12-18). The proposed project would be subject to the City's Design Review process in accordance with Section 9.1.1604 of the City of Oakley Municipal Code. The purpose of the Design Review process is to review and analysis of the project's design, including site plans, architectural elevations, conceptual landscape plans, and other physical development.
- Approval of a Development Agreement (DA 01-18). The proposed project includes a request for approval of a Development Agreement for the proposed development. The agreement would be between the City of Oakley and the project applicant.

- Approval of a Tree Removal Permit. The proposed project would require approval of a tree removal permit in accordance with Section 9.1.1112 of the City of Oakley Municipal Code.

Please refer to Chapter 3, Project Description, of this EIR for a detailed description of the proposed project and entitlements, as well as a full list of the project objectives.

2.3 ENVIRONMENTAL IMPACTS AND PROPOSED AND RECOMMENDED MITIGATION

Under CEQA, a significant effect on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, mineral, flora, fauna, ambient noise, and objects of historic or aesthetic significance. Mitigation measures must be implemented as part of the proposed project to reduce potential adverse impacts to a less-than-significant level. Such mitigation measures are noted in this EIR and are found in the following technical chapters: Air Quality and Greenhouse Gas Emissions; Biological Resources; Hydrology and Water Quality; and Transportation and Circulation. Any impact that remains significant after implementation of mitigation measures is considered a significant and unavoidable impact.

A summary of the identified impacts in the technical chapters of the EIR, as well as the Initial Study prepared for the project, is presented in Table 2-1. In Table 2-1, the proposed project impacts are identified for each technical chapter (Chapter 4.1 through 4.5) of the EIR. In addition, Table 2-1 includes the level of significance of each impact, any mitigation measures required for each impact, and the resulting level of significance after implementation of mitigation measures for each impact.

2.4 SUMMARY OF PROJECT ALTERNATIVES

The following section presents a summary of the evaluation of the alternatives considered for the proposed project, which include the following:

- No Project (No Build) Alternative;
- Reduced Intensity Alternative; and
- Reduced Footprint Alternative.

The following summary provides brief descriptions of the three alternatives to the proposed project that are evaluated in this Draft EIR. For a more thorough discussion of project alternatives, please refer to Chapter 6, Alternatives Analysis.

No Project (No Build) Alternative

The No Project (No Build) Alternative assumes that the current conditions at the project site would remain, and the site would not be developed with a logistics center. As described in this EIR, the project site is highly disturbed and has been undergoing remediation and clean-up efforts for many years. The site was once occupied by DuPont, which manufactured chemicals that were determined by the DTSC to pose a risk to human health and the environment, causing the clean-up efforts. Manufacturing ceased in 1999 and the manufacturing facilities at the site were mostly demolished. Because development of the site would not occur potential impacts from the development of the proposed project would not occur. The Alternative would not meet any of the project objectives.

Reduced Intensity Alternative

The Reduced Intensity Alternative would involve similar development of the project site; however, the total square footage would be reduced by 50 percent, for a total square footage of approximately 1.0 million sf. All other aspects of the Alternative would be similar to the proposed project. Because the Alternative would reduce the total square footage, the Alternative would not meet Project Objectives 1 or 2, and would only partially meet Project Objectives 3 and 4. The Reduced Intensity Alternative would meet the remaining project objective.

Reduced Footprint Alternative

The Reduced Footprint Alternative would reduce the total buildout square footage by 75 percent and the footprint by 50 percent as compared to the proposed project, for a total of 500,000 sf of building area. The reduced footprint would involve grading of just 70.9 acres, rather than 141.8 acres. The Alternative would involve similar operations as the proposed project; however, the production capabilities would be limited as a result of the size reduction. The Reduced Footprint Alternative would not meet Project Objective 1 or 2, and Project Objectives 3 and 4 would be only partially met. The remaining objective would be met under the Alternative.

Environmentally Superior Alternative

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. Section 15126(e)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states, "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." The No Project (No Build) Alternative would be considered the environmentally superior alternative, because the project site is assumed to remain undeveloped under the Alternative. Consequently, the impacts resulting from the proposed project would not occur under the Alternative. However, leaving the site vacant with a dilapidated building and remnants of utility infrastructure could be considered urban blight.

The Reduced Intensity Alternative would result in fewer impacts related to Air Quality and Greenhouse Gas Emissions, and Transportation and Circulation, but would result in similar impacts related to Biological Resources, Hydrology and Water Quality, and Utilities and Service Systems. The Reduced Footprint Alternative would result in fewer impacts related to Air Quality and Greenhouse Gas Emissions, Biological Resources, Hydrology and Water Quality, and Transportation and Circulation but would result in similar impacts related to Utilities and Service Systems. It should be noted that neither the Reduced Intensity Alternative would eliminate the significant and unavoidable impacts related to Transportation and Circulation and Air Quality and Greenhouse Gas Emissions; however, the Reduced Footprint Alternative would reduce significant and unavoidable impacts to less than significant. Because the Reduced Footprint Alternative would be capable of reducing more of the impacts identified for the proposed project than the Reduced Intensity Alternative, while still meeting the majority of the project objectives, the Reduced Footprint Alternative would be considered the environmentally superior alternative to the proposed project.

2.5 AREAS OF CONTROVERSY

Areas of controversy that were identified in NOP comment letters, and are otherwise known for the region, include the following:

- Increases in air quality emissions and impacts to climate change;
- Biological impacts associated with wildlife and plant habitats;

- Increased stormwater runoff causing soil erosion, flooding, or pollution;
- Concerns related to related to average daily trips and increased vehicle traffic during the holidays and over weekends;
- Increased vehicle traffic on the truck routes in the project area;
- Potential impacts related to dust that could result from grading of the project site and the import/export of soil;
- Water supply and distribution systems;
- Concerns related to the alteration of drainage on the project site and the impacts the proposed project could have on the wetlands in the area;
- Concern related to potential adverse effects on the San Joaquin River and the San Francisco Bay resulting from construction activities and operations at the project site;
- Wastewater facility impacts; and
- Increased utility service demand.

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.1 Air Quality and Greenhouse Gas Emissions			
4.1-1 Conflict with or obstruct implementation of the applicable air quality plan during project construction	S	*4.1-1(a) Prior to issuance of a grading permit, the project applicant shall show on the grading plans via notation that the contractor shall ensure that all off-road heavy-duty diesel-powered equipment (e.g., rubber tired dozers, excavators, graders, scrapers, pavers, paving equipment, and cranes) to be used for each phase of construction of the project (i.e., owned, leased, and subcontractor vehicles) shall meet California Air Resources Board (CARB) Tier 4 emissions standards or cleaner. The grading plans shall be submitted for review and approval by the Public Works and Engineering Department. In addition, all off-road equipment operating at the construction site must be maintained in proper working condition according to manufacturer's specifications. Idling shall be limited to 5 minutes or less in accordance with the Off-Road Diesel Fueled Fleet Regulation as required by CARB.* *Idling shall be limited to five minutes or less for all on-road related and/or delivery trucks in accordance with CARB's On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation. Clear Signage regarding idling restrictions should be placed at the entrances to the construction site.* *4.1-1(b) All Improvement Plans for the proposed project shall identify, via notation, that all architectural coatings, paints, finishes and adhesives used within the project*	SU

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		site during project construction and operations shall be zero-VOC emitting. Furthermore, all future leases signed for proposed structures or operational spaces within the project site must contain binding language informing future tenants of the requirement that only zero-VOC architectural coatings, paints, finishes and adhesives may be used within the project site. Inclusion of such language within Improvement Plans for project construction shall be confirmed through submittal of Improvement Plans to the City of Oakley Planning Division for review and approval.	
4.1-2 Conflict or obstruct implementation of the applicable air quality plan during project operation.	S	*4.1-2 Implement Mitigation Measure 4.1-1(b).*	LTS
4.1-3 Expose sensitive receptors to substantial pollutant concentrations.	S	*4.1-3 Prior to issuance of building permits for each phase of development, the project applicant shall show on the building plans that all loading docks shall be equipped with dedicated electrical outlets sufficient to provide power to any truck mounted transportation refrigerated units accessing the loading docks. In addition, all loading docks shall be equipped with signage stating the following, "State regulations prohibit engine idling in excess of five minutes." The building plans shall be submitted for review and approval by the City of Oakley Building Division.*	LTS
4.1-4 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-	LTS	*None required.*	N/A

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
	attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).				
4.1-5	Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	S	*4.1-5(a)* *4.1-5(b)* *4.1-5(c)*	*Implement Mitigation Measure 4.1-1(a).* *Implement Mitigation Measure 4.1-3.* *Improvement Plans and building plans for the proposed project shall identify all feasible mitigation measures developed in coordination with the BAAQMD and as determined by the City of Oakley Planning Division to reduce significant impacts to the extent feasible. Mitigation Measures may include, but would not be limited to, BAAQMD's recommended mitigation measures such as the following:* • *Orient buildings to maximize passive solar heating;* • *Improve bike and pedestrian network (complete sidewalks, connection to adjacent areas, connection to bike network, etc.);* • *Implement bicycle and pedestrian facilities such as bike lanes, routes, and paths, bike parking, sidewalks, and benches;* • *Dedicate land on-site to facilitate future connections with the Big Break Regional Trail;*	SU

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *Promote ridesharing, transit, bicycling, and walking for work trips through dedication of preferential parking spaces, provision of on-site bicycle parking, provision of end-of-trip facilities such as bicycle lockers and on-site showers;* • *Subsidize employee transit passes;* • *Install electric vehicle charging infrastructure in excess of existing CBSC requirements;* • *Provide charging stations and preferential parking spots for electric vehicles;* • *Install energy star appliances;* • *Install solar water heating;* • *Install on-site renewable energy systems;* • *Use water efficient landscapes and native/drought-tolerant vegetation;* • *Provide outdoor electrical outlets to allow for use of electrically powered landscaping equipment;* • *Construct on-site or fund off-site carbon sequestration projects (such as tree plantings or reforestation projects); and* • *Purchase carbon credits to offset project annual emissions. Carbon offset credits shall be verified and registered with The Climate Registry, the Climate Action Reserve, or another source approved by CARB, BAAQMD, or the City of Oakley.*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		If off-site mitigation measures are proposed, the applicant must be able to show that the emission reductions from identified projects are real, permanent through the duration of the project, enforceable, and are equal to the pollutant type and amount of the project impact being offset. In addition, any off-site measures shall be subject to review and approval by to City of Oakley Planning Division. BAAQMD recommends that off-site mitigation projects occur within the nine-county Bay Area in order to reduce localized impacts and capture potential co-benefits. If BAAQMD has established an off-site mitigation program at the time a development application is submitted, as an off-site mitigation measure, the applicant may choose to enter into an agreement with BAAQMD and pay into the established off-site mitigation program fund, where BAAQMD would commit to reducing the type and amount of emissions identified in the agreement.	
4.2 Biological Resources			
4.2-1 Have a substantial adverse effect, either directly or through habitat modifications, on burrowing owl.	S	*Areas of the Project Site Within the ECCC HCP/NCCP Permit Area and Off-Site Improvement Areas* *4.2-1(a) Prior to the issuance of grading or construction permits for each phase of development of the project, the applicant shall pay the applicable ECCC HCP/NCCP per-acre Development Fee in effect for Zone I in compliance with Article 7, Habitat Conservation Plan/Natural Community Conservation Plan Implementing Program, of the Oakley Municipal Code. The Development Fee will cover the*	LTS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		development of habitat that primarily includes annual grassland. Payment of the Development Fee would address the loss of potential habitat of special-status plant species associated with grasslands. The fees would be used in part to protect these affected special-status plant species by bringing existing populations of the species under protection. *Alternately, the project applicant may, in accordance with the terms of Oakley Municipal Code Article 7, offer to dedicate land in lieu of some or all of the mitigation fees. All applicable mitigation fees shall be paid, or an "in-lieu-of fee" agreement executed, prior to the issuance of a grading permit for the project.* *The Oakley Planning Division and the Contra Costa County Conservancy shall approve the final method of compliance with the ECCC HCP/NCCP provisions.* *4.2-1(b) Preconstruction Survey* *Prior to any ground disturbance related to covered activities, a USFWS/CDFW- approved biologist will conduct a preconstruction survey in areas identified in the planning surveys as having potential burrowing owl habitat. The surveys will establish the presence or absence of western burrowing owl and/or habitat features and evaluate use by owls in accordance with CDFW survey guidelines (California Department of Fish and Game 1995).*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		On the parcel where the activity is proposed, the biologist will survey the proposed disturbance footprint and a 500-foot radius from the perimeter of the proposed footprint to identify burrows and owls. Adjacent parcels under different land ownership will not be surveyed. Surveys should take place near sunrise or sunset in accordance with CDFW guidelines. All burrows or burrowing owls will be identified and mapped. Surveys will take place no more than 30 days prior to construction. During the breeding season (February 1 to August 31), surveys will document whether burrowing owls are nesting in or directly adjacent to disturbance areas. During the nonbreeding season (September 1 to January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any disturbance area. Survey results will be valid only for the season (breeding or nonbreeding) during which the survey is conducted. *Areas of the Project Site Outside the ECCC HCP/NCCP Permit Area* *4.2-1(c) Preconstruction Survey* *Prior to any ground disturbance related to covered activities, a USFWS/CDFW-approved biologist will conduct a preconstruction survey in of potential burrowing owl habitat. The surveys will establish the presence or absence of western burrowing owl*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		and/or habitat features and evaluate use by owls in accordance with CDFW survey guidelines (California Department of Fish and Game 2012). *Compensatory Habitat Mitigation* *If active owl burrows are identified during pre-construction surveys in areas of the project site outside of the ECCC HCP/NCCP Permit Area and the project would impact active burrows, the project applicant shall provide compensatory mitigation for the permanent loss of burrowing owl habitat at a ratio of 2.5 acres of higher quality owl habitat for every one acre of suitable owl habitat disturbed. The calculation of habitat loss may exclude acres currently occupied by hardscape or structures. Such mitigation may include the permanent protection of land that is deemed to be suitable burrowing owl habitat through a conservation easement deeded to a non-profit conservation organization or public agency with a conservation mission, or the purchase of burrowing owl conservation bank credits from a CDFW-approved burrowing owl conservation bank. A record of the compensatory mitigation provided by the project applicant shall be submitted to the City of Oakley Planning Division prior to initiation of ground disturbing activities.* *Entire Project Site and Off-Site Improvement Areas*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		4.2-1(d) Avoidance, Minimization, and Construction Monitoring *If burrowing owls are found during the breeding season (February 1 to August 31), the project proponent will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance will include establishment of a non-disturbance buffer zone (described below). Construction may occur during the breeding season if a qualified biologist monitors the nest and determines that the birds have not begun egg-laying and incubation or that the juveniles from the occupied burrows have fledged. During the nonbreeding season (September 1 to January 31), the project proponent should avoid the owls and the burrows they are using, if possible. Avoidance will include the establishment of a buffer zone (described below).* *During the breeding season, buffer zones of at least 250 feet in which no construction activities can occur will be established around each occupied burrow (nest site). Buffer zones of 160 feet will be established around each burrow being used during the nonbreeding season. The buffers will be delineated by highly visible, temporary construction fencing.*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		If occupied burrows for burrowing owls are not avoided, passive relocation will be implemented. Owls should be excluded from burrows in the immediate impact zone and within a 160-foot buffer zone by installing one-way doors in burrow entrances. These doors should be in place for 48 hours prior to excavation. The project area should be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation (California Department of Fish and Game 1995). Plastic tubing or a similar structure should be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.	
4.2-2 Have a substantial adverse effect, either directly or through habitat modifications, on Swainson's hawk.	S	*Areas of the Project Site Within the ECCC HCP/NCCP Permit Area and Off-Site Improvement Areas* *4.2-2(a) Implement Mitigation Measure 4.2-1(a).* *4.2-2(b) Preconstruction Survey* *Prior to any ground disturbance related to covered activities that occurs during the nesting season (March 15 to September 15), a qualified biologist will conduct a preconstruction survey no more than 1 month prior to construction to establish whether Swainson's hawk nests within 1,000 feet of the project site are occupied. If potentially occupied nests within 1,000 feet are off the project site, then their occupancy will be determined by observation from*	LTS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		public roads or by observations of Swainson's hawk activity (e.g., foraging) near the project site. If nests are occupied, minimization measures and construction monitoring are required (see below). *Avoidance, Minimization, and Construction Monitoring* *During the nesting season (March 15 to September 15), covered activities within 1,000 feet of occupied nests or nests under construction will be prohibited to prevent nest abandonment. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the Implementing Entity will coordinate with CDFW/USFWS to determine the appropriate buffer size. If young fledge prior to September 15, covered activities can proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project applicant can apply to the Implementing Entity for a waiver of this avoidance measure. Any waiver must also be approved by USFWS and CDFW. While the nest is occupied, activities outside the buffer can take place.* *All active nest trees will be preserved on site, if feasible. Nest trees, including non-native trees, lost to covered activities will be mitigated by the project*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		proponent according to the requirements of Mitigation Measure 4.2-2(c). *4.2-2(c) Should the proposed project result in the loss of non-riparian Swainson's hawk nest trees, the project applicant shall implement the following measures:* • *If determined to be feasible by the City of Oakley Planning Division, the project applicant shall provide for the planting of 15 saplings for every nest tree removed, with the objective of having at least five mature trees established for every tree lost, according to the requirements listed further below; and either of the following:* *1. Pay the Implementing Entity an additional fee to purchase, plant, maintain, and monitor 15 saplings on the ECCC HCP/NCCP Preserve System for every tree lost according to the requirements listed below; OR* *2. The project proponent will plant, maintain, and monitor 15 saplings for every tree lost at a site to be approved by the Implementing Entity (e.g., within an ECCC HCP/NCCP Preserve or existing open space linked to ECCC HCP/NCCP preserves), according to the requirements listed below.*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		The following requirements shall be met for all planting options: • *Tree survival shall be monitored at least annually for five years, then every other year until year 12. All trees lost during the first five years will be replaced. Success will be reached at the end of 12 years if at least five trees per tree lost survive without supplemental irrigation or protection from herbivory. Trees must also survive for at least three years without irrigation.* • *Irrigation and fencing to protect from deer and other herbivores may be needed for the first several years to ensure maximum tree survival.* • *Native trees suitable for this site should be planted. When site conditions permit, a variety of native trees will be planted for each tree lost to provide trees with different growth rates, maturation, and life span, and to provide a variety of tree canopy structures for Swainson's hawk. This variety will help to ensure that nest trees will be available in the short term (five-10 years for cottonwoods and willows) and in the long term (e.g., Valley oak, sycamore). This will also minimize the temporal loss of nest trees.* • *Riparian woodland restoration conducted as a result of covered activities (i.e., loss of riparian*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		woodland) can be used to offset the nest tree planting requirement above, if the nest trees are riparian species. • *Whenever feasible and when site conditions permit, trees should be planted in clumps together or with existing trees to provide larger areas of suitable nesting habitat and to create a natural buffer between nest trees and adjacent development (if plantings occur on the development site).* • *Whenever feasible, plantings on the site should occur closest to suitable foraging habitat outside the urban development area.* • *Trees planted in the HCP/NCCP preserves or other approved offsite location will occur within the known range of Swainson's hawk in the inventory area and as close as possible to high-quality foraging habitat.* *Prior to issuance of tree removal permits for the project site, the City of Oakley Planning Division shall be notified whether the proposed project would include removal of nesting trees. Should such removal be required for implementation of the proposed project, the Contra Costa County Conservancy shall be notified and the foregoing measures shall be implemented as applicable, through the tree removal permit granted by the City of Oakley.*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Areas of the Project Site Outside the ECCC HCP/NCCP Permit Area *4.2-2(d) Prior to initiation of ground disturbing activity for the project, the project applicant shall mitigate for the loss of suitable Swainson's hawk foraging habitat by implementing the following measure:* • *One acre of suitable foraging habitat shall be protected for each acre of suitable foraging habitat developed outside of the ECCC HCP/NCCP Permit Area. Protection shall be via purchase of mitigation bank credits or other land protection mechanism acceptable to the County.* *Proof of purchase of mitigation credits as required per the above mitigation options, shall be provided to the Oakley Planning Division for review and approval prior to initiation of ground disturbance for any portion of the project site.* *4.2-2(e) The project applicant shall implement the following avoidance measures for potential effects on Swainson's hawk nests during construction:* • *Prior to ground disturbing activities during the nesting season (March 15 through September 15), a qualified biologist shall conduct a pre-construction survey no more than one month prior to construction to establish whether*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		occupied Swainson's hawk nests occur on or within 1,000 feet of the area of proposed construction. The results of the survey shall be submitted to the City of Oakley Planning Division. If occupied nests are not found, then further mitigation is not required. • *If occupied nests are found, project construction activity shall not occur within a 1,000-foot buffer zone distance from the nest unless a lesser buffer zone is approved by the City in consultation with CDFW. During the nesting season, construction activities shall be avoided within the established buffer zone to prevent nest abandonment. Construction monitoring shall be required to ensure that the established buffer zone is adhered to. If young fledge prior to September 15, construction activities can proceed normally without a buffer zone. If an active nest site is present but shielded from view and noise by other development or other features, the City may waive this avoidance measure (establishment of a buffer zone) if approved by the CDFW.* • *All nest trees shall be preserved on site, if feasible. Nest trees that cannot be preserved may only be removed outside of the nesting season (i.e. nest trees may only be removed September 16 through March 14), and subject to the requirements of Mitigation Measure 4.2-2(b).*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.2-3 Have a substantial adverse effect, either directly or through habitat modifications, on Golden Eagle.	S	*Areas of the Project Site Within the ECCC HCP/NCCP Permit Area and Off-Site Improvement Areas* *4.2-3(a) Implement Mitigation Measure 4.2-1(a).* *4.2-3(b) Preconstruction Survey* *Prior to implementation of covered activities, a qualified biologist shall conduct a preconstruction survey to establish whether nests of golden eagles are occupied (see Section 6.3.1, Planning Surveys of the ECCC HCP/NCCP). If nests are occupied, the following minimization requirements and construction monitoring shall be required.* *Avoidance and Minimization* *Covered activities shall be prohibited within 0.5 mile of active nests. Nests can be built and active at almost any time of the year, although mating and egg incubation occurs late January through August, with peak activity in March through July. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be appropriate or that a larger buffer should be implemented, the Implementing Entity shall coordinate with CDFW/USFWS to determine the appropriate buffer size.* *Construction Monitoring*	LTS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Construction monitoring shall focus on ensuring that covered activities do not occur within the buffer zone established around an active nest. Although no known golden eagle nest sites occur within or near the Urban Limit Line, covered activities inside and outside of the Preserve System have the potential to disturb golden eagle nest sites. Construction monitoring shall ensure that direct effects to golden eagles are minimized.	
4.2-4 Have a substantial adverse effect, either directly or through habitat modifications, on white-tailed kite, tricolored blackbird, California black rail, saltmarsh common yellowthroat, loggerhead shrike, Suisun song sparrow, song sparrow "Modesto" population, and foraging or nesting habitat for other special-status avian species.	S	*Areas of the Project Site Within the ECCC HCP/NCCP Permit Area and Off-Site Improvement Areas* *4.2-4(a) Prior to any ground disturbance related to covered activities that occur during the nesting season (March 15 to August 31), a qualified biologist shall conduct a preconstruction survey for white-tailed kite no more than one month prior to construction to establish whether white-tailed kite is nesting in trees within or visible from the site or the off-site water quality basin. In the event active nests are found, the applicant shall notify the Implementing Entity and consult with CDFW for further guidance.* *Grasslands and trees in or near the site or the off-site water quality basin could be used by other species of nesting birds protected by the Migratory Bird Treaty Act. If possible, vegetation removal will occur outside of the general bird nesting season (February 1 through August 31). Alternately, a qualified biologist will conduct a preconstruction survey no more than*	LTS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		two weeks prior to vegetation removal. In the event active nests are found, the applicant shall notify the Implementing Entity and consult with CDFW for further guidance *Areas of the Project Site Outside the ECCC HCP/NCCP Permit Area* *4.2-4(b) If construction activities commence anytime during the nesting/breeding season of native bird species potentially nesting on or near the project site (typically February through August in the project region), a pre-construction survey for nesting birds shall be conducted by a qualified biologist within two weeks of the commencement of construction activities. The results of the survey shall be submitted to the City of Oakley Planning Division.* *If active nests are found in areas that could be directly affected or are within 500 feet of construction and would be subject to prolonged construction-related noise, an initial no-disturbance buffer zone shall be created around active nests during the breeding season or until a qualified biologist determines that all young have fledged. The initial sizes of the buffer zones and types of construction activities restricted within them shall be a minimum of 500 feet for raptors, and a minimum of 50 feet for other species, and in consultation with CDFW may be reduced enlarged by taking into account factors such as the following:*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *Noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity;* • *Distance and amount of vegetation or other screening between the construction site and the nest; and* • *Sensitivity of individual nesting species and behaviors of the nesting birds.*	
4.2-5 Have a substantial adverse effect on riparian habitat or other sensitive natural community, or State or Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	S	*Areas of the Project Site Within the ECCC HCP/NCCP Permit Area* *4.2-5(a) Prior to the issuance of grading or construction permits for each phase of development of the project, the applicant shall pay the applicable ECCC HCP/NCCP per-acre Wetland Mitigation Fee in compliance with Article 7, Habitat Conservation Plan/Natural Community Conservation Plan Implementing Program, of the Oakley Municipal Code. Payment of the Wetland Mitigation Fee would address the loss of wetland habitat within the portions of the project site covered by the ECCC HCP/NCCP. The fees would be used in part to restore or create compensatory wetlands.* *Alternately, the project applicant may, in accordance with the terms of Oakley Municipal Code Article 7, create and restore wetlands in lieu of some or all of the mitigation fees. All applicable mitigation fees shall be paid, or an "in-lieu-of fee" agreement executed,*	LTS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		prior to the issuance of a grading permit for the project. *The Oakley Planning Division and the Contra Costa County Conservancy will need to approve the final method of compliance with the ECCC HCP/NCCP provisions.* *4.2-5(b) The following measures from pages 6-33 through 6-35 of the ECCC HCP/NCCP shall be implemented avoid and minimize impacts of covered activities on wetlands:* • *The project shall comply with the guidelines in Conservation Measure 1.10 of the ECCC HCP/NCCP to minimize the effects of urban development on downstream hydrology, streams, and wetlands.* • *All wetlands to be avoided by covered activities shall be temporarily staked in the field by a qualified biologist.* • *Personnel conducting ground-disturbing activities within or adjacent to wetlands will be trained by a qualified biologist in these avoidance and minimization measures and the permit obligations of project proponents working under the ECCC HCP/NCCP.* • *Trash generated during project construction shall be promptly and properly removed from the site.*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *Construction or maintenance vehicles shall not be refueled within 200 feet of wetlands unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.* • *Appropriate erosion-control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) shall be used on site to reduce siltation and runoff of contaminants into the wetlands. Filter fences and mesh shall be of material that will not entrap reptiles and amphibians. Erosion control blankets shall be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians.* • *Fiber rolls used for erosion control shall be certified as free of noxious weed seed.* • *Seed mixtures applied for erosion control shall not contain invasive non-native species, and shall be composed of native species or sterile non-native species.* • *Herbicides shall not be applied within or adjacent to on-site wetlands unless needed to control serious invasive plants. In this case, herbicides that have been approved for use by EPA in or adjacent to aquatic habitats may be used as long as label instructions are followed and applications avoid or minimize impacts on covered species and their habitats.*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Appropriate herbicides may be applied to the ruderal grassland within the buffer area during the dry season to control nonnative invasive species such as yellow star-thistle. Herbicide drift shall be minimized by applying the herbicide as close to the target area as possible. *Areas of the Project Site Outside the ECCC HCP/NCCP Permit Area* *4.2-5(d) To the extent feasible, the project shall be designed to avoid and minimize adverse effects to waters of the U.S. or jurisdictional waters of the State of California within the project area. Prior to Improvement Plan approval for the project or any phase thereof, a Section 404 permit for fill of jurisdictional wetlands shall be acquired, and mitigation for impacts to jurisdictional waters that cannot be avoided shall conform with the USACE "no-net-loss" policy. Mitigation for impacts to both federal and State jurisdictional waters shall be addressed using these guidelines.* *If a Section 404 permit is obtained, the applicant must also obtain a water quality certification from the RWQCB under Section 401 of the Clean Water Act (CWA). Written verification of the Section 404 permit and the Section 401 water quality certification shall be submitted to the Oakley Planning Division.*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
		4.2-5(e)	*Prior to issuance of a building permit to construct the storm drain outfall, the applicant shall apply for a Section 1600 Lake or Streambed Alteration Agreement from CDFW. The information provided shall include a description of all of the activities associated with the proposed project, not just those closely associated with the drainages and/or riparian vegetation. Impacts shall be outlined in the application and are expected to be in substantial conformance with the impacts to biological resources outlined in this document. Impacts for each activity shall be broken down by temporary and permanent, and a description of the proposed mitigation for biological resource impacts shall be outlined per activity and then by temporary and permanent. Information regarding project-specific drainage and hydrology changes resulting from project implementation shall be provided as well as a description of storm water treatment methods. Minimization and avoidance measures shall be proposed as appropriate and may include:* • *Preconstruction surveys and reporting;* • *Protective fencing around avoided biological resources;* • *Worker environmental awareness training;* • *Installation and maintenance of silt curtains and/or turbidity barriers;*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *Water quality monitoring with the authority to stop work should water quality degradation occur; and/or* • *Installation of other project-specific water quality best management practices.* *In addition, mitigation may include restoration or enhancement of resources on- or off-site, purchase habitat credits from an agency-approved mitigation/conservation bank off-site, such as the Cosumnes Floodplain Mitigation Bank, working with a local land trust to preserve land, or any other method acceptable to CDFW. A written record of the Section 1600 Lake or Streambed Alteration Agreement, including all applicable minimization and avoidance measures, shall be submitted to the City of Oakley Planning Division.* *4.2-5(f) To reduce the potential for sedimentation in the permanent wetlands on-site, project construction requiring in-water work or work within areas identified as permanent wetlands within the project site shall only occur between August 1 and November 30. The work window may only be adjusted through consultation with the CDFW, NMFS, and/or USFWS. The language of this mitigation measure shall be included on final Improvement Plans submitted to the City for review and approval.*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Entire Project Site *4.2-5(g) High visibility and silt fencing shall be erected at the edge of construction/maintenance footprint if work is anticipated to occur within 50 feet of potentially jurisdictional features and riparian areas which are proposed for avoidance. A biological monitor shall be present during the fence installation and during any initial grading or vegetation clearing activities within 50 feet of potentially jurisdictional features and riparian areas which are proposed for avoidance. The language of this mitigation measure shall be included on final Improvement Plans submitted to the City for review and approval.*	
4.2-6 Have a substantial adverse effect, either directly or through habitat modifications, on special-status fish species.	S	*Entire Project Site* *4.2-6 Implement Mitigation Measures 4.2-5(e) through 4.2-5(g).*	LTS
4.2-7 Substantially interfere with movement of native, resident, or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.	LTS	*None required.*	N/A
4.2-8 Conflict with any local policies or ordinances protecting biological resources, such as the City of Oakley's Heritage and Protected Tree standards.	S	*Entire Project Site and Off-Site Improvement Areas* *4.2-8 Prior to project-related tree removal, the project applicant shall submit a tree removal permit application to the City. The permit application shall be prepared in accordance with Section 9.1.1112 and shall include the payment of tree removal or*	LTS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		protection fees as required per the City's Municipal Code. The project applicant shall be required to comply with the standards included in Section 9.1.1112 be implementing one of the options provided in Section 9.1.1112(g)(11)(a) prior to initiation of construction activities. The permit application shall be submitted to Community Development Department and approved by the Director of the Community Development Department or the Planning Commission, as applicable.	
4.2-9 Cumulative loss of biological resources in the City of Oakley.	LTS	*None required.*	N/A
4.3 Hydrology and Water Quality			
4.3-1 Violate any federal, State, or County potable water quality standards, create or contribute runoff water which would include substantial additional sources of polluted water, or otherwise substantially degrade surface or ground water quality during construction.	S	*4.3-1 Prior to any grading activities, the applicant shall provide a Stormwater Pollution Prevention Plan (SWPPP) for the entire project site which shall include construction and post construction BMPs (including both physical and programs BMPs) to the satisfaction of the City Engineer. The SWPPP shall include the following:* • *Utilize on-site sediment control BMPs to retain sediment on the project site, such as: straw wattle; silt fences, storm drain inlet protection, erosion control blankets, and concrete washouts;* • *Stabilized construction entrances and/or Wheel washing racks;*	LTS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *Cover soil, equipment and supplies that could contribute pollution prior to rainfall events or monitoring runoff;* • *Perform monitoring of discharges to the stormwater system; and* • *Provide permanent cover to stabilize the disturbed surfaces after construction has been completed, as the project is a phased development.*	
4.3-2 Violate any federal, State, or County potable water quality standards, create or contribute runoff water which would include substantial additional sources of polluted water, or otherwise substantially degrade surface or ground water quality during operations.	LTS	*None required.*	N/A
4.3-3 Substantially deplete groundwater supplies or interfere substantially with groundwater recharge.	LTS	*None required.*	N/A
4.3-4 Substantially alter the existing drainage pattern of the site or area, or increase the rate or amount of surface runoff.	S	*4.3-4 As part of the Improvement Plan submittal process, the preliminary Stormwater Control Plan provided during environmental review shall be submitted in final format for the review and approval of the City Engineer or Public Works and Engineering Department. The final Stormwater Control Plan will be reviewed in concert with the Improvement Plans to confirm conformity between the two. The report*	LTS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		shall be prepared by a Registered Civil Engineer and shall, at a minimum, include: A written text addressing existing conditions, the effects of the proposed improvements, all appropriate calculations, watershed maps, changes in flows and patterns, and proposed on- and off-site improvements to accommodate flows from this project. The report shall identify water quality protection features and methods to be used during construction, as well as long-term post-construction water quality measures. The final Stormwater Control Plan shall be prepared in conformance with the requirements of the C.3 Guidebook that are in effect at the time of Improvement Plan submittal.	
4.3-5 Substantially alter the existing drainage pattern of the site or area in such a manner as to impede or redirect flood flows.	S	*4.3-5 As part of the Improvement Plan submittal process, the project applicant shall obtain a Conditional Letter of Map Revision Based on Fill from FEMA for the placement of a development within the FEMA-identified Flood Hazard Zone AE. A copy of the Conditional Letter of Map Revision Based on Fill from FEMA shall be submitted to the Public Works and Engineering Department prior to issuance of certificates of occupancy.*	LTS
4.3-6 In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.	LTS	*None required.*	N/A
4.3-7 Cumulative impacts related to water quality.	LTS	*None required.*	N/A

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.4 Transportation and Circulation			
4.4-1 Impacts to study intersections under Existing Plus Project conditions.	LTS	*None required.*	N/A
4.4-2 Impacts to study intersections under Baseline Plus Project conditions.	S	*4.4-2 Oakley Road/Live Oak Avenue – Prior to issuance of the first building permit, the project applicant shall pay a fair-share contribution to the City of Oakley to fund widening of the westbound Oakley Road approach to the Oakley Road/Live Oak Avenue intersection to allow for a separate right turn lane, to the satisfaction of the City Engineer. The improvement is included in the City's 2017 Traffic Impact Fee Update (Item #38).*	LTS
4.4-3 Impacts to study roadway segments under Existing Plus Project and Baseline Plus Project conditions.	LTS	*None required.*	N/A
4.4-4 Impacts to freeway operations under Existing Plus Project conditions.	LTS	*None required.*	N/A
4.4-5 Impacts to pedestrian, bicycle, and transit facilities.	LTS	*None required.*	N/A
4.4-6 Impacts related to construction vehicle traffic.	S	*4.4-6 Prior to issuance of demolition or grading permits, the project applicant shall prepare and submit a Traffic Control Plan to the City for review and approval. The Traffic Control Plan shall include, but not be limited to, the following items, to the satisfaction of the City Engineer.* • *Truck drivers shall be notified of and required to use the most direct route between the site*	LTS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		and SR 4, as determined by the City Engineering Department; • *All site ingress and egress shall occur only at the main driveways to the project site and construction activities may require installation of temporary (or ultimate) traffic signals as determined by the City Engineer;* • *Specifically-designated travel routes for large vehicles shall be monitored and controlled by flaggers for large construction vehicle ingress and egress;* • *Warning signs indicating frequent truck entry and exit shall be posted on Wilbur Avenue;* • *Any debris and mud on nearby streets caused by trucks shall be monitored daily and may require instituting a street cleaning program;* • *Construction employee parking shall be provided on the project site to eliminate conflicts with nearby areas. Construction of the project shall be staggered so that employee parking demand is met primarily by using on-site parking; and* • *If importation and exportation of material becomes a traffic nuisance, the City Engineer shall limit the hours the activities can take place.*	
4.4-7 Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or	S	*4.4-7(a)* *Main Street at Bridgehead Road/Neroly Road – Prior to issuance of the first building permit or as determined by the City Engineer, the project applicant shall construct the following improvements*	LTS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
	incompatible uses (e.g., farm equipment).			*at the Main Street/Bridgehead Road/Neroly Road intersection, to the satisfaction of the City Engineer: 1) installation of a dual eastbound left turn lane and a dual northbound left-turn lane; and 2) implementation of signal coordination with the adjacent traffic signal at the SR 160 eastbound ramps. The aforementioned improvements are included in the City's 2017 Traffic Impact Fee Update (Item #47).*	
			4.4-7(b)	*<u>Main Street at Empire Avenue</u> – Prior to issuance of the first building permit or as determined by the City Engineer, the project applicant shall pay a fair share contribution to the City of Oakley to fund the installation of a dual westbound left-turn lane at the Main Street/Empire Avenue intersection, to the satisfaction of the City Engineer.*	
4.4-8	Impacts to study intersections under Cumulative Plus Project conditions.	S	*4.4-8(a)*	*<u>Bridgehead Road/Wilbur Avenue</u> – Prior to buildout of the proposed project or as determined by the City Engineer, the project applicant shall construct the installation of a four-way traffic signal with crosswalks at the Wilbur Avenue/Bridgehead Road intersection, to the satisfaction of the City Engineer. The improvement is included in the City's 2017 Traffic Impact Fee Update.*	LTS
			4.4-8(b)	*<u>Big Break Road at Main Street</u> – Prior to issuance of the first building permit or as determined by the City Engineer, the project applicant shall pay a fair share contribution to the City of Oakley to fund the following improvements to the Big Break Road/Main Street*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
				intersection, to the satisfaction of the City Engineer 1) widening of the southbound Big Break Road approach to the intersection to allow for an additional approach lane; 2) construction of a dual left turn lane on the eastbound Main Street approach to the intersection; and 3) Widening of the eastbound and westbound Main Street approaches to allow for three through lanes in each direction.	
			4.4-8(c)	*Implement Mitigation Measure 4.4-2.*	
4.4-9	Impacts to study roadway segments under Cumulative Plus Project conditions.	S	*4.4-9*	*<u>Bridgehead Road between the Planned River Oaks Crossing Entrance and the Main Street/Neroly Road Intersection</u> – Prior to issuance of certificates of occupancy or as determined by the City Engineer, the project applicant shall pay a fair-share contribution towards the widening of Bridgehead Road between the planned River Oaks Crossing entrance and the northernmost driveway at the ARCO development to include a four-lane cross-section, to the satisfaction of the City Engineer. In addition, the project applicant shall provide for the construction of the widening of Bridgehead Road between the northernmost driveway of the Arco Development and the Main Street/Neroly Road intersection to include a four-lane cross-section, to the satisfaction of the City Engineer.*	LTS
4.4-10	Impacts to freeway operations under Cumulative Plus Project conditions.	S	*4.4-10*	*Prior to issuance of building permits, the project applicant shall pay the applicable Regional Transportation Development Impact Mitigation (RTDIM) Fee to fund regional freeway system*	SU

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		improvements along SR 4. Proof of payment shall be submitted to the City of Oakley Planning Division.	
4.4-11 Substantially increase cumulative hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	S	*4.4-11 Implement Mitigation Measures 4.4-7(a), 4.4-7(b), and 4.4-8(a).*	SU
4.5 Utilities and Service Systems			
4.5-1 Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	LTS	*None required.*	N/A
4.5-2 Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.	LTS	*None required*	N/A
4.5-3 Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to	LTS	*None required.*	N/A

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
	the provider's existing commitments.			
4.5-4	Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste.	LTS	*None required.*	N/A
4.5-5	Increase in demand for utilities and service systems associated with the proposed project, in combination with future buildout of the City.	LTS	*None required.*	N/A

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less-than-Significant*; S = *Significant*; SU = *Significant and Unavoidable*

3. Project Description

3.0. PROJECT DESCRIPTION

3.1 INTRODUCTION

Section 15125 of CEQA Guidelines requires an EIR to include a description of the physical environmental conditions of the project site and the site vicinity, as they exist at the time the Notice of Preparation is published, from a local and regional perspective. Knowledge of the existing environmental setting is critical to the assessment of environmental impacts. Per CEQA Guidelines Section 15125, the description of the environmental setting shall not be longer than necessary to understand the potential significant effects of the project.

The Project Description chapter of the EIR provides a comprehensive description of the Oakley Logistics Center Project (proposed project) in accordance with CEQA Guidelines. Please note that this chapter provides an overall general description of the existing environmental conditions; however, detailed discussions of the existing setting in compliance with CEQA Guidelines Section 15125, as it relates to each given potential impact area, is included in each technical chapter of this EIR.

3.2 PROJECT LOCATION

The subject property consists of approximately 375.7 acres located on the northwest portion of the City of Oakley, adjacent to State Route (SR) 160, on Bridgehead Road, north of Main Street and the Burlington Northern Santa Fe (BNSF) Railroad (see Figure 3-1 and Figure 3-2). The subject property is situated along the southern bank of the San Joaquin River. The area immediately to the west of the subject property, south of Wilbur Avenue, is located within the City of Antioch city limits.

The subject property includes 12 existing parcels, identified as Assessor's Parcel Numbers (APNs) 037-020-008, -009, -010, and -014 through -022. While the entire subject property is approximately 375.7 acres, development of the logistics center would only occur on approximately 143.3 acres within the southwestern portion of the subject property. The 143.3-acre development area is hereinafter referred to as the project site. The remaining 232.4 acres of the subject property are hereinafter referred to as the remainder area, and would remain natural, less some potential soil borrowing on areas that are both immediately adjacent to the 143.3-acre project site and outside of any wetland or marsh areas.

3.3 BACKGROUND

The project area, located at 6000 Bridgehead Road, was once occupied by the chemical manufacturing company DuPont. From 1956 to 1997 the DuPont facility, sometimes referred to as the "Chemours" or "DuPont" site, operated as a manufacturing facility that produced chlorofluorocarbons, fuel additive anti-knock compounds (AKCs) and titanium dioxide. DuPont operated the plant from 1956 to 1997. At the height of the facility's operations, DuPont employed nearly 600 people. The facility started in making the gasoline "anti-knock" agent tetraethyl lead and refrigeration cooling compounds called Freon®. In 1963, DuPont expanded its operations to include the production of titanium dioxide, and other chemicals.

Figure 3-1
Regional Location Map

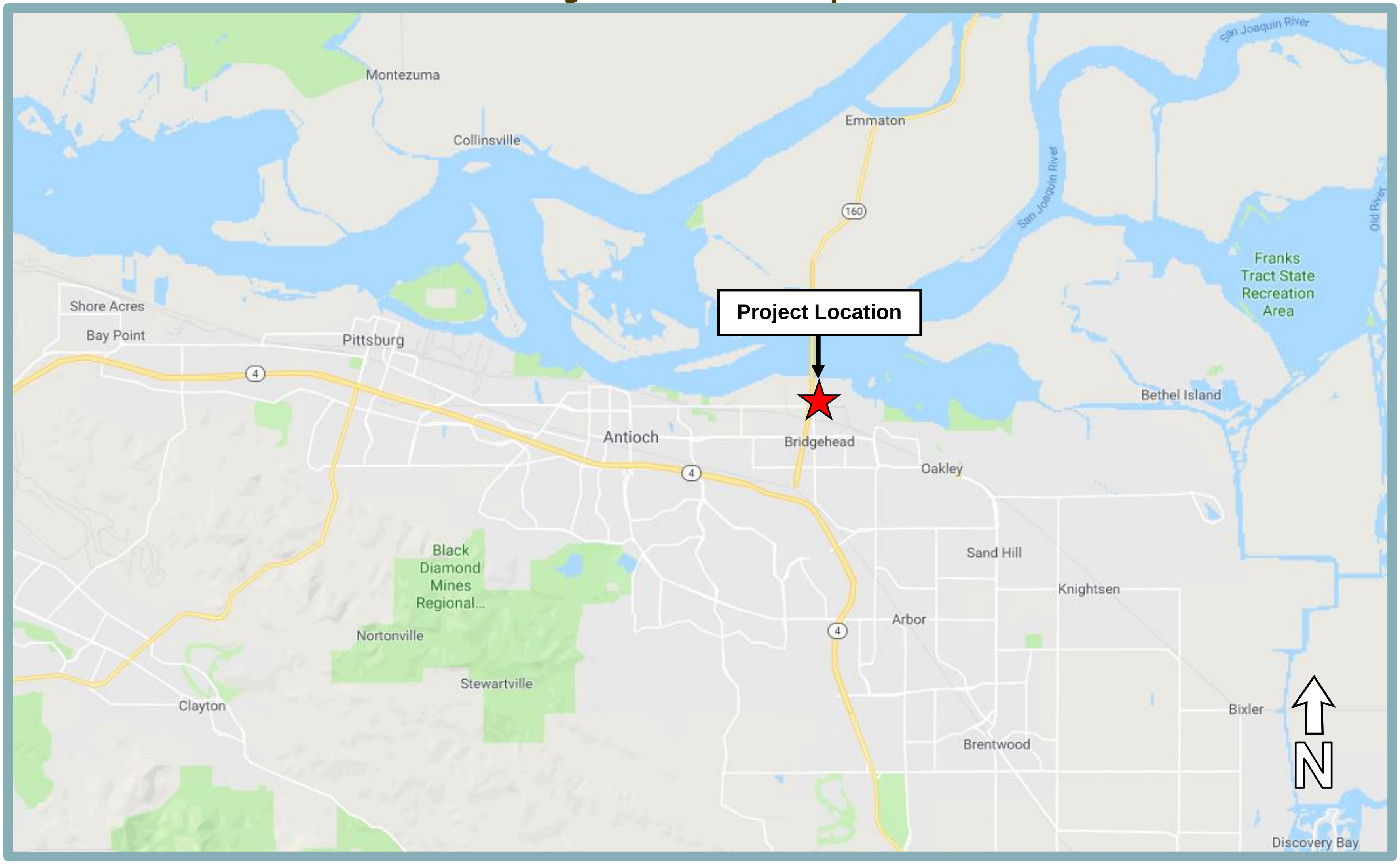
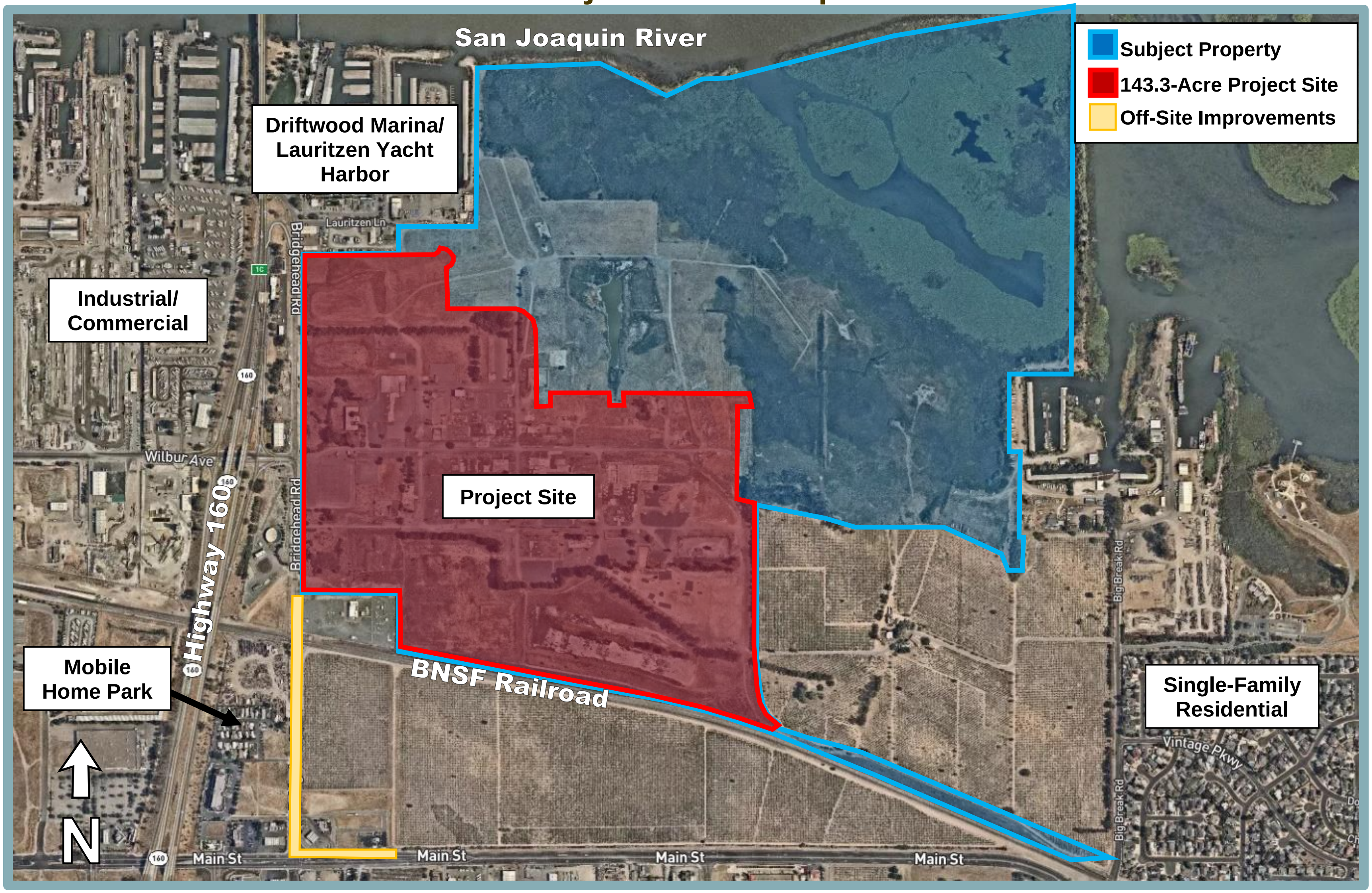


Figure 3-2
Project Location Map



All manufacturing operations ceased in 1999 and the facility has been demolished, less two dilapidated buildings and various remnants of utility infrastructure. Since 2003, the site has been undergoing extensive clean-up and remediation efforts through the Department of Toxic Substance Control (DTSC), including soil and groundwater remediation. In 2013, DuPont separated its chemical segment from its other businesses and remedial obligations for the site were transferred to Chemours who is working with DTSC on the remediation efforts. Most recent, on June 29, 2018, DSC certified a Mitigated Negative Declaration (MND) for the remaining remediation work. This remediation work is being performed in two field seasons. The first field season started in August/September 2018, and the anticipated completion date for this work is mid-2019. The anticipated start date for the second field season is August or September 2019, and the anticipated completion date is January or February 2020.

The site has been highly disturbed and altered over the years by the DuPont operations and remediation efforts. The remediation efforts will allow areas of the site to develop with industrial and commercial uses (in the 143.3-acre project site) and recreational uses (on the 232.4-acre remainder area). Additional information on the cleanup efforts for the site can be found at https://dtsc.ca.gov.

3.4 PROJECT SETTING AND SURROUNDING LAND USES

Currently, the subject property consists primarily of paved, unmaintained, and disturbed urban land. Two existing buildings, totaling approximately 11,778 sf and 2,640 sf, respectively, are located within the western portion of the subject property, near Bridgehead Road. The site is highly disturbed from past grading activities, former manufacturing operations, and current remediation work.

Per the City of Oakley 2020 General Plan, the 143.3-acre project site is currently designated Light Industrial (LI), Utility Energy (UE), and Business Park (BP) (see Figure 3-3). In addition, a 195-acre portion of the remainder area is designated Delta Recreation (DR). The subject property, including the project site, is zoned Specific Plan (SP-3) (see Figure 3-4).

The subject parcel is bordered by Bridgehead Road to the west and BNSF railroad tracks to the south. Various industrial and commercial uses, including a boat repair shop, are located west of the site across Bridgehead Road. Additional industrial and commercial development is located further west across SR 160. The areas to the south and east of the parcel consist of vineyards. A mobile home park exists to the southwest of the project site, and a single-family residential subdivision is located further east of the site, east of Big Break Road. The Big Break Marina and a construction equipment storage yard are located to the north of the subdivision. Existing uses to the northeast of the subject parcel include the Driftwood Marina, the Lauritzen Yacht Harbor, the Antioch/Oakley Regional Shoreline Park, and a canvas supply store (Canvas Factory).

3.5 PROJECT OBJECTIVES

The following objectives have been developed by the project applicant for the proposed project:

1. Develop a logistics center with approximately 2,000,000 sf of Class A industrial light warehousing, e-commerce fulfillment, distribution, and light manufacturing space consisting of five buildings.
2. Redevelop the former DuPont site with a robust logistics center that provides nearly 2,000 jobs for the region.

Figure 3-3
Current General Plan Land Use Designations

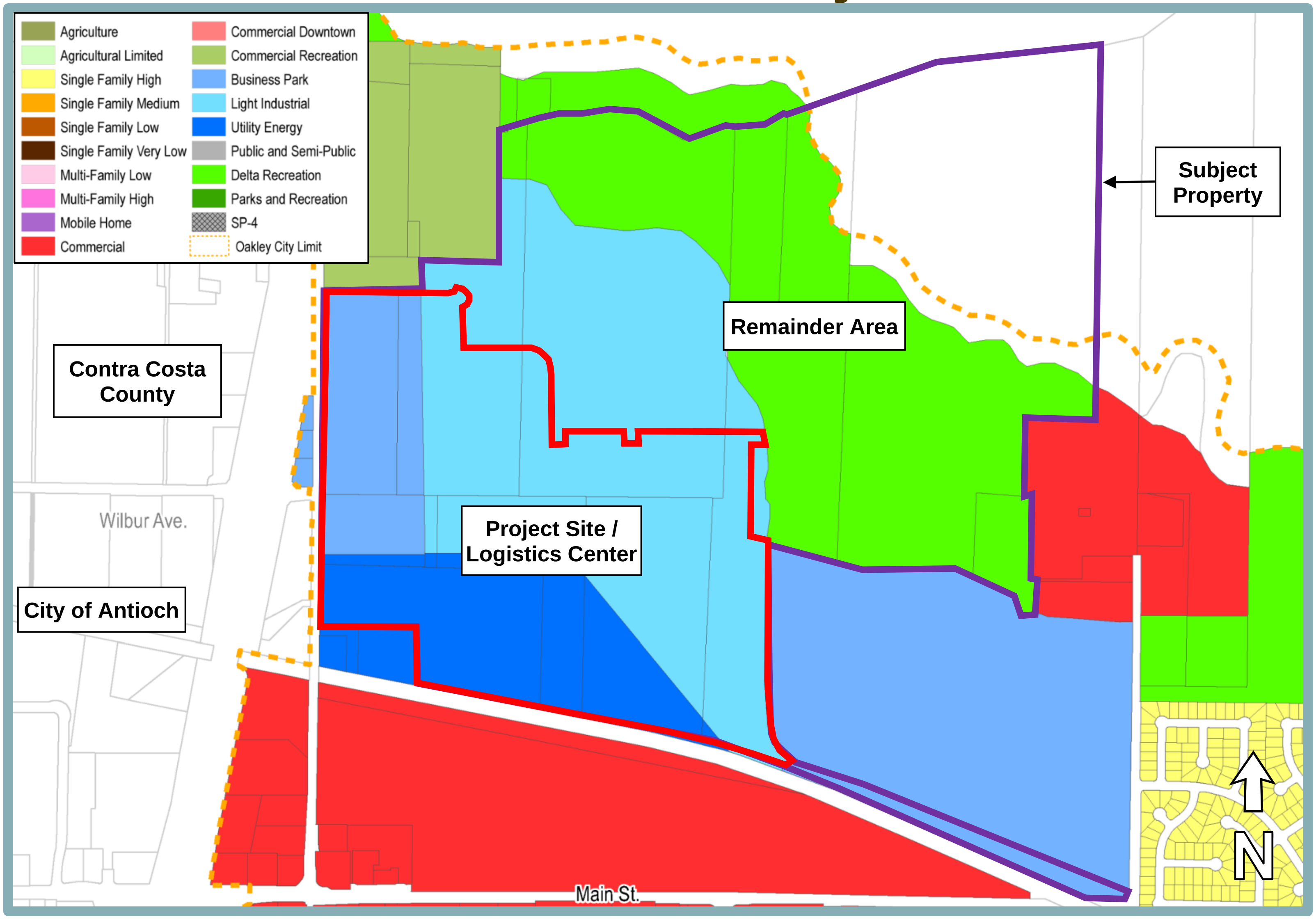
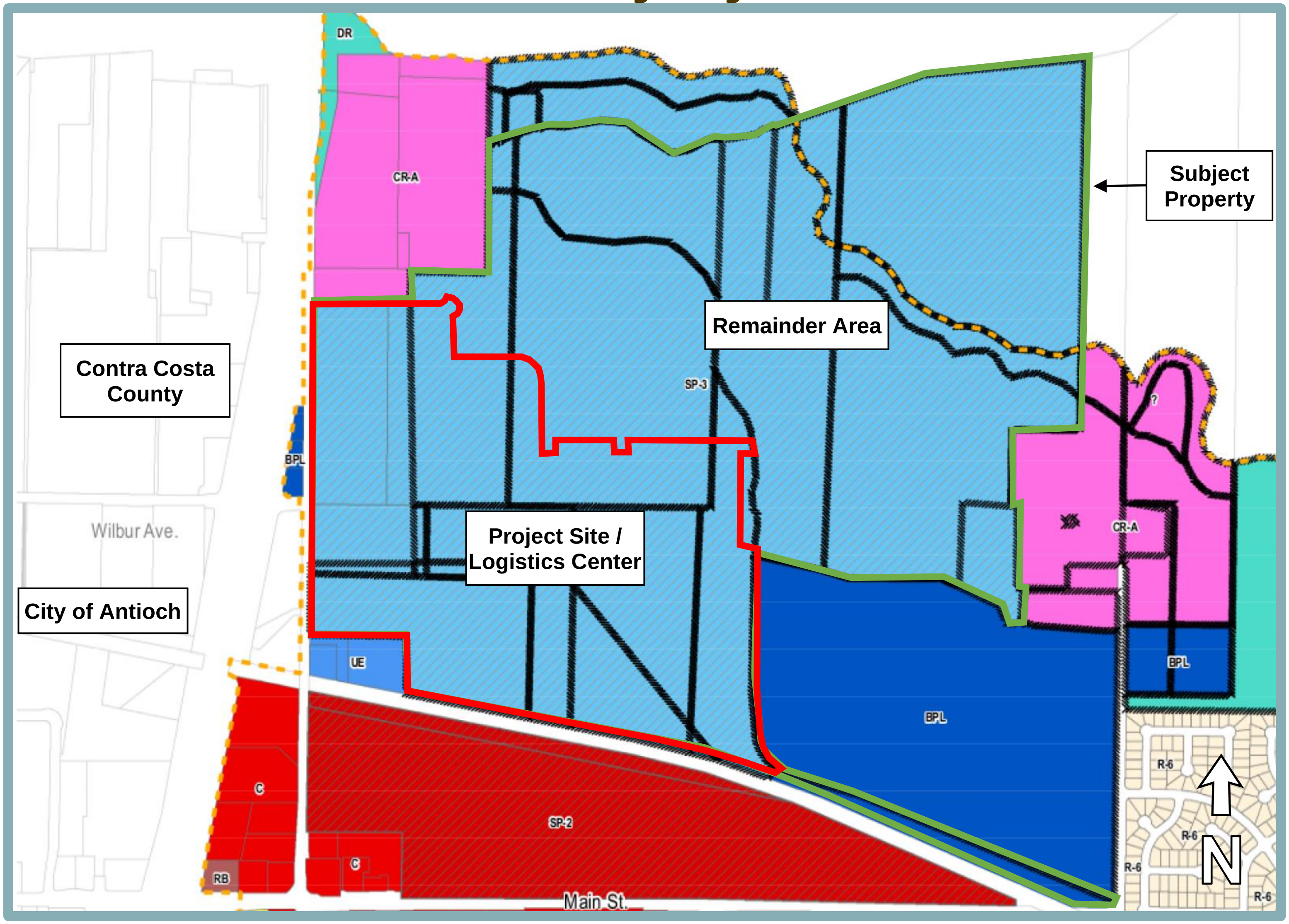


Figure 3-4
Current Zoning Designations



3. Implement a key focus in the Oakley General Plan to develop industrial and like distribution uses on the site.
4. Implement the City's vision in the General Plan to develop this site as a primary employment center.
5. Allow the sensitive area designated "Delta Recreation" on the property to remain in its natural state.

3.6 PROJECT COMPONENTS

The proposed project would include demolition of the existing on-site structures and remnant utility infrastructure and approval of a Vesting Tentative Map (and other entitlements) to subdivide the subject property into eight parcels for the construction of five new buildings and associated improvements on Lots 1 through 5 within the 143.3-acre project site (see Figure 3-5 and Figure 3-6). The following sections describe the proposed buildings, as well as access and circulation improvements, utility improvements, grading activities, and construction timing.

Proposed Buildings

The proposed buildings would range in size from approximately 150,000 square feet (sf) to 642,960 sf, for a total of approximately 2.0 million sf, and would include front load and cross docked warehouses. Table 3-1 below provides a summary of the proposed buildings.

Table 3-1
Building Summary

Building	Size (sf)	# of Parking Stalls
1	150,000*	308
2	439,920	235
3	205,344	111
4	547,080	290
5	642,960	324
Total:	**1,985,304**	**1,358**

Note: (*) Building 1 would consist of 134,474 sf of light industrial uses and 15,526 sf of storage use, to be restricted through a Condition of Approval.

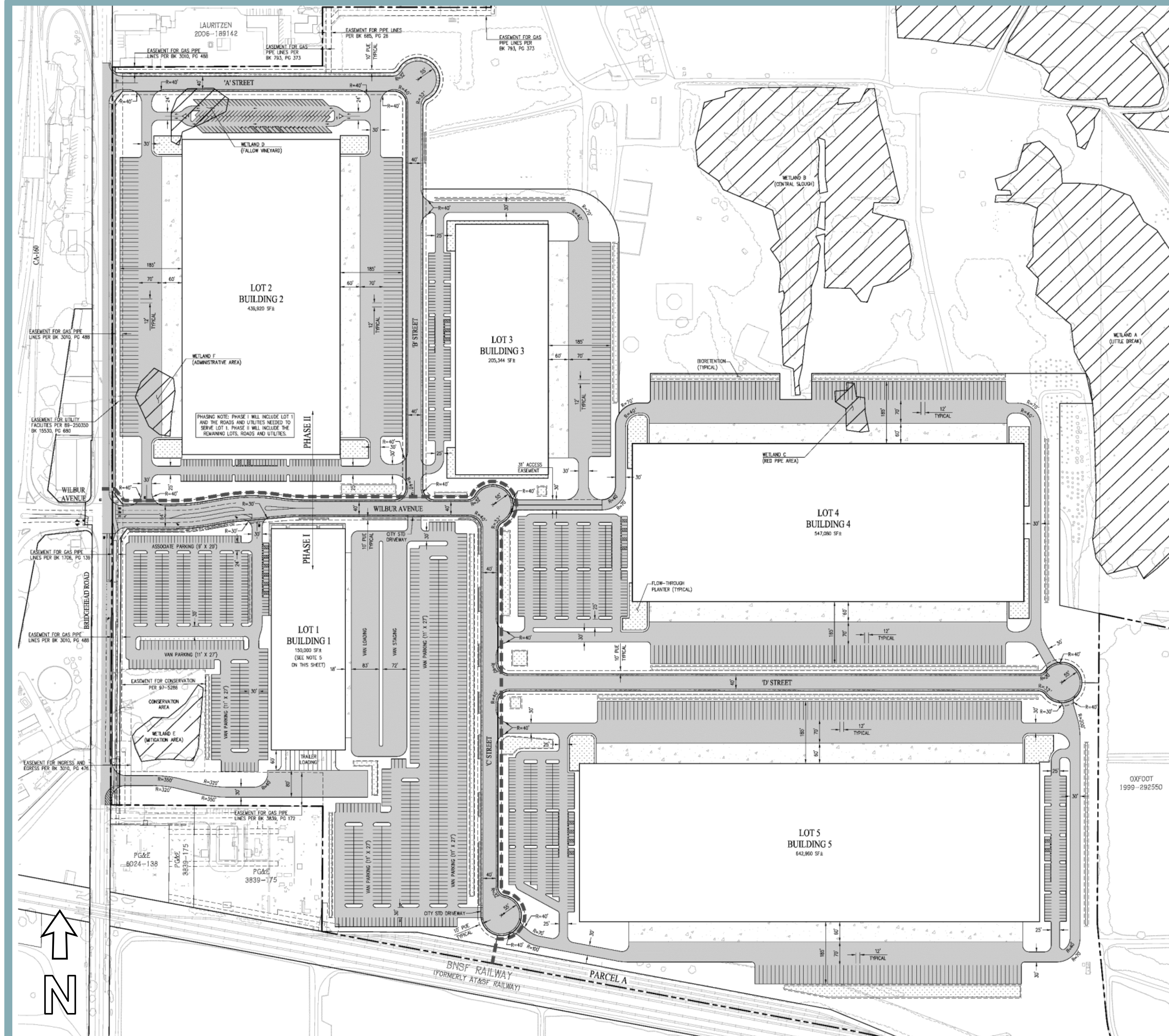
For the purpose of this EIR, the buildings are assumed to be capable of accommodating a range of light industrial, warehousing, distribution, e-commerce fulfillment, and light manufacturing uses as set forth in the Planned Unit Development. Specific uses for the buildings would be subject to the site-specific development standards established in the proposed Planned Unit Development.

Access and Circulation

The main entrance to the project site would be located on the eastern side of the intersection of Wilbur Avenue and Bridgehead Road. As part of the project, Wilbur Avenue would be extended eastward into the project site as a public street, with a roadway width of 64 feet and a 75-foot right-of-way at the site entrance. In addition, two secondary access points would be provided on Bridgehead Road: the first would be located to the south of the Wilbur Avenue entrance, and the second would be located to the north. Each of the proposed buildings would be accessible from the two northern access points, while the southernmost access would only provide access to Building 1.

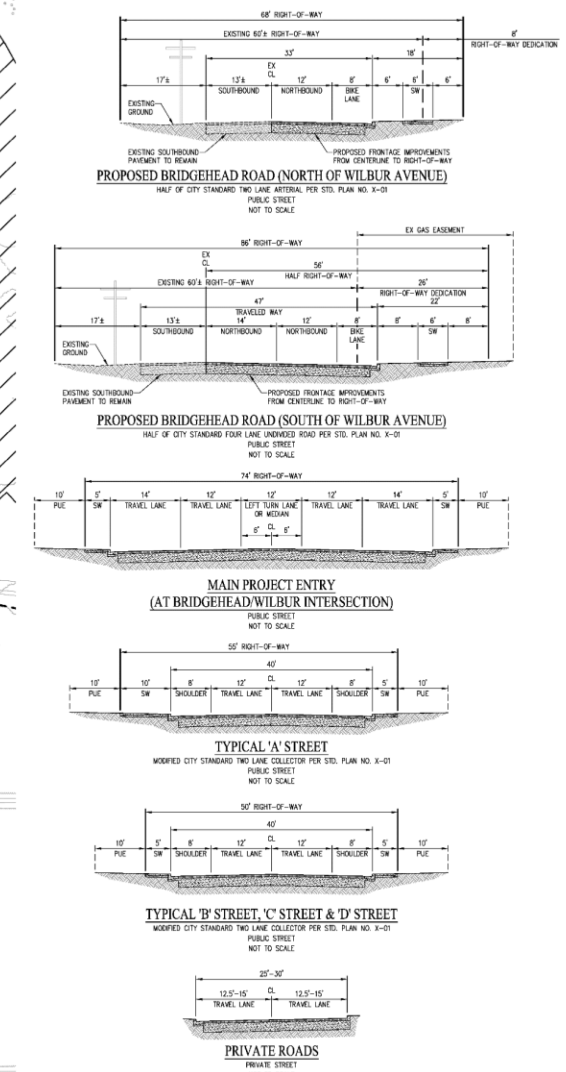
Figure 3-5
Vesting Tentative Map

Figure 3-6
Development Plan



PARKING SUMMARY			
BUILDING NO.	BUILDING FOOTPRINT	PARKING STALLS PROVIDED	PARKING RATIO
BUILDING 1	150,000 SF± (SEE NOTE 5 BELOW)	308	1:500 SF±
BUILDING 2	439,920 SF±	235	1:2,000 SF±
BUILDING 3	205,344 SF±	111	1:2,000 SF±
BUILDING 4	547,080 SF±	290	1:2,000 SF±
BUILDING 5	642,960 SF±	324	1:2,000 SF±
TOTAL	1,985,304 SF±	1,358	1:2,000 SF±

NOTES:
1. PERPENDICULAR PARKING STALLS ARE SHOWN AT 9' WIDE BY 20' DEEP. DIMENSIONS MAY BE REDUCED TO 9' WIDE BY 19' DEEP PER CITY OF OAKLEY MUNICIPAL CODE SECTION 9.1.1402 FOR FINAL DESIGN.
2. ANGLED PARKING STALLS ARE SHOWN AS 8' WIDE BY 19' DEEP MINIMUM PER CITY OF OAKLEY MUNICIPAL CODE SECTION 9.1.1402.
3. MANEUVERING AISLES BETWEEN PERPENDICULAR PARKING STALLS ARE SHOWN AT 25' WIDE. AISLES MAY BE REDUCED TO 24' WIDE PER CITY OF OAKLEY MUNICIPAL CODE SECTION 9.1.1402 FOR FINAL DESIGN.
4. MANEUVERING AISLES BETWEEN ANGLED PARKING STALLS ARE SHOWN AT 14' PER CITY OF OAKLEY MUNICIPAL CODE SECTION 9.1.1402.
5. BUILDING 1 WILL CONSIST OF 134,474 SF± LIGHT INDUSTRIAL USE AND 15,526 SF± OF STORAGE USE.



SUBDIVISION 9513
OAKLEY LOGISTICS CENTER
DIMENSIONED SITE PLAN

Along the project frontage south of Wilbur Avenue, the project would include widening of Bridgehead Road to include one 12-foot northbound through lane, one 14-foot northbound through lane, and an eight-foot bike lane. North of Wilbur Avenue, the roadway would include a new eight-foot bike lane, and the existing northbound through lane would be repaved. New curb, gutter, and separated sidewalks would be provided at the east side of Bridgehead Road along the length of the project frontage. The project would not include any improvements west of the Bridgehead Road centerline.

The widened section of Bridgehead Road and the proposed extension of Wilbur Avenue into the site would be dedicated to the City as public roadways, along with A Street, B Street, C Street, and D Street within the project site. All other access roads and parking areas would be privately maintained and would include easements as required by the City and utility agencies. Each of the five buildings would have individual access, parking areas, and loading dock access. The proposed project would include a total of 1,358 parking spaces. Parking spaces would be 9 feet wide by 20 feet deep per the City of Oakley Municipal Code Section 9.1.1402.

Consistent with the Oakley 2020 General Plan, roadway infrastructure would be constructed to meet the needs of the proposed planned unit development and provide access to the subject property. Street widths would be designed in accordance with traffic studies completed for the project, as well as the specifications within the City of Oakley Public Works and Engineering Standard Plans. Additionally, the proposed project would include a change to the General Plan Figure 3-1, Circulation Diagram, to remove the proposed extension of Live Oak Avenue through the project site (see Figure 3-7). Potential traffic effects associated with removal of the proposed extension were evaluated in a memorandum prepared for the project site by Abrams Associates Traffic Engineering, Inc.[1]

Tree Removal

The project site includes a total of 662 trees approximately 6.6 inches in diameter or greater. The trees are scattered throughout the site, with higher concentrations located within the northwest and southeast portions of the site. With development of the proposed project, most of the existing on-site trees would be removed, 130 of which are identified as heritage or protected trees. Additional information related to the on-site trees is provided in the Arborist Report prepared for the project site by Trees, Bugs, Dirt consulting (Appendix F).[2]

Off-Site Improvements

As noted below, the proposed wastewater conveyance system for the project site would include construction of a new sewer pump station located within Wilbur Avenue. In addition, a new six-inch force main would be constructed off-site within Bridgehead Road, between the proposed pump station and the existing Bridgehead Pump Station. Connection between the pump stations would require extension of the pipeline approximately 2,500 feet south. Additionally, because the existing Bridgehead Pump Station and Bridgehead Force Main would not be able to accommodate the increased wastewater flows from the project site, improvements would be required at both. Furthermore, as discussed under the Stormwater Drainage section below, the project would include off-site improvements at the Del Antico Detention Basin.

1 Abrams Associates Traffic Engineering, Inc. Analysis of potential traffic impacts associated with the proposed removal of the planned Live Oak Avenue extension (north of the River Oaks Specific Plan Area) from the City's General Plan. September 20, 2019.

2 Trees, Bugs, Dirt, Consulting. *Final Arborist Report*. December 7, 2018.

Figure 3-7
General Plan Circulation Diagram

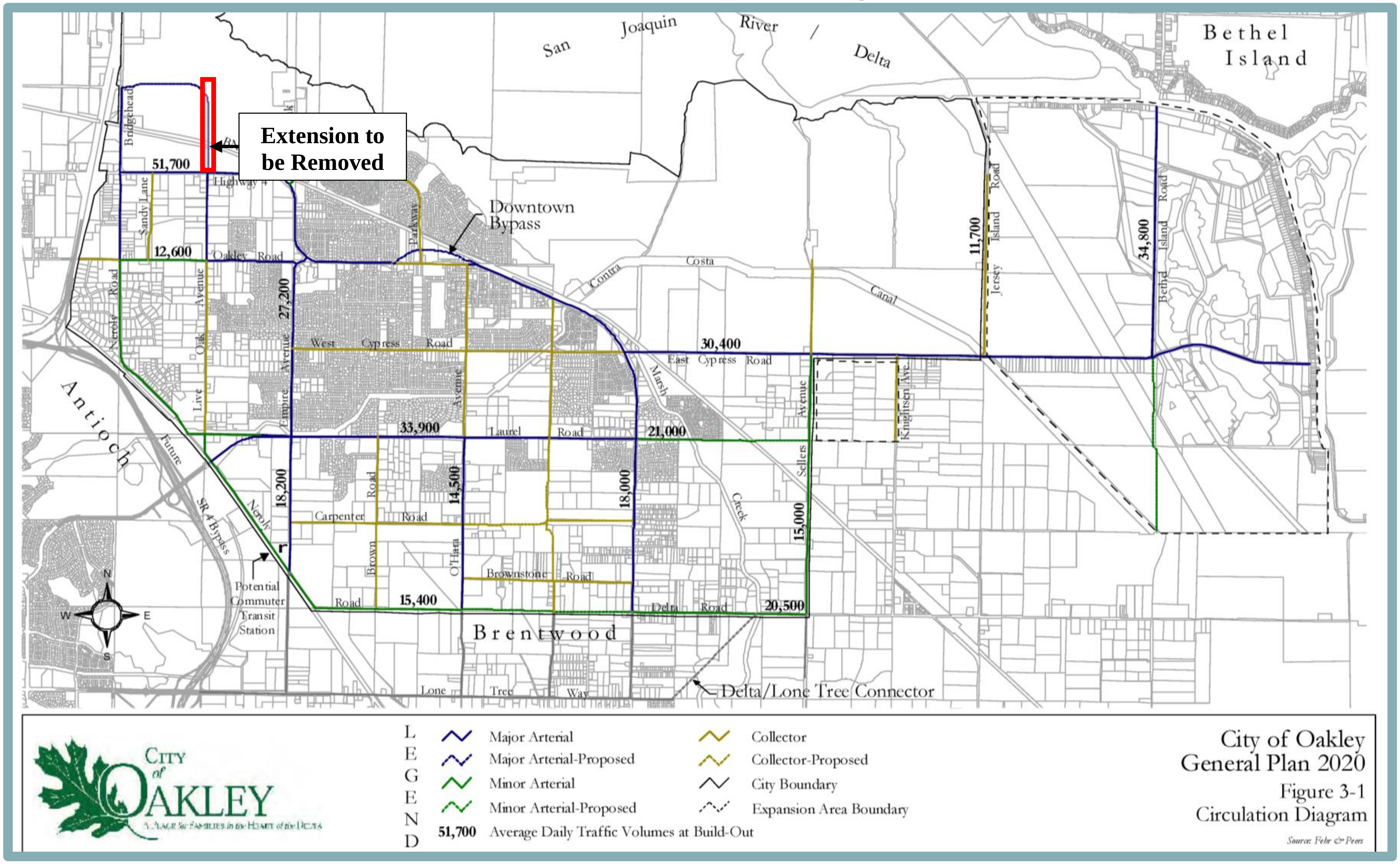
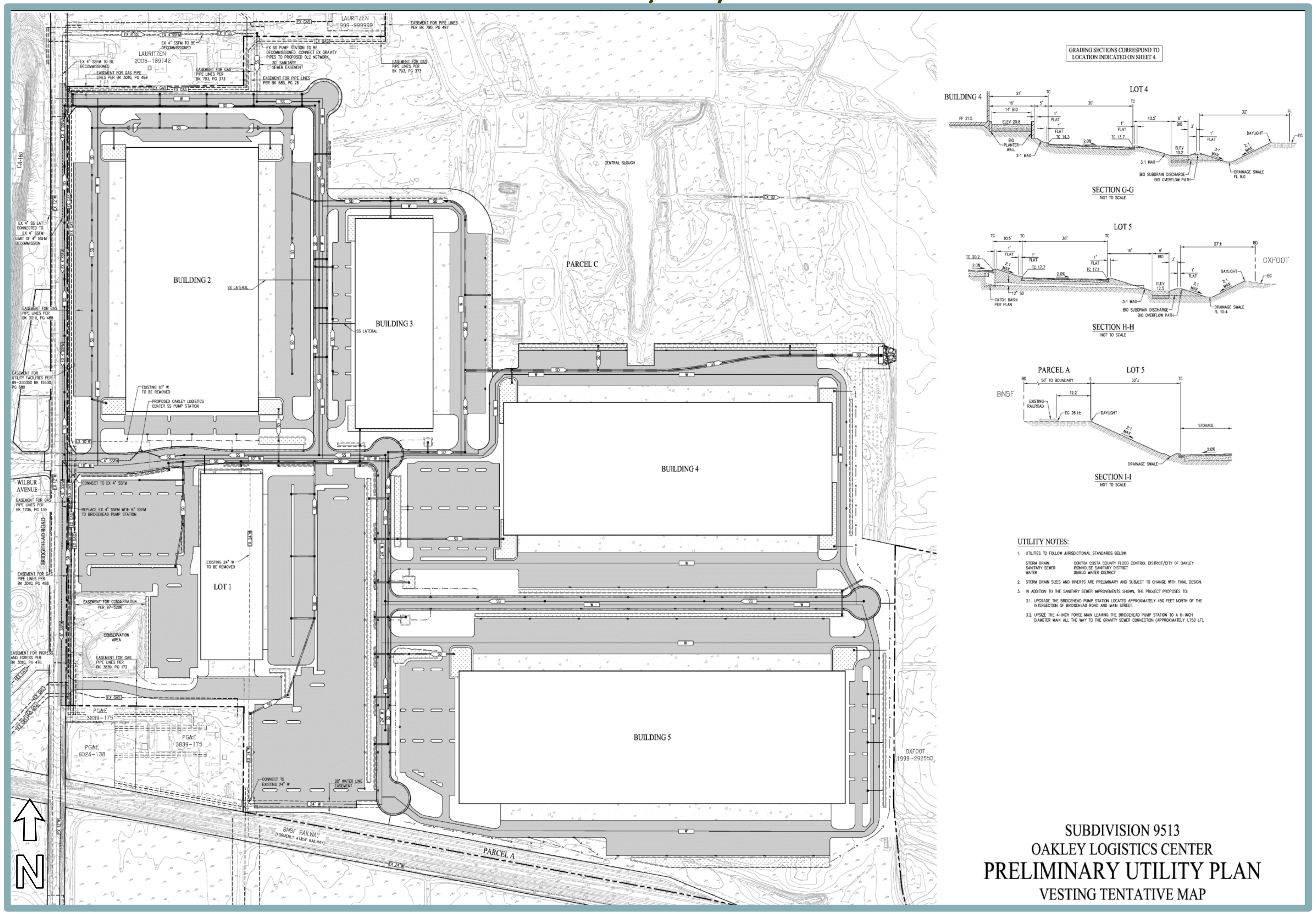


Figure 3-8
Preliminary Utility Plan



Utilities

The following sections describe water supply, sewer, and storm drainage utilities that would be constructed as part of the proposed project (see Figure 3-8).

Water

The Diablo Water District (DWD) currently provides potable water service to the project area. Along the southern boundary of the subject property, DWD maintains a 24-inch water line within the railroad corridor. At the southwest corner of the subject property, the line extends northward to Wilbur Avenue, transitioning to a 10-inch line along the way. Within Wilbur Avenue, the existing water line extends towards Bridgehead Road, where the line splits and extends further to the north and south. In addition to the DWD-owned water lines, the project site contains numerous private water lines.

As part of the proposed project, the private on-site water system would be removed completely. In addition, a portion of the existing DWD 24-inch line conflicts with the location of proposed Building 1 (the most southwesterly) and would be relocated east, under the proposed public street. Per DWD standards, any waterline serving more than one building must be owned and operated by DWD and each building must have its own metered potable water service. DWD facilities must be in public right of way or within an easement granted to DWD. Accordingly, the relocated water line in the extension of Wilbur Avenue and C Street would be owned and operated by DWD, as would any water lines within A Street and B Street. From the DWD lines, individual services to Buildings 1 through 5 would be privately owned and operated. On-site hydrants would be served by a private fire loop within the drive aisles and parking areas and will be spaced to meet Fire Code requirements. Potable and fire services would be sized to meet demand requirements calculated for each individual building and use.

Sewer

Iron House Sanitary District (ISD) provides sanitary sewer collection and treatment for the project area, including the project site. ISD operates the existing Lauritzen Sewer Pump Station in Lauritzen Lane at the north edge of the site.

From the pump station, a sewer force main in Lauritzen Lane and Bridgehead Road connects to a short section of gravity sewer piping near the off-site mobile home park. The gravity piping flows to the existing Bridgehead Sewer Pump Station near the north edge of the existing Arco AM/PM shopping center at Bridgehead Road before ultimately reaching the Ironhouse Sewer Treatment Plant near Downtown Oakley. In addition, within the project site, existing sewer lines likely connect the existing administration building to either the Lauritzen Pump Station or the sewer force main in Bridgehead Road; however, the system is not well-documented. As part of the project, such existing sewer lines would be removed. Other on-site wastewater flows including contaminated groundwater are collected in a central collection area and trucked off-site for disposal.

Wastewater flows generated from the proposed buildings would be collected by a new sanitary sewer line system within the on-site parking and drive aisles/streets, connecting to a new pump station that would be constructed near the Wilbur Avenue access at Bridgehead Road. Wastewater from the pump station would flow to a new force main constructed beneath Bridgehead Road, and eventually lead to the existing Bridgehead Pump Station. Minor upgrades to the Bridgehead pump station would be required to accommodate the increased flows from the project. In addition, the existing four-inch Bridgehead Force Main would need to be upsized with a new 10-inch pipeline in order to meet ISD velocity requirements. The new sewer pump station, force main, and any lines within public streets would be owned and operated by ISD, while all other on-site sewer collection piping would be privately operated and maintained.

Stormwater Drainage

The City of Oakley operates and maintains the existing public storm drain system in the project area. Currently, the subject property does not include any existing public stormwater drainage facilities. Stormwater runoff from the subject property either infiltrates the on-site soils or flows to the San Joaquin River along the northern boundary of the subject property. Along Bridgehead Road, the site contains three depressed areas that store and infiltrate storm water flows and do not include outfalls. The southernmost is near the PG&E site and is encumbered by a conservation easement. The other two are near the existing administration building, south of the north project site boundary.

With development of the proposed project, the two northerly infiltration basins on the project site would be filled. The infiltration basin encumbered by the conservation easement would be retained. A portion of the flows from the Building 1 area will be conveyed to the infiltration basin, consistent with historic patterns. For the remainder of the project site, stormwater runoff from impervious areas, including roofs, sidewalks, and other hardscape features would be conveyed to bio-filtration basins located throughout the site. Treated stormwater from the bio-filtration basins would be conveyed, by way of a series of new underground drainage pipes and shallow ditches, to a new armored outfall apron to the marsh area east of the proposed building area. The armored apron would prevent scour and erosion, and would be equipped with a flap gate or trash rack, as necessary, to prevent debris inflows from the Delta during high tide events. Because existing public storm drain infrastructure does not exist in the area, flows from the Bridgehead Road public right-of-way and the proposed public streets would need to be conveyed through privately-owned portions of the site to the proposed outfall. Thus, such private portions of the storm drain system would require easements to the City.

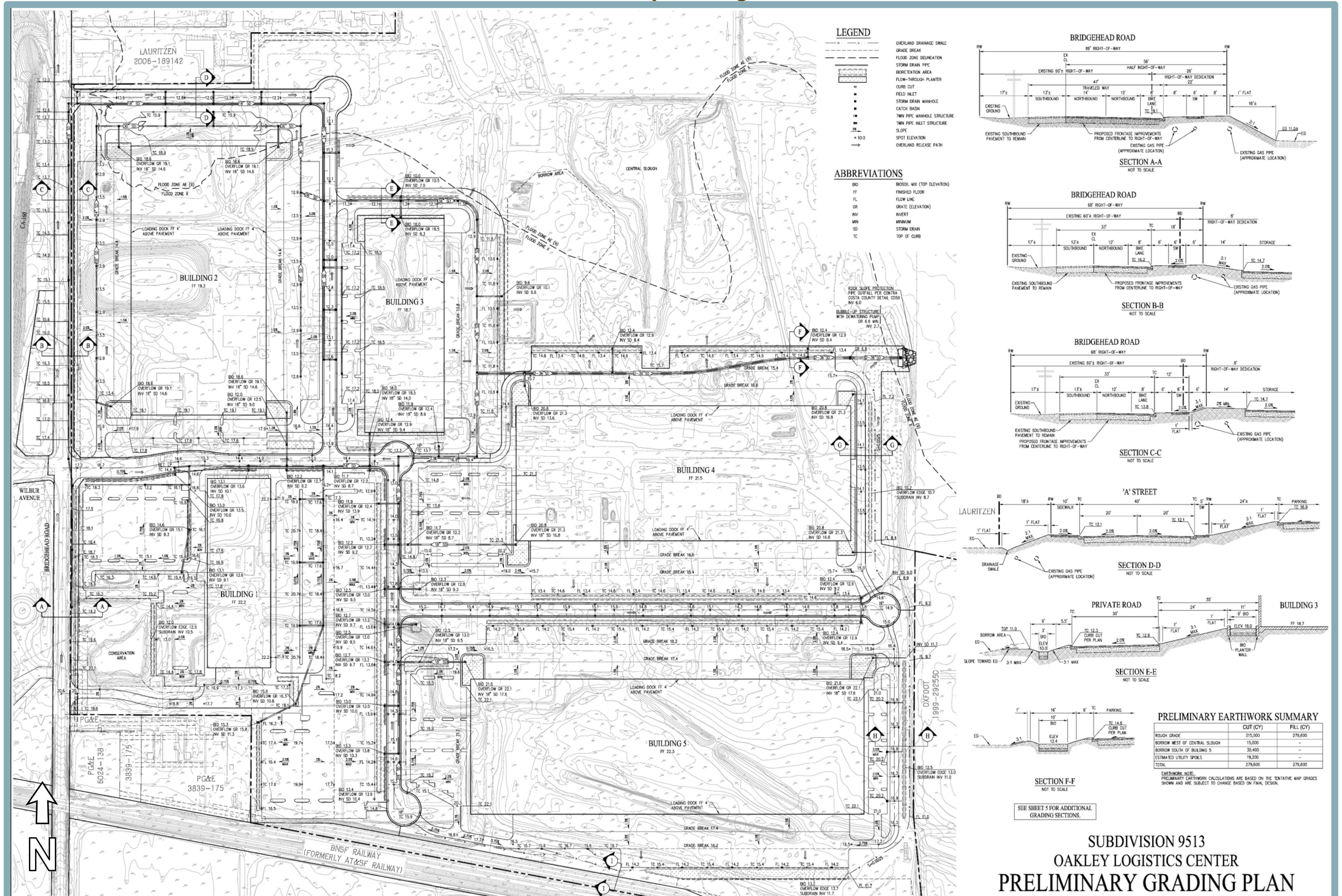
If the outfall cannot be constructed as part of the early phases of site development due to permitting or other reasons, interim detention basins would be constructed near early phase building pads or open space areas to provide storage opportunities for storm water. Such basins would be filled in once the outfall is available. Hydrology and hydraulic analysis will be required for the sizing of the proposed interim detention basins.

Due to site physical constraints, on-site stormwater treatment cannot be provided for 100 percent of the impervious drainage areas within the project site. Rather, on-site treatment can only be provided for approximately 83 percent of the impervious drainage areas within the project site. Provision C.3.e.i.1 of the Municipal Regional Storm Water Permit-Order No. R2-2015-0049 allowed LID treatment at an off-site location. Thus, off-site stormwater treatment will be located at the existing 2.9-acre Del Antico Detention Basin. The proposed off-site stormwater treatment improvements would provide regional benefits of an equivalent quantity of both stormwater runoff and pollutant loading and achieve a net environmental benefit for the City.

Grading Activities and Construction Timing

Existing grades within the project site range from a low of approximately seven (7) feet above mean sea level (M.S.L.) at the northwest corner of the site to a high of approximately 23 feet in the southwest corner (see Figure 3-9).

Figure 3-9
Preliminary Grading Plan



As part of the proposed project, the project site would be graded with a series of cuts and fills to produce an overland stormwater release path towards the proposed outfall and Delta edges. Two existing wetland areas along Bridgehead Road within the northwestern portion of the project site would be filled.

Elevations for the proposed buildings would be between approximately 19 and 22 feet with adjacent truck docks being approximately four feet below the finished floors. Cuts and fills for the site are anticipated to roughly balance; thus, net import/export of soil would not likely be required. If import/export is necessary it will likely be less than 25,000 cubic yards of material.

It is anticipated the development of the proposed project is to be constructed in two phase and the duration of construction is assumed to be three to five years. Phase I would include development of Building 1, which would include e-commerce and fulfillment uses. Phase II would include development of Buildings 2 through 5, which would include e-commerce, light manufacturing, or distribution/warehousing uses.

3.6 REQUESTED DISCRETIONARY ACTIONS

Implementation of the proposed project would require the following discretionary actions by the City of Oakley:

- Certification of the Environmental Impact Report, including adoption of Findings of Fact and a Statement of Overriding Considerations. Before the City can approve the proposed project, the City must certify that the EIR was completed in compliance with the requirements of CEQA, that the decision-making body has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the City of Davis. The City would also be required to adopt Findings of Fact, and for any impacts determined to be significant and unavoidable, a Statement of Overriding Considerations, as part of project approval.
- Adoption of the Mitigation Monitoring and Reporting Program. Certification of the EIR requires adoption of a Mitigation Monitoring and Reporting Plan (MMRP), which specifies the methods for monitoring mitigation measures required to eliminate or reduce the project's significant effects on the environment.
- Approval of a General Plan Amendment (map and text) (GP 04-18). The proposed project would require a General Plan Amendment to amend the land use designation of the 143.3-acre project site from Light Industrial/Business Park/Utility Energy to Light Industrial, and to remove the proposed extension of Live Oak Avenue from Figure 3-1, Circulation Diagram, of the General Plan (see Figure 3-7).
- Approval of a Rezone (RZ 08-18). The proposed project would require a rezone to amend the zoning designation of the 375.7-acre subject property from Specific Plan (SP-3) to Planned Unit Development (P-1).
- Approval of a Vesting Tentative Map (TM 05-18). The proposed project would include a Vesting Tentative Map to create eight parcels within the 375.7-acre subject property;
- Approval of Final Development Plan. Because the project would rezone the 375.7-acre subject property to P-1, the project would require approval of a Final Development Plan pursuant to Section 9.1.1002 of the City of Oakley Municipal Code. Standards and conditions, including permitted and conditionally permitted uses, would be provided for both the 143.3-acre project site and the 232.4-acre remainder area.
- Approval of a Design Review (DR 12-18). The proposed project would be subject to the City's Design Review process in accordance with Section 9.1.1604 of the City of Oakley

Municipal Code. The purpose of the Design Review process is to review and analysis of the project's design, including site plans, architectural elevations, conceptual landscape plans, and other physical development.

- <u>Approval of a Development Agreement (DA 01-18).</u> The proposed project includes a request for approval of a Development Agreement for the proposed development. The agreement would be between the City of Oakley and the project applicant.
- <u>Approval of a Tree Removal Permit.</u> The proposed project would require approval of a tree removal permit in accordance with Section 9.1.1112 of the City of Oakley Municipal Code.

4. Environmental Impacts and Mitigation Measures

4.0 Introduction to the Analysis

4.0. Introduction to the Analysis

4.0.1 INTRODUCTION

The technical chapters of this EIR include the analysis of the potential impacts of buildout of the proposed project on a range of environmental issue areas. Chapters 4.1 through 4.5 describe the focus of the analysis, references and other data sources for the analysis, the environmental setting related to each specific issue area, project-specific impacts and mitigation measures, and the cumulative impacts of the project for each issue area. The format of each of the technical chapters is described at the end of this chapter.

4.0.2 DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial or potentially substantial adverse change in the environment (Public Resources Code §21068). The CEQA Guidelines require that the determination of significance be based on scientific and factual data. The specific criteria for determining the significance of a particular impact are identified within in each technical chapter, and are consistent with significance criteria set forth in the CEQA Guidelines or as based on the professional judgment of the EIR preparers.

4.0.3 ENVIRONMENTAL ISSUES DISMISSED IN THE INITIAL STUDY

The Initial Study prepared for the proposed project (Appendix A) includes a detailed environmental checklist addressing a range of technical environmental issues. For each technical environmental issue, the Initial Study identifies the level of impact for the proposed project. The Initial Study identifies the environmental effects as "no impact," "less than significant," "less than significant with mitigation incorporated," and "potentially significant."

Impacts identified in the Initial Study as less-than-significant with mitigation, less than significant, or no impact are presented below. All remaining issues identified in the Initial Study as potentially significant are discussed in the subsequent technical chapters of this EIR.

- *Aesthetics (All Sections):* The proposed project is not in an area designated as a scenic vista by the City of Oakley and, according to the California Department of Transportation, State scenic highways are not located within, or within view of, the project site, and the project would not damage any scenic resources. The project site is located within an urbanized area of the City of Oakley and is currently highly disturbed and vacant. As such, views of the site would not be degraded as a result of implementation of the proposed project. In addition, development would be subject to Design Review, to ensure the proposed project would not result in the addition of substantial light or glare. Based on the above, the proposed project would result in ***less-than-significant*** impacts to Aesthetics.

- *Air Quality (d):* Typical sources of objectionable odor include wastewater treatment plants, landfills, and composting facilities, which are not proposed as part of the project, nor are such uses located near the project site. Diesel fumes from construction equipment and delivery trucks are often found to be objectionable; however, future construction of the project site would be temporary, and permanent sources of odor are not currently present or proposed on the project site. Therefore, the proposed project is not likely to create objectionable odors affecting a substantial number of people, and a ***less-than-significant*** impact would occur related to odors. Impacts related to odors are not discussed further in this EIR.

- *Biological Resources (f):* The proposed project would adhere to the East Contra Costa County Habitat Conservation Plan and, thus, would not conflict with the provisions of an adopted Habitat Conservation Plan. Therefore, a ***less-than-significant*** impact would occur because there would be no conflicts with an adopted Habitat Conservation Plan. Impacts related to Habitat Conservation Plans are not discussed further in this EIR

- *Cultural Resources (All Sections).* According to the Oakley General Plan EIR, officially designated historical structures do not exist within the City; however, numerous buildings within the downtown area may be eligible for designation or listing as historic structures. The project site does not contain any farm structures that could be eligible for historical consideration by the City, nor does the site contain any historic structures listed by the California Register of Historic Resources, National Register of Historic Places, or the California Register of Historical Landmarks. Due to the disturbed nature of the site and the surrounding area, the discovery of archeological resources is not expected. However, unknown archaeological resources, including human bone, have the potential to be uncovered during ground-disturbing construction activities. Implementation of Mitigation Measures V-1 and V-2, which require site-specific procedures if buried archaeological, paleontological, and/or cultural resources are encountered during site grading or other site work, would reduce the such impacts to a *less-than-significant* level. Therefore, the proposed project would result in a ***less-than-significant*** impact to Cultural Resources.

- *Geology and Soils (All Sections):* Although the project site is not located within an Alquist-Priolo Special Studies Zone, the General Plan EIR determined that the City of Oakley is within a seismically active zone which could expose people or structures to substantial adverse effects, including effects related to liquefaction. Implementation of Mitigation Measures VII-1 and VII-2, which require the Improvement Plans and Grading Plans to incorporate recommendations from a design-level geotechnical report for approval by the City Engineer prior to issuance of a grading permit, would reduce the above impacts to a *less-than-significant* level. On-site soils are not considered to be expansive and implementation of the proposed project would not result in substantial soil erosion or exposure of future structures to expansive soils.

  The project site has been heavily disturbed through previous filling and grading activities, manufacturing operations, and ongoing remediation activities. However unlikely, the potential exists for ground disturbing activities associated with implementation of the proposed project to discover or destroy a unique paleontological resource or geologic feature. Implementation of Mitigation Measure VII-3, which reiterates the requirement to implement Mitigation Measures V-1 and V-2, would reduce the potential impact to a *less-than-significant* level. Therefore, the proposed project would result in a ***less-than-significant*** impact to Geology and Soils.

- *Hazards and Hazardous Materials (All Sections):* The project site is the location of a former DuPont chemical manufacturing facility which ceased activities in 1999. On-site manufacturing facilities have since been demolished and remediation activities to remove or treat impacted sediment, soil, and groundwater at the site are being implemented. The project site is not listed on the Department of Toxic Substances Control- Hazardous Waste and Substances Site List (Cortese List) and operation of the proposed project would not require the use of hazardous materials. Furthermore, during construction and operation of the proposed project, the project applicant and all future operators at the project site would be required to comply with the measures included in the Soil and Materials Management Plan (SMMP) that has been prepared for the project or, alternatively, submit a separate SMMP to the Department of Toxic Substances Control for review and approval.

The project site is not located within close proximity to a school or airport, would not impair or physically interfere with an adopted emergency response plan, and is not located within or adjacent to wildlands which could expose people or structures to wildfires. Therefore, the proposed project would result in ***less-than-significant*** impacts related to Hazards and Hazardous Materials.

- *Land Use and Planning (All Sections):* The General Plan Amendment to change the Utility Energy and Business Park designation for the site to Light Industrial, and the rezone from Specific Plan to Planned Unit Development would not physically divide an established community and the project would be consistent with surrounding industrial development. As such, the proposed project would result in a ***less-than-significant*** impact.

- *Mineral Resources (All Sections):* The project site has been previously disturbed and does not constitute a likely source of minerals. The nearest active mine is the Kennedy Mine, located approximately 57 miles from the project site. Because the project would not result in the loss of availability of a known mineral resource or locally important recovery site, ***no impact*** would occur.

- *Noise (All Sections):* Operation of the proposed project would involve sources of noise that would be similar to the surrounding area, such as vehicle noise from employee trips to and from the sites, delivery trucks, and other limited noise sources. The nearest sensitive noise receptor to the project site is a mobile home park located approximately 1,000 away. Based on the Caltrans Transportation and Construction Vibration Guidance Manual, vibration generated by construction activities associated with implementation of the proposed project would not be expected to result in structural damage to nearby residences. In addition, Section 9.1.1002(4)(b)(x) of the City of Oakley Municipal Code prohibits the use of buildings and operations which involve noise levels incompatible with present or future development of surrounding property, and the nearest sensitive receptors are 1,000 feet away. Furthermore, the project site is not located within an airport land use plan or in the vicinity of a private airstrip. Therefore, the proposed project would result in a ***less-than-significant*** impact related to noise.

- *Population and Housing (All Sections):* The proposed project would require approval of a General Plan Amendment and rezone to change the land use designation of the project site from Business Park and Utility Energy to Light Industrial and the zoning from Specific Plan to Planned Unit Development. The requested changes to the site would not be expected to induce population growth for the area beyond what has been analyzed in the General Plan EIR. In addition, the project site is predominantly vacant and has been previously used as a manufacturing facility. As such, demolition of existing on-site structures would not result in the loss of housing or displacement of existence residents. Therefore, the a ***less-than-significant*** impact would occur.

- *Public Services (All Sections):* The proposed project would be used for light industrial, warehousing, distribution, e-commerce fulfillment, and light manufacturing purposes. Residences would not be developed as part of the project, and thus, an increase in schools, parks, or recreational public facilities such as trails or open spaces would not be necessary. Based on the above, the project would not result in substantial adverse physical impacts associated with the provision of new or altered governmental facilities, and thus, a ***less-than-significant*** impact would occur.

- *Recreation (All Sections):* The project would not create housing which would induce population growth in the area, and thus, would not create increased usage of existing neighborhood and regional parks or recreational facilities. Therefore, the project would have a ***less-than-significant*** impact related to recreational requirements.

- *Transportation (d):* The proposed project would construct internal circulation roads consistent with Title 19 Section 3.05 of the California Code of Regulations, which mandates right of way lanes not be less than 20 feet in width and fire/emergency access lanes be a minimum of 20 feet wide. Lanes would be built out 25 to 30 feet in width. Thus, the proposed project would have a ***less-than-significant*** impact related to inadequate emergency access.

- *Tribal Cultural Resources (All Sections):* According to a search of the California Historical Resource Information System and the California Register of Historical Resources, the project site is not eligible for listing as a historical resource. Compliant with AB 52 (Public Resources Code Section 21080.3.1), on January 28, 2019, project notification letters were distributed to local Native American Tribes. The City did not receive any requests for consultation. A low potential exists for ground disturbing activities associated with implementation of the proposed project to unearth undiscovered surficial Native American resources. Implementation of Mitigation Measures V-1 and V-2, which require all work to be stopped within 100 feet of a newly discovered archeological, paleontological, and/or tribal cultural resource, and coordination with the Contra Costa County Coroner and the Native American Heritage Commission in the event that human bone is discovered on the site, would reduce all potential construction-related impacts to a ***less-than-significant*** level.

- *Wildfire (All Sections):* The project site is located on a relatively flat surface in an urbanized area surrounded by existing commercial and residential development in the City of Oakley. In addition, the California Department of Forestry and Fire Protection Fire and Resource Assessment Program indicates that the project site is not located within or adjacent to a Very High Fire Hazard Severity Zone. Therefore, a ***less-than-significant*** impact would occur.

4.0.4 ENVIRONMENTAL ISSUES ADDRESSED IN THIS EIR

The Initial Study identified several environmental impacts as potentially significant, requiring further analysis. This EIR provides the additional analysis necessary to address the technical environmental impacts not fully resolved in the Initial Study. Consistent with the conclusions of the Initial Study, the following environmental issues are addressed in separate technical chapters of this EIR:

- Air Quality and Greenhouse Gas Emissions;
- Biological Resources;
- Hydrology and Water Quality;
- Transportation and Circulation; and
- Utilities and Service Systems.

Chapter 5.0 of the EIR presents a discussion and comprehensive list of all significant and unavoidable impacts identified in Chapters 4.1 through 4.5.

4.0.5 CHAPTER FORMAT

Each technical chapter addressing a specific environmental issue begins with an **introduction** describing the purpose of the chapter. The introduction is followed by a description of the project's **existing environmental setting** pertaining to that particular environmental issue. The setting description is followed by the **regulatory context** and the **impacts and mitigation measures** discussion. The discussion contains the **standards of significance**, followed by the **method of analysis**. The standards of significance section includes references to the specific Initial Study checklist questions consistent with Appendix G of the CEQA Guidelines. The **impacts and mitigation measures** discussion includes impact statements prefaced by a number in bold-faced type. An explanation of each impact and an analysis of the impact's significance follow each impact statement (see below), followed by all mitigation measures pertinent to each individual impact. The degree of relief provided by identified mitigation measures is also evaluated. An example of the format is shown below.

4.x-1 Statement of Impact

Discussion of impact for the proposed project in paragraph format.

Statement of ***level of significance*** of impact without implementation of mitigation is included at the end of each impact discussion. The following levels of significance without implementation of mitigation will be utilized in the EIR: less than significant and significant. If an impact is determined to be significant, mitigation will be included in order to reduce the specific impact to the maximum extent feasible. Impacts that cannot be reduced to a less-than-significant level with implementation of all feasible mitigation would be considered to remain significant and unavoidable.

<u>Mitigation Measure(s)</u>
Statement of *level of significance* of impact with implementation of mitigation is included immediately preceding the mitigation measures.

4.x-1(a) *Required mitigation measure(s) presented in italics and listed in consecutive order.*

4.x-1(b) *etc., etc.*

4.1 Air Quality and Greenhouse Gas Emissions

4.1. AIR QUALITY AND GREENHOUSE GAS EMISSIONS

4.1.1 INTRODUCTION

The Air Quality and Greenhouse Gas Emissions chapter of the EIR describes the potential impacts of the proposed project on local and regional air quality. The chapter includes a discussion of the existing air quality and greenhouse gas (GHG) setting, construction-related air quality impacts resulting from grading and equipment emissions, direct and indirect emissions associated with the project, the impacts of these emissions on both the local and regional scale, and mitigation measures warranted to reduce or eliminate any identified significant impacts. This chapter is based on the City of Oakley General Plan,[1] and the General Plan EIR,[2] the California Emissions Estimator Model (CalEEMod) version 2016.3.2,[3] and is primarily based on information, guidance, and analysis protocol provided by the Bay Area Air Quality Management District (BAAQMD). All modeling results are included in Appendix D of this EIR.

4.1.2 EXISTING ENVIRONMENTAL SETTING

The following information provides an overview of the existing environmental setting in relation to air quality within the proposed project area. Air basin characteristics, ambient air quality standards (AAQS), attainment status and regional air quality plans, local air quality monitoring, odors, sensitive receptors, and greenhouse gases are discussed.

Air Basin Characteristics

The project site is located in the eastern portion of the nine-county San Francisco Bay Area Air Basin (SFBAAB), and is within the jurisdictional boundaries of the BAAQMD. The SFBAAB consists of coastal mountain ranges, inland valleys, and bays. The proposed project is located on the south side of the San Joaquin River delta, east of the Carquinez Strait, and would be considered to be within the Carquinez Strait region of the SFBAAB. Being located between the greater Bay Area and the Central Valley has great influence on the climate and air quality of the area. During the summer and fall months, marine air is drawn eastward through the Carquinez Strait, with common wind speeds of 15 to 20 miles per hour throughout the region.

The general westerly flow of the winds in the straits tends to move pollutants east. Thus, the winds dilute pollutants and transport them away from the area, so that emissions released in the project area have more influence on air quality in the Sacramento and San Joaquin Valleys than locally. However, stationary sources located in upwind cities and the City's location downwind of the greater Bay Area also means that pollutants from other areas are transported to the City.

Average daily maximum temperatures (in degrees Fahrenheit) range from mid 50s to low 60s in the winter and the high 80s in the summer. Average minimum temperatures are in the high 30s to low 40s in the winter and the mid 50s in the summer. Rainfall amounts in the region vary, with an average of 13.3 inches annually in Oakley.

1 City of Oakley. *2020 General Plan.* February 2, 2016.
2 City of Oakley. *Oakley 2020 General Plan Environmental Impact Report.* 2002.
3 ENVIRON International Corporation and the California Air Districts. *California Emissions Estimator Model User's Guide Version 2016.3.2*. November 2017.

Ambient Air Quality Standards

Both the U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. The federal standards are divided into primary standards, which are designed to protect the public health, and secondary standards, which are designed to protect the public welfare. The ambient air quality standards for each contaminant represent safe levels that avoid specific adverse health effects. Pollutants for which air quality standards have been established are called “criteria” pollutants. Table 4.1-1 identifies the major pollutants, characteristics, health effects and typical sources. The federal and California ambient air quality standards (NAAQS and CAAQS, respectively) are summarized in Table 4.1-2. The NAAQS and CAAQS were developed independently with differing purposes and methods. As a result, the federal and State standards differ in some cases. In general, the State of California standards are more stringent than the federal standards, particularly for ozone and particulate matter (PM).

A description of each criteria pollutant, including the potential health effects from each pollutant, is provided in the following section.

Ozone

Ozone is a reactive gas consisting of three oxygen atoms. In the troposphere, ozone is a product of the photochemical process involving the sun's energy, and is a secondary pollutant formed as a result of a complex chemical reaction between reactive organic gases (ROG) and oxides of nitrogen (NO_X) emissions in the presence of sunlight. As such, unlike other pollutants, ozone is not released directly into the atmosphere from any sources. In the stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation. The primary source of ozone precursors is mobile sources, including cars, trucks, buses, construction equipment, and agricultural equipment. Ground-level ozone reaches the highest level during the afternoon and early evening hours. High levels occur most often during the summer months. Ground-level ozone is a strong irritant that could cause constriction of the airways, forcing the respiratory system to work harder in order to provide oxygen. Ozone at the Earth's surface causes numerous adverse health effects and is a major component of smog. High concentrations of ground level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments.

Reactive Organic Gas

ROG is a reactive chemical gas composed of hydrocarbon compounds typically found in paints and solvents that contributes to the formation of smog and ozone by involvement in atmospheric chemical reactions. A separate health standard does not exist for ROG. However, some compounds that make up ROG are toxic, such as the carcinogen benzene.

Oxides of Nitrogen

NO_X are a family of gaseous nitrogen compounds and are precursors to the formation of ozone and particulate matter. The major component of NO_X, nitrogen dioxide (NO_2), is a reddish-brown gas that discolors the air and is toxic at high concentrations. NO_X results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of NO_X. NO_X reacts with ROG to form smog, which could result in adverse impacts to human health, damage the environment, and cause poor visibility. Additionally, NO_X emissions are a major component of acid rain. Health effects related to NO_X include lung irritation and lung damage and can cause increased risk of acute and chronic respiratory disease.

Table 4.1-1
Summary of Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive gas produced by the photochemical process involving a chemical reaction between the sun's energy and other pollutant emissions. Often called photochemical smog.	• Eye irritation • Wheezing, chest pain, dry throat, headache, or nausea • Aggravated respiratory disease such as emphysema, bronchitis, and asthma	Combustion sources such as factories, automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	An odorless, colorless, highly toxic gas that is formed by the incomplete combustion of fuels.	• Impairment of oxygen transport in the bloodstream • Impaired vision, reduced alertness, chest pain, and headaches • Can be fatal in the case of very high concentrations	Automobile exhaust, combustion of fuels, and combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	A reddish-brown gas that discolors the air and is formed during combustion of fossil fuels under high temperature and pressure.	• Lung irrigation and damage • Increased risk of acute and chronic respiratory disease	Automobile and diesel truck exhaust, industrial processes, and fossil-fueled power plants.
Sulfur Dioxide	A colorless, irritating gas with a rotten egg odor formed by combustion of sulfur-containing fossil fuels.	• Aggravation of chronic obstruction lung disease • Increased risk of acute and chronic respiratory disease	Diesel vehicle exhaust, oil-powered power plants, and industrial processes.
Particulate Matter (PM_{10} and $PM_{2.5}$)	A complex mixture of extremely small particles and liquid droplets that can easily pass through the throat and nose and enter the lungs.	• Aggravation of chronic respiratory disease • Heart and lung disease • Coughing • Bronchitis • Chronic respiratory disease in children • Irregular heartbeat • Nonfatal heart attacks	Combustion sources such as automobiles, power generation, industrial processes, and wood burning. Also from unpaved roads, farming activities, and fugitive windblown dust.
Lead	A metal found naturally in the environment as well as in manufactured products.	• Loss of appetite, weakness, apathy, and miscarriage • Lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract	Industrial sources and combustion of leaded aviation gasoline.

Sources:

- ***California Air Resources Board. California Ambient Air Quality Standards (CAAQS). Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Accessed May 2019.***
- ***Sacramento Metropolitan, El Dorado, Feather River, Placer, and Yolo-Solano Air Districts, Spare the Air website. Air Quality Information for the Sacramento Region. Available at: http://www.sparetheair.com/health.cfm?page=healthoverall. Accessed May 2019.***
- ***California Air Resources Board. Glossary of Air Pollution Terms. Available at: http://www.arb.ca.gov/html/gloss.htm. Accessed May 2019.***

Table 4.1-2
Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS	NAAQS Primary	NAAQS Secondary
Ozone	1 Hour	0.09 ppm	-	Same as primary
	8 Hour	0.070 ppm	0.070 ppm	
Carbon Monoxide	8 Hour	9 ppm	9 ppm	-
	1 Hour	20 ppm	35 ppm	
Nitrogen Dioxide	Annual Mean	0.030 ppm	53 ppb	Same as primary
	1 Hour	0.18 ppm	100 ppb	-
Sulfur Dioxide	24 Hour	0.04 ppm	-	-
	3 Hour	-	-	0.5 ppm
	1 Hour	0.25 ppm	75 ppb	-
Respirable Particulate Matter (PM_{10})	Annual Mean	20 ug/m^3	-	Same as primary
	24 Hour	50 ug/m^3	150 ug/m^3	
Fine Particulate Matter ($PM_{2.5}$)	Annual Mean	12 ug/m^3	12 ug/m^3	15 ug/m^3
	24 Hour	-	35 ug/m^3	Same as primary
Lead	30 Day Average	1.5 ug/m^3	-	-
	Calendar Quarter	-	1.5 ug/m^3	Same as primary
Sulfates	24 Hour	25 ug/m^3	-	-
Hydrogen Sulfide	1 Hour	0.03 ppm	-	-
Vinyl Chloride	24 Hour	0.010 ppm	-	-
Visibility Reducing Particles[1]	8 Hour	see note below	-	-

ppm = parts per million
ppb = parts per billion
µg/m^3 = micrograms per cubic meter

1. Statewide Visibility Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

***Source:** California Air Resources Board. Ambient Air Quality Standards. May 4, 2016. Available at: https://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Accessed June 2019.*

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, poisonous gas produced by incomplete burning of carbon-based fuels such as gasoline, oil, and wood. When CO enters the body, the CO combines with chemicals in the body, which prevents blood from carrying oxygen to cells, tissues, and organs. Symptoms of exposure to CO can include problems with vision, reduced alertness, and general reduction in mental and physical functions. Exposure to CO can result in chest pain, headaches, reduced mental alertness, and death at high concentrations.

Sulfur Dioxide

Sulfur Dioxide (SO_2) is a colorless, irritating gas with a rotten egg odor formed primarily by the combustion of sulfur-containing fossil fuels from mobile sources, such as locomotives, ships, and off-road diesel equipment. SO_2 is also emitted from several industrial processes, such as petroleum refining and metal processing. Similar to airborne NO_X, suspended sulfur oxide particles contribute to poor visibility. The sulfur oxide particles are also a component of particulate matter, discussed below.

Particulate Matter

Particulate matter, also known as particle pollution or PM, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health impacts. The USEPA is concerned about particles that are 10 micrometers in diameter or smaller (PM_{10}) because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, the particles could affect the heart and lungs and cause serious health effects. USEPA groups particle pollution into three categories based on their size and where they are deposited:

- "Inhalable coarse particles ($PM_{2.5-10}$)," which are found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. $PM_{2.5-10}$ is deposited in the thoracic region of the lungs.
- "Fine particles ($PM_{2.5}$)," which are found in smoke and haze, are 2.5 micrometers in diameter and smaller. $PM_{2.5}$ particles could be directly emitted from sources such as forest fires, or could form when gases emitted from power plants, industries, and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.
- "Ultrafine particles (UFP)," are very, very small particles (less than 0.1 micrometers in diameter) largely resulting from the combustion of fossil fuels, meat, wood, and other hydrocarbons. While UFP mass is a small portion of $PM_{2.5}$, their high surface area, deep lung penetration, and transfer into the bloodstream could result in disproportionate health impacts relative to their mass. UFP is not currently regulated separately, but is analyzed as part of $PM_{2.5}$.

PM_{10}, $PM_{2.5}$, and UFP include primary pollutants, which are emitted directly to the atmosphere and secondary pollutants, which are formed in the atmosphere by chemical reactions among precursors. Generally speaking, $PM_{2.5}$ and UFP are emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources include the same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust. Long-term PM pollution, especially fine particles, could result in significant health problems including, but not limited to, the following: increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing; decreased lung function; aggravated asthma; development of chronic respiratory disease in children; development of chronic bronchitis or obstructive lung disease; irregular heartbeat; heart attacks; and increased blood pressure.

Lead

Lead is a relatively soft and chemically resistant metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, and, thus, essentially persists forever. Lead forms compounds with both organic and inorganic substances. As an air pollutant, lead is present in small particles. Sources of lead emissions in California include a variety of industrial activities. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out, with the result that ambient concentrations of lead have dropped dramatically. However, because lead was emitted in large amounts from vehicles when leaded gasoline was used, lead is present in many soils (especially urban soils) as a result of airborne dispersion and could become re-suspended into the air.

Because lead is only slowly excreted by the human body, exposures to small amounts of lead from a variety of sources could accumulate to harmful levels. Effects from inhalation of lead above the level of the ambient air quality standard may include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms could include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children. Lead also causes cancer.

Sulfates

Sulfates are the fully oxidized ionic form of sulfur and are colorless gases. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. The sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The sulfates standard established by CARB is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, because they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide

Hydrogen Sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. Hydrogen sulfide is extremely hazardous in high concentrations, especially in enclosed spaces (800 parts per million [ppm] can cause death).

Vinyl Chloride

Vinyl Chloride (C_2H_3Cl, also known as VCM) is a colorless gas that does not occur naturally, but is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloro-ethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) which is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Visibility Reducing Particles

Visibility Reducing Particles are a mixture of suspended particulate matter consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. The standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are also a category of environmental concern. TACs are present in many types of emissions with varying degrees of toxicity. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Common stationary sources of TACs include gasoline stations, dry cleaners, and diesel backup generators, which are subject to BAAQMD stationary source permit requirements. The other, often more significant, common source type is on-road motor vehicles, such as cars and trucks, on freeways and roads, and off-road sources such as construction equipment, ships, and trains.

Fossil fueled combustion engines, including those used in cars, trucks, and some pieces of construction equipment, release at least 40 different TACs. In terms of health risks, the most volatile contaminants are diesel particulate matter (DPM), benzene, formaldehyde, 1,3-butadiene, toluene, xylenes, and acetaldehyde. Gasoline vapors contain several TACs, including benzene, toluene, and xylenes. Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust, DPM, is composed of carbon particles and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of such chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. Diesel exhaust also contains gaseous pollutants, including volatile organic compounds and NO_X. Due to the published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects, the CARB has identified DPM from diesel-fueled engines as a TAC. Although a variety of TACs are emitted by fossil fueled combustion engines, the cancer risk due to DPM exposure represents a more significant risk than the other TACs discussed above.[4]

More than 90 percent of DPM is less than one micrometer in diameter, and, thus, DPM is a subset of $PM_{2.5}$. As a California statewide average, DPM comprises about eight percent of $PM_{2.5}$ in outdoor air, although DPM levels vary regionally due to the non-uniform distribution of sources throughout the State. Most major sources of diesel emissions, such as ships, trains, and trucks, operate in and around ports, rail yards, and heavily-traveled roadways. Such areas are often located near highly populated areas. Accordingly, elevated DPM levels are mainly an urban problem, with large numbers of people exposed to higher DPM concentrations, resulting in greater health consequences compared to rural areas.

Due to the high levels of diesel activity, high volume freeways, stationary diesel engines, rail yards and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Construction-related activities also have the potential to generate concentrations of DPM from on-road haul trucks and off-road equipment exhaust emissions.

The size of diesel particulates that are of the greatest health concern are fine particles (i.e., $PM_{2.5}$) and ultrafine particles (UFPs), which are a subset of $PM_{2.5}$. UFPs have a small diameter (on the order of 0.1 micrometers).[5] The small diameter of UFPs imparts the particulates with unique attributes, such as high surface areas and the ability to penetrate deeply into lungs. Once UFPs have been deposited in lungs, the small diameter allows the UFPs to be transferred to the bloodstream. The high surface area of the UFPs also allows for a greater adsorption of other chemicals, which are transported along with the UFPs into the bloodstream of the inhaler, where the chemicals can eventually reach critical organs.[6] The penetration capability of UFPs may contribute to adverse health effects related to heart, lung, and other organ health.[7] The majority of UFPs originate from internal combustion engines, including on-road vehicles, off-road

[4] California Air Resources Board. *Reducing Toxic Air Pollutants in California's Communities*. February 6, 2002.
[5] South Coast Air Quality Management District. *Final 2012 Air Quality Management Plan*. December 2012.
[6] Health Effects Institute. *Understanding the Health Effects of Ambient Ultrafine Particles*. January 2013.
[7] South Coast Air Quality Management District. *Final 2012 Air Quality Management Plan*. December 2012.

equipment, and stationary sources.[8] Thus, UFPs form a subset of DPM, as well as a subset of $PM_{2.5}$, and estimations of either concentrations or emissions of $PM_{2.5}$ or DPM include UFPs. UFPs are relatively short-lived pollutants, as compared to pollutants such as $PM_{2.5}$, which can persist for several weeks. Furthermore, UFPs rapidly agglomerate (stick together) and form larger particles (e.g. $PM_{2.5}$). As a result, the concentration of UFPs declines exponentially with increased distance from the source.[9]

Health risks from TACs are a function of both the concentration of emissions and the duration of exposure, which typically are associated with long-term exposure and the associated risk of contracting cancer. Health effects of exposure to TACs other than cancer include birth defects, neurological damage, and death. Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level. The identification, regulation, and monitoring of TACs is relatively new compared to criteria air pollutants that have established AAQS. TACs are regulated or evaluated on the basis of risk to human health rather than comparison to an AAQS or emission-based threshold.

Attainment Status and Regional Air Quality Plans

Areas not meeting the NAAQS presented in Table 4.1-2 above are designated by the USEPA as nonattainment. Further classifications of nonattainment areas are based on the severity of the nonattainment problem, with marginal, moderate, serious, severe, and extreme nonattainment classifications for ozone. Nonattainment classifications for PM range from marginal to serious. The Federal Clean Air Act (FCAA) requires areas violating the NAAQS to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The SIP contains the strategies and control measures for states to use to attain the NAAQS. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, rules, and regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA reviews SIPs to determine if they conform to the mandates of the FCAA amendments and would achieve air quality goals when implemented.

The CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA) of 1988. The CCAA classifies ozone nonattainment areas as moderate, serious, severe, and extreme based on severity of violations of the CAAQS. For each nonattainment area classification, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment areas, attainment plans are required to demonstrate a five-percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. Air districts with air quality that is in violation of CAAQS are required to prepare an air quality attainment plan that lays out a program to attain the CCAA mandates.

Table 4.1-3 presents the current attainment status of the SFBAAB, including Contra Costa County. As shown in the table, the area is currently designated as a nonattainment area for the State and federal ozone, State and federal $PM_{2.5}$, and State PM_{10} standards. The SFBAAB is designated attainment or unclassified for all other AAQS.

---

8 Bay Area Air Quality Management District. *Ultrafine Particulate Matter Study in the San Francisco Bay Area Part I: Study Plan*. August 23, 2010.

9 *Ibid*.

Table 4.1-3
Contra Costa County Attainment Status Designations

Pollutant	Averaging Time	California Standards	Federal Standards
Ozone	1 Hour	**Nonattainment**	Revoked in 2005
	8 Hour	**Nonattainment**	**Nonattainment**
Carbon Monoxide	8 Hour	Attainment	Attainment
	1 Hour	Attainment	Attainment
Nitrogen Dioxide	Annual Mean	-	Attainment
	1 Hour	Attainment	Unclassified
Sulfur Dioxide	Annual Mean	Attainment	Attainment
	24 Hour	Attainment	Attainment
	3 Hour	-	Unclassified
	1 Hour	Attainment	Attainment
Respirable Particulate Matter (PM_{10})	Annual Mean	**Nonattainment**	-
	24 Hour	**Nonattainment**	Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Annual Mean	**Nonattainment**	Attainment
	24 Hour	-	**Nonattainment**
Lead	30 Day Average	-	-
	Calendar Quarter	-	Attainment
	Rolling 3-Month Average	-	Attainment
Sulfates	24 Hour	Attainment	-
Hydrogen Sulfide	1 Hour	Unclassified	-
Visibility Reducing Particles	8 Hour	Unclassified	-

Source: Bay Area Air Quality Management District. Air Quality Standards and Attainment Status. Available at: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status. Accessed August 2019.

In compliance with the FCAA and CCAA, the BAAQMD periodically prepares and updates air quality plans that provide emission reduction strategies to achieve attainment of the AAQS, including control strategies to reduce air pollutant emissions through regulations, incentive programs, public education, and partnerships with other agencies. The current air quality plans were prepared in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG).

The most recent federal ozone plan is the 2001 Ozone Attainment Plan, which is a proposed revision to the Bay Area part of the SIP to achieve the federal ozone standard.[10] The plan was adopted on October 24, 2001 and approved by the CARB on November 1, 2001.

The most recent State ozone plan is the 2017 Clean Air Plan (CAP), adopted on April 19, 2017.[11] The 2017 CAP was developed as a multi-pollutant plan that provides an integrated control strategy to reduce ozone, PM, TACs, and GHGs. The control strategies included in the 2017 CAP serve as the backbone of the 2017 CAP, and build upon existing regional, state, and national programs for emissions reductions. The 2017 CAP includes 85 control measures, which provide an integrative approach to reducing ozone, PM, TAC, and GHG emissions.

10 Bay Area Air Quality Management District. *Air Quality Plans*. Available at: http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans.aspx. Accessed September 2019.
11 *Ibid.*

The aforementioned air quality plans contain mobile source controls, stationary source controls, and transportation control measures to be implemented in the region to attain the State and federal standards within the SFBAAB. The plans are based on population and employment projections provided by local governments, usually developed as part of the General Plan update process.

Local Air Quality Monitoring

Air quality is monitored by BAAQMD and CARB at various locations in the region that provide information on ambient concentrations of criteria air pollutants and TACs to help determine which air quality standards are being violated, and to direct the BAAQMD emission reduction efforts, such as developing attainment plans and rules, incentive programs, etc. The proposed project site is located nearest to the Bethel Island Road monitoring site, which is located approximately six miles east of the project site at 5551 Bethel Island Road. Data for $PM_{2.5}$, was not available for the Bethel Island Road monitoring site; thus, such data was obtained from the next nearest monitoring site, which is the Concord monitoring site located approximately 15.5 miles west of the project site at 2975 Treat Boulevard. Table 4.1-4 shows historical occurrences of pollutant levels exceeding the State and federal AAQS for the three-year period from 2016 to 2018. The number of days that each standard was exceeded is presented in the tables as well. As shown in the table, the State AAQS and the federal 8-hour AAQS for ozone were exceeded. In addition, the State PM_{10} and State and federal $PM_{2.5}$ AAQS were exceeded. All other State and federal AAQS were met in the area.

Table 4.1-4
Air Quality Data Summary for the Bethel Island Road Air Quality Monitoring Site (2016-2018)

Pollutant	Standard	Days Standard Was Exceeded		
		2016	2017	2018
1-Hour Ozone	State	0	0	0
	Federal	0	0	0
8-Hour Ozone	State	2	2	1
	Federal	2	1	1
24-Hour PM_{10}	State	0	1	2
	Federal	0	0	0
24-Hour $PM_{2.5}$*	Federal	0	6	14
1-Hour Nitrogen Dioxide	State	0	0	0
	Federal	0	0	0

*****Data obtained from the Concord monitoring site.

Source: California Air Resources Board. Aerometric Data Analysis and Management (iADAM) System. Available at: http://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed August 2019.

It should be noted that air quality in the SFBAAB during the years 2017 and 2018 was heavily impacted by wildfires in Northern California counties, such as the Tubbs Fire which burned in Napa, Sonoma, and Lake counties, the Camp Fire in Butte County, and the Mendocino Complex Fire, which burned in Mendocino, Lake, Colusa, and Glenn Counties. Smoke from the wildfires played a large role in the exceedances of the federal $PM_{2.5}$ standards in the years 2017 and 2018.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, day care centers, playgrounds, and medical facilities. A mobile home park exists southwest of the project site, as well as residences to the east across a vacant parcel. Additionally, the Orchard Park School is located over 2,200 feet south of the southern project site boundary. For analysis purposes the aforementioned residences and elementary school would be considered sensitive receptors, with the residences to the southwest being the closest receptors, approximately 1,000 feet from the project site. Residences exist along the southern boundary of the off-site Del Antico stormwater basin, and additional residences are located to the east and west of the basin.

Greenhouse Gases

GHGs are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. Some GHGs occur naturally and are emitted into the atmosphere through both natural processes and human activities. Other GHGs are created and emitted solely through human activities. The principal GHGs that enter the atmosphere due to human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated carbons. Other common GHGs include water vapor, ozone, and aerosols. Since the beginning of the Industrial Revolution, global atmospheric concentrations of GHGs have increased due to human activities such as the burning of fossil fuels, clearing of forests and other activities. The increase in atmospheric concentrations of GHG due to human activities has resulted in more heat being held within the atmosphere, which is the accepted explanation for global climate change.[12]

The primary GHG emitted by human activities is CO_2, with the next largest components being CH_4 and N_2O. The primary sources of CH_4 emissions include domestic livestock sources, decomposition of wastes in landfills, releases from natural gas systems, coal mine seepage, and manure management. The main human activities producing N_2O are agricultural soil management, fuel combustion in motor vehicles, nitric acid production, manure management, and stationary fuel combustion. Emissions of GHG by economic sector indicate that energy-related activities account for the majority of U.S. emissions. Electricity generation is the largest single-source of GHG emissions, and transportation is the second largest source, followed by industrial activities. The agricultural, commercial, and residential sectors account for the remainder of GHG emission sources.[13] Emissions of GHG are partially offset by uptake of carbon and sequestration in forests, trees in urban areas, agricultural soils, landfilled yard trimmings and food scraps, and absorption of CO_2 by the earth's oceans; however, the rate of emissions of GHGs currently outpaces the rate of uptake, thus causing global atmospheric concentrations to increase.[14] Attainment concentration standards for GHGs have not been established by the federal or State government.

Global Warming Potential

Global Warming Potential (GWP) is one type of simplified index (based upon radiative properties) that can be used to estimate the potential future impacts of emissions of various gases. According to the USEPA, the global warming potential of a gas, or aerosol, to trap heat in the atmosphere

12 U.S. Environmental Protection Agency. *Climate Change Indicators: Atmospheric Concentrations of Greenhouse Gases*. Available at: https://www.epa.gov/climate-indicators/climate-change-indicators-atmospheric-concentrations-greenhouse-gases. Accessed August 2019.

13 U.S. Environmental Protection Agency. *Sources of Greenhouse Gas Emissions*. Available at: https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions. Accessed September 2019.

14 U.S. Environmental Protection Agency. *Climate Change Indicators: Atmospheric Concentrations of Greenhouse Gases.* Available at: https://www.epa.gov/climate-indicators/climate-change-indicators-atmospheric-concentrations-greenhouse-gases. Accessed September 2019.

is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas." The reference gas for comparison is CO_2. GWP is based on a number of factors, including the heat-absorbing ability of each gas relative to that of CO_2, as well as the decay rate of each gas relative to that of CO_2. Each gas's GWP is determined by comparing the radiative forcing associated with emissions of that gas versus the radiative forcing associated with emissions of the same mass of CO_2, for which the GWP is set at one. Methane gas, for example, is estimated by the USEPA to have a comparative global warming potential 25 times greater than that of CO_2, as shown in Table 4.1-5.

Table 4.1-5
Global Warming Potentials and Atmospheric Lifetimes of Select GHGs

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)
Carbon Dioxide (CO_2)	50-200[1]	1
Methane (CH_4)	12	25
Nitrous Oxide (N_2O)	114	298
HFC-23	270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC: Tetrafluoromethane (CF_4)	50,000	7,390
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

1. For a given amount of carbon dioxide emitted, some fraction of the atmospheric increase in concentration is quickly absorbed by the oceans and terrestrial vegetation, some fraction of the atmospheric increase will only slowly decrease over a number of years, and a small portion of the increase will remain for many centuries or more.

Source: USEPA. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013. April 15, 2017.

As shown in the table, at the extreme end of the scale, sulfur hexafluoride is estimated to have a comparative GWP 22,800 times that of CO_2. The "specified time horizon" is related to the atmospheric lifetimes of such GHGs, which are estimated by the USEPA to vary from 50 to 200 years for CO_2, to 50,000 years for tetrafluoromethane. Longer atmospheric lifetimes allow GHG to buildup in the atmosphere; therefore, longer lifetimes correlate with the global warming potential of a gas. The common indicator for GHG is expressed in terms of metric tons of CO_2 equivalents ($MTCO_2e$).

Effects of Global Climate Change

Uncertainties exist as to exactly what the climate changes will be in various local areas of the Earth. According to the California Natural Resources Agency's report *Safeguarding California: Reducing Climate Risk*[15] *and the* California State Department of Justice[16] climate change impacts to California may include:

15 Natural Resources Agency. *Safeguarding California: Reducing Climate Risk*. July 2014.
16 State of California Department of Justice. *Climate Change Impacts in California*. Available at: https://oag.ca.gov/environment/impact. Accessed September 2019.

- Sea level rise, coastal flooding, and coastal erosion;
- Saltwater intrusion into the San Joaquin-Sacramento River Delta and contamination of drinking water supplies;
- Increased tree mortality, higher risk of wildfires, and reduced forestry yields;
- Reduced agricultural productivity;
- Increased frequency, duration, and intensity of conditions conducive to air pollution formation (particularly ozone);
- Reduced precipitation, changes to precipitation and runoff patterns, reduced snowfall (precipitation occurring as rain instead of snow), earlier snowmelt, decreased snowpack, and increased agricultural demand for water;
- Increased experiences of heat waves;
- Increased growing season and increased growth rates of weeds, insect pests and pathogens;
- Impacts to public health including increased risk of injury or death from dehydration, heatstroke, heart attack, and respiratory problems;
- Habitat destruction and loss of ecosystems.

4.1.3 REGULATORY CONTEXT

Air quality and GHG emissions are monitored and regulated through the efforts of various international, federal, State, and local government agencies. Agencies work jointly and individually to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for regulating and improving the air quality within the project area and monitoring or reducing GHG emissions are discussed below.

Federal Regulations

The most prominent federal regulation is the FCAA, which is implemented and enforced by the USEPA.

FCAA and USEPA

The FCAA requires the USEPA to set NAAQS and designate areas with air quality not meeting NAAQS as nonattainment. The USEPA is responsible for enforcement of NAAQS for atmospheric pollutants and regulates emission sources that are under the exclusive authority of the federal government including emissions of GHGs. The USEPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990. The USEPA has adopted policies consistent with FCAA requirements demanding states to prepare SIPs that demonstrate attainment and maintenance of the NAAQS.

State Regulations

California has adopted a variety of regulations aimed at reducing air pollution and GHG emissions. Only the most prominent and applicable California air quality- and GHG-related legislation is included below; however, an exhaustive list and extensive details of California air quality legislation can be found at the CARB website (http://www.arb.ca.gov/html/lawsregs.htm).

CCAA and CARB

The CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the CCAA. The CCAA requires that air quality plans be prepared for areas of the State that have not met the CAAQS for ozone, CO, NO_X, and SO_2. Among other requirements of the CCAA, the plans must include a wide range of implementable control measures, which often include transportation control measures and performance standards. In order to implement the transportation-related provisions of the CCAA, local air pollution control districts have been granted explicit authority to adopt and implement transportation controls. The CARB, California's air quality management agency, regulates and oversees the activities of county air pollution control districts and regional air quality management districts. The CARB regulates local air quality indirectly using State standards and vehicle emission standards, by conducting research activities, and through planning and coordinating activities. In addition, the CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the USEPA. Furthermore, the CARB is charged with developing rules and regulations to cap and reduce GHG emissions.

State Legislation Related to Air Quality

Although significant overlap exists between regulations related to air quality and GHG emissions, to the extent feasible, the following section provides the regulations related to air quality in California.

Air Quality and Land Use Handbook

CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB Handbook) addresses the importance of considering health risk issues when siting sensitive land uses, including residential development, in the vicinity of intensive air pollutant emission sources including freeways or high-traffic roads, distribution centers, ports, petroleum refineries, chrome plating operations, dry cleaners, and gasoline dispensing facilities.[17] The CARB Handbook draws upon studies evaluating the health effects of traffic traveling on major interstate highways in metropolitan California centers within Los Angeles (I-405 and I-710), the San Francisco Bay, and San Diego areas. The recommendations identified by CARB, including siting residential uses a minimum distance of 500 feet from freeways or other high-traffic roadways, are consistent with those adopted by the State of California for location of new schools. Specifically, the CARB Handbook recommends, "Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day" (CARB 2005).

Importantly, the Introduction chapter of the CARB Handbook clarifies that the guidelines are strictly advisory, recognizing that: "[l]and use decisions are a local government responsibility. The Air Resources Board Handbook is advisory and these recommendations do not establish regulatory standards of any kind." CARB recognizes that there may be land use objectives as well as meteorological and other site-specific conditions that need to be considered by a governmental jurisdiction relative to the general recommended setbacks, specifically stating, "[t]hese recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues" (CARB 2005).

Assembly Bill 1807

Assembly Bill (AB) 1807, enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. CARB is responsible for the identification and control of TACs, except pesticide use, which is regulated by the California Department of Pesticide Regulation.

[17] California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.

AB 2588

The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), California Health and Safety Code Section 44300 et seq., provides for the regulation of over 200 TACs, including DPM, and is the primary air contaminant legislation in California. Under the act, local air districts may request that a facility account for its TAC emissions. Local air districts then prioritize facilities on the basis of emissions, and high priority designated facilities are required to submit a health risk assessment and communicate the results to the affected public.

Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations

In 2002, the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations (Title 17, Section 93105, of the California Code of Regulations) went into effect, which requires each air pollution control and air quality management district to implement and enforce the requirements of Section 93105 and propose their own asbestos ATCM as provided in Health and Safety Code section 39666(d).[18]

Senate Bill 656

In 2003, the Legislature passed Senate Bill (SB) 656 to reduce public exposure to PM_{10} and $PM_{2.5}$ above the State CAAQS. The legislation requires the CARB, in consultation with local air pollution control and air quality management districts, to adopt a list of the most readily available, feasible, and cost-effective control measures that could be implemented by air districts to reduce PM_{10} and $PM_{2.5}$ emissions. The CARB list is based on California rules and regulations existing as of January 1, 2004, and was adopted by CARB in November 2004. Categories addressed by SB 656 include measures for reduction of emissions associated with residential wood combustion and outdoor greenwaste burning, fugitive dust sources such as paved and unpaved roads and construction, combustion sources such as boilers, heaters, and charbroiling, solvents and coatings, and product manufacturing. Some of the measures include, but are not limited to, the following:

- Reduce or eliminate wood-burning devices allowed;
- Prohibit residential open burning;
- Permit and provide performance standards for controlled burns;
- Require water or chemical stabilizers/dust suppressants during grading activities;
- Limit visible dust emissions beyond the project boundary during construction;
- Require paving/curbing of roadway shoulder areas; and
- Require street sweeping.

Under SB 656, each air district is required to prioritize the measures identified by CARB, based on the cost effectiveness of the measures and their effect on public health, air quality, and emission reductions. Per SB 656 requirements, the BAAQMD amended their Regulation 6, Rule 3 related to wood-burning appliances to include conditions consistent with SB 656, including such conditions as the prohibition of the installation of any new, permanently installed, indoor or outdoor, uncontrolled wood-burning appliances.

18 California Air Resources Board. *2002-07-29 Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations*. June 3, 2015. Available at: http://www.arb.ca.gov/toxics/atcm/asb2atcm.htm. Accessed April 2017.

Heavy-Duty Vehicle Idling Emission Reduction Program

On October 20, 2005, CARB approved a regulatory measure to reduce emissions of toxics and criteria pollutants by limiting idling of new and in-use sleeper berth equipped diesel trucks.[19] The regulation consists of new engine and in-use truck requirements and emission performance requirements for technologies used as alternatives to idling the truck's main engine. For example, the regulation requires 2008 and newer model year heavy-duty diesel engines to be equipped with a non-programmable engine shutdown system that automatically shuts down the engine after five minutes of idling, or optionally meet a stringent NO_X emission standard. The regulation also requires operators of both in-state and out-of-state registered sleeper berth equipped trucks to manually shut down their engine when idling more than five minutes at any location within California beginning in 2008. Emission producing alternative technologies such as diesel-fueled auxiliary power systems and fuel-fired heaters are also required to meet emission performance requirements that ensure emissions are not exceeding the emissions of a truck engine operating at idle.

In-Use Off-Road Diesel Vehicle Regulation

On July 26, 2007, CARB adopted a regulation to reduce DPM and NO_X emissions from in-use (existing), off-road, heavy-duty diesel vehicles in California.[20] Such vehicles are used in construction, mining, and industrial operations. The regulation is designed to reduce harmful emissions from vehicles by subjecting fleet owners to retrofit or accelerated replacement/repower requirements, imposing idling limitations on owners, operators, renters, or lessees of off-road diesel vehicles. The idling limits require operators of applicable off-road vehicles (self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on-road) to limit idling to less than five minutes. The idling requirements are specified in Title 13 of the California Code of Regulations.

State Legislation Related to GHG Emissions

Although significant overlap exists between regulations related to air quality and GHG emissions, to the extent feasible, the following section provides the regulations related to GHG emissions in California.

AB 1007

AB 1007, State Alternative Fuels Plan (Pavley, Chapter 371, Statutes of 2005), required development and adoption of a State plan to increase the use of alternative fuels. The final *State Alternative Fuels Plan* was adopted on December 5, 2007 and presented strategies and actions California must take to increase the use of alternative, non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. Examples of such strategies include establishment of government incentive programs for alternative fuels, creation of a Low Carbon Fuel Standard to reduce the carbon intensity of transportation fuels, and the allowance of GHG emissions credits to entities using alternatively fueled vehicles. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality. The Plan recommended goals for alternative fuel use as well as reductions in the carbon intensities of fuels such as gasoline and diesel, and lays a

---

19 California Air Resources Board. *Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling*. October 24, 2013. Available at: http://www.arb.ca.gov/msprog/truck-idling/truck-idling.htm. Accessed August 2016.

20 California Air Resources Board. *In-Use Off-Road Diesel Vehicle Regulation*. December 10, 2014. Available at: http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm. Accessed August 2019.

foundation for building a multi-fuel transportation energy future for California by 2050. As of 2017, decreases in the carbon intensity of conventional fuels have met or exceeded the compliance targets, and the use of alternative fuels has increased by approximately 800 million gallons of gas equivalence units.[21]

AB 1493

California AB 1493 (Stats. 2002, ch. 200) (Health & Safety Code, §42823, 43018.5), known as Pavley I, was enacted on July 22, 2002. AB 1493 requires that the CARB develop and adopt regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by the CARB to be vehicles whose primary use is noncommercial personal transportation in the state." On June 30, 2009, the USEPA granted a waiver of CAA preemption to California for the State's GHG emission standards for motor vehicles, beginning with the 2009 model year. Pursuant to the CAA, the waiver allows for the State to have special authority to enact stricter air pollution standards for motor vehicles than the federal government's. On September 24, 2009, the CARB adopted amendments to the Pavley regulations (Pavley I) that reduce GHG emissions in new passenger vehicles from 2009 through 2016. The second phase of the Pavley regulations (Pavley II) is expected to affect model year vehicles from 2016 through 2020. The CARB estimates that the regulation would reduce GHG emissions from the light-duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030.

It should be noted that the State's waiver was officially revoked by the USEPA on September 19, 2019. However, the State's ability to set tailpipe emissions standards will be settled in court, and long-term elimination of CARB's adopted amendments to the Pavley regulations is speculative at this time. Thus, for the purpose of this analysis, such emissions standards are assumed to apply to the project.

Renewable Portfolio Standard (RPS) and SB 100

Established in 2002 under SB 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2, California's RPS is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020.

Since the inception of the RPS program, the program has been extended and enhanced multiple times. In 2015, SB 350 extended the State's RPS program by requiring that publicly owned utilities procure 50 percent of their electricity from renewable energy sources by 2030. The requirements of SB 350 were expanded and intensified in 2018 through the adoption of SB 100, which mandated that all electricity generated within the State by publicly owned utilities be generated through carbon-free sources by 2045. In addition, SB 100 increased the previous renewable energy requirement for the year 2030 by 10 percent; thus requiring that 60 percent of electricity generated by publicly owned utilities originate from renewable sources by 2030.

Executive Order S-03-05

On June 1, 2005, then-Governor Schwarzenegger signed Executive Order S-03-05, which established total GHG emission targets. Specifically, emissions are to be reduced to year 2000

[21] California Air Resources Board. *Low Carbon Fuel Standard Data Dashboard*. Available at: https://www.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm. Accessed May 2019.

levels by 2010, 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (Cal-EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary is also directed to submit biannual reports to the governor and state legislature describing: (1) progress made toward reaching the emission targets; (2) impacts of global warming on California's resources; and (3) mitigation and adaptation plans to combat these impacts.

To comply with the Executive Order, the Secretary of the Cal-EPA created a Climate Act Team (CAT) made up of members from various State agencies and commissions. In March 2006, CAT released their first report. In addition, the CAT has released several "white papers" addressing issues pertaining to the potential impacts of climate change on California.

AB 32

In September 2006, AB 32, the California Climate Solutions Act of 2006, was enacted (Stats. 2006, ch. 488) (Health & Saf. Code, §38500 et seq.). AB 32 delegated the authority for its implementation to the CARB and directs CARB to enforce the State-wide cap. Among other requirements, AB 32 required CARB to (1) identify the State-wide level of GHG emissions in 1990 to serve as the emissions limit to be achieved by 2020, and (2) develop and implement a Scoping Plan. Accordingly, the CARB has prepared the *Climate Change Scoping Plan* (Scoping Plan) for California, which was approved in 2008 and updated in 2014 and 2017.[22] The following sections present further information regarding plans and programs that have been introduced in order to meet the statutory requirements of AB 32.

California Scoping Plan

The 2008 Scoping Plan identified GHG reduction measures that would be necessary to reduce statewide emissions as required by AB 32. Many of the GHG reduction measures identified in the 2008 Scoping Plan have been adopted, such as the Low Carbon Fuel Standard, Pavley, Advanced Clean Car standards, RPS, and the State's Cap-and-Trade system.

Building upon the 2008 Scoping Plan, the 2013 and 2017 Scoping Plan Updates introduced new strategies and recommendations to continue GHG emissions reductions. The 2013 Scoping Plan Update created a framework for achievement of 2020 GHG reduction goals and identified actions that may be built upon to continue GHG reductions past 2020, as required by AB 32. Following the 2013 Scoping Plan, the 2017 Scoping Plan sets a path for the achievement of California's year 2030 GHG reduction goals.

California GHG Cap-and-Trade Program

California's GHG Cap-and-Trade Program was originally envisioned in the 2008 Scoping Plan as a key strategy to achieve GHG emissions reductions mandated by AB 32. The Cap-and-Trade Program is intended to put California on the path to meet the GHG emission reduction goal of 1990 levels by the year 2020, and ultimately achieving an 80 percent reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors has been established and facilities or industries subject to the cap are be able to trade permits (allowances) to emit GHGs. The CARB designed the California Cap-and-Trade Program to be enforceable and to meet the requirements of AB 32.[23] The Program started on January 1, 2012, with an enforceable

[22] California Air Resources Board. *AB 32 Scoping Plan*. Accessible at: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed September 2019.
[23] California Air Resources Board. *Overview of ARB Emissions Trading Program*. Available at: https://www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf. Accessed February 2018.

compliance obligation beginning with the 2013 GHG emissions. On January 1, 2014 California linked the state's cap-and-trade plan with Quebec's, and on January 1, 2015 the program expanded to include transportation and natural gas fuel suppliers.[24] AB 398 was adopted by the State's legislature in July 2017, which reauthorized the Cap-and-Trade Program through December 31, 2030. The reauthorization and continued operation of the Cap-and-Trade Program represents a key strategy within the State's 2017 Scoping Plan Update for the achievement of California's year 2030 GHG reduction goals.

Executive Order S-01-07

On January 18, 2007, then-Governor Schwarzenegger signed Executive Order S-01-07, which mandates that a State-wide goal be established to reduce carbon intensity of California's transportation fuels by at least 10 percent by 2020. The Order also requires that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California.

SB 97

As amended, SB 97, signed in August 2007, acknowledges that climate change is an important environmental issue that requires analysis under CEQA. The bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. As directed by SB 97, the OPR amended the CEQA Guidelines to provide guidance to public agencies regarding the analysis and mitigation of GHG emissions and the effects of GHG emissions in CEQA documents. The amendments included revisions to the *Appendix G Initial Study Checklist* that incorporated a new subdivision to address project-generated GHG emissions and contribution to climate change. The new subdivision emphasizes that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis. Under the revised CEQA Appendix G checklist, an agency should consider whether a project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and whether a project conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing emission of GHGs.

Further guidance based on SB 97 suggests that the lead agency make a good-faith effort, based on available information, to describe, calculate, or estimate the amount of GHG emissions resulting from a project. When assessing the significance of impacts from GHG emissions on the environment, lead agencies should consider the extent to which the project may increase or reduce GHG, as compared to the existing environmental setting, whether the project emissions exceed a threshold of significance determined applicable to the project, and/or the extent to which the project complies with adopted regulations or requirements to implement a state wide, regional, or local plan for the reduction or mitigation of GHG emissions. Feasible mitigation under SB 97 includes on-site and off-site measures, such as GHG emission-reducing design features and GHG sequestration.

SB 375

In September 2008, SB 375, known as the Sustainable Communities and Climate Protection Act of 2008, was enacted, which is intended to build on AB 32 by attempting to control GHG emissions by curbing sprawl. SB 375 enhances CARB's ability to reach goals set by AB 32 by directing CARB to develop regional GHG emission reduction targets to be achieved by the State's 18

[24] California Air Resources Board. *Overview of ARB Emissions Trading Program*. Available at: https://www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf. Accessed February 2018.

metropolitan planning organizations (MPOs), including the including the Association of Bay Area Governments (ABAG). Under SB 375, MPOs must align regional transportation, housing, and land-use plans and prepare a "Sustainable Communities Strategy" (SCS) to reduce the amount of vehicle miles traveled in their respective regions and demonstrate the region's ability to attain its greenhouse gas reduction targets. SB 375 provides incentives for creating walkable and sustainable communities and revitalizing existing communities, and allows home builders to get relief from certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Furthermore, SB 375 encourages the development of alternative transportation options, which will reduce traffic congestion.

Executive Order S-13-08

Then-Governor Arnold Schwarzenegger issued Executive Order S-13-08 on November 14, 2008. The Executive Order is intended to hasten California's response to the impacts of global climate change, particularly sea level rise, and directs state agencies to take specified actions to assess and plan for such impacts, including requesting the National Academy of Sciences to prepare a Sea Level Rise Assessment Report, directing the Business, Transportation, and Housing Agency to assess the vulnerability of the State's transportation systems to sea level rise, and requiring the Office of Planning and Research and the Natural Resources Agency to provide land use planning guidance related to sea level rise and other climate change impacts.

The order also required State agencies to develop adaptation strategies to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. The adaption strategies report summarizes key climate change impacts to the State for the following areas: public health; ocean and coastal resources; water supply and flood protection; agriculture; forestry; biodiversity and habitat; and transportation and energy infrastructure. The report recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

AB 197 and SB 32

On September 8, 2016, AB 197 and SB 32 were enacted with the goal of providing further control over GHG emissions in the State. SB 32 built on previous GHG reduction goals by requiring that the CARB ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by the year 2030. Additionally, SB 32 emphasized the critical role that reducing GHG emissions would play in protecting disadvantaged communities and the public health from adverse impacts of climate change. Enactment of SB 32 was predicated on the enactment of AB 197, which seeks to make the achievement of SB 32's mandated GHG emission reductions more transparent to the public and responsive to the Legislature. Transparency to the public is achieved by AB 197 through the publication of an online inventory of GHG and TAC emissions from facilities required to report such emissions pursuant to Section 38530 of California's Health and Safety Code. AB 197 further established a six-member Joint Legislative Committee on Climate Change Policies, which is intended to provide oversight and accountability of the CARB, while also adding two new legislatively-appointed, non-voting members to the CARB. Additionally, AB 197 directs the CARB to consider the "social costs" of emission reduction rules and regulations, with particular focus on how such measures may impact disadvantaged communities.

Executive Order B-55-18

On September 10, 2018, then-Governor Brown established a statewide goal of carbon neutrality as soon as possible, and no later than 2045. Following achievement of carbon neutrality, net negative emissions should be pursued as the new emissions goal. The executive order directed the CARB to work with relevant state agencies to develop frameworks for implementation and tracking of the new goal, and further directed the CARB to support the carbon neutrality goal through future updates to the State Scoping Plan. The implementation of carbon sequestration targets and projects for natural and working lands is identified as a necessary measure to achieve carbon neutrality and net negative emissions.

California Building Standards Code

California's building codes (California Code of Regulations [CCR], Title 24) are published on a triennial basis, and contain standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The California Building Standards Code (CBSC) is responsible for the administration and implementation of each code cycle, which includes the proposal, review, and adoption process. Supplements and errata are issued throughout the cycle to make necessary mid-term corrections. The 2019 code has been prepared and will become effective January 1, 2020. The California building code standards apply State-wide; however, a local jurisdiction may amend a building code standard if the jurisdiction makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

California Green Building Standards Code

The 2019 California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), is a portion of the CBSC, which will become effective with the rest of the CBSC on January 1, 2020. The purpose of the CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California.

The CALGreen Code encourages local governments to adopt more stringent voluntary provisions, known as Tier 1 and Tier 2 provisions, to further reduce emissions, improve energy efficiency, and conserve natural resources. If a local government adopts one of the tiers, the provisions become mandates for all new construction within that jurisdiction.

Building Energy Efficiency Standards

The 2019 Building Energy Efficiency Standards is a portion of the CBSC (CCR Title 24, Parts 6 and 11) expands upon energy efficiency measures from the 2016 Building Energy Efficiency Standards resulting in a seven percent reduction in energy consumption from the 2016 standards for residential structures. Energy reductions relative to previous Building Energy Efficiency Standards would be achieved through various regulations including requirements for the use of high efficacy lighting, improved water heating system efficiency, and high-performance attics and walls.

One of the improvements included within the 2019 Building Energy Efficiency Standards will be the requirement that certain residential developments, including some single-family and low-rise residential developments, include on-site solar energy systems capable of producing 100 percent of the electricity demanded by the residences. Certain residential developments, including developments that are subject to substantial shading, rendering the use of on-site solar photovoltaic systems infeasible, are exempted from the foregoing requirement; however, such developments would continue to be subject to all other applicable portions of the 2019 Building Energy Efficiency Standards.

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Plan Bay Area

Plan Bay Area is a long-range integrated transportation and land use/housing strategy through 2040 for the San Francisco Bay Area, designed to reduce GHG emissions from cars and light-duty trucks. On July 18, 2013, the Plan was jointly approved by the MTC and the ABAG. Pursuant to SB 375, the Plan includes the region's Sustainable Communities Strategy and 2040 Regional Transportation Plan. Plan Bay Area provides a strategy for meeting 80 percent of the region's future housing needs in Priority Development Areas (PDAs).[25] Plan Bay Area anticipates that from 2010 to 2040, Contra Costa County is projected to experience 12 percent of the total regional housing growth, or an estimated 93,390 additional households. The County will also take 11 percent of the region's job growth, or 70,300 new jobs, the majority of which will be in PDAs. Both job and housing growth will cluster along San Pablo Avenue in the western part of the County, including Richmond, as well as in the suburbs of Antioch, Pittsburg, Walnut Creek, and San Ramon. The project site is located within a PDA.

The plan assists jurisdictions seeking to implement the plan at the local level by providing funding for PDA planning and transportation projects. Plan Bay Area also provides jurisdictions with the option of increasing the efficiency of the development process for projects consistent with the plan and other criteria included in SB 375.

Bay Area Air Quality Management District

The BAAQMD is the public agency entrusted with regulating stationary sources of air pollution in the nine counties that surround San Francisco Bay: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties. The BAAQMD has prepared their own *CEQA Air Quality Guidelines* (May 2017), which is intended to be used for assistance with CEQA review. The BAAQMD CEQA Air Quality Guidelines include thresholds of significance and project screening levels for criteria air pollutants (ROG, NO_X, PM_{10}, and $PM_{2.5}$), GHGs, TACs, CO, and odors, as well as methods to assess and mitigate project-level and plan-level impacts.

Regional Air Quality Plans

As discussed above, the 2001 Ozone Attainment Plan was prepared as a revision to the Bay Area part of the SIP to achieve the federal ozone standard. The plan was adopted on October 24, 2001, approved by the CARB on November 1, 2001, and was submitted to the USEPA on November 30, 2001 for review and approval as a revision to the SIP. In addition, in order to fulfill federal air quality planning requirements, the BAAQMD adopted a $PM_{2.5}$ emissions inventory for the year 2010, which was submitted to the USEPA on January 14, 2013 for inclusion in the SIP.

The most recent State ozone plan is the 2017 CAP, adopted on April 19, 2017. The 2017 CAP was developed as a multi-pollutant plan that provides an integrated control strategy to reduce

25 Association of Bay Area Governments and Metropolitan Transportation Commission. *Plan Bay Area 2040: Final.* Available at: http://2040.planbayarea.org/reports. Accessed August 2019.

ozone, PM, TACs, and GHGs. Although the CCAA does not require the region to submit a plan for achieving the State PM_{10} standard, the BAAQMD has prioritized measures to reduce PM in developing the control strategy for the 2017 CAP. It should be noted that on January 9, 2013, the USEPA issued a final rule to determine that the San Francisco Bay Area has attained the 24-hour $PM_{2.5}$ federal standard, which suspends federal SIP planning requirements for the Bay Area.

The aforementioned applicable air quality plans contain mobile source controls, stationary source controls, and transportation control measures to be implemented in the region to attain the State and federal standards within the SFBAAB. The plans are based on population and employment projections provided by local governments, usually developed as part of the General Plan update process.

Rules and Regulations

All projects under the jurisdiction of the BAAQMD are required to comply with all applicable BAAQMD rules and regulations. Applicable BAAQMD's regulations and rules include, but are not limited to, the following:

- Regulation 2: Permits
    - Rule 5: New Source Review of Toxic Air Contaminates
- Regulation 6: Particulate Matter and Visible Emissions
    - Rule 2: Commercial Cooking Equipment
    - Rule 3: Wood-burning Devices
- Regulation 7: Odorous Substances
- Regulation 8: Organic Compounds
    - Rule 3: Architectural Coatings
- Regulation 11: Hazardous Pollutants
    - Rule 2: Asbestos Demolition, Renovation and Manufacturing

City of Oakley General Plan

The following goals and policies related to air quality are from the City of Oakley General Plan:

Goal 6.2 Maintain or improve air quality in the City of Oakley.

Policy 6.2.1 Support the principles of reducing air pollutants through land use, transportation, and energy use planning.

Policy 6.2.2 Encourage transportation modes that minimize contaminant emissions from motor vehicle use.

Policy 6.2.3 Interpret and implement the General Plan to be consistent with the regional Bay Area Air Quality Management Plan (AQMP), as periodically updated.

Policy 6.2.4 Ensure location and design of development projects so as to conserve air quality and minimize direct and indirect emissions of air contaminants.

Policy 6.2.5 Encourage air quality improvement through educational outreach programs, such as "Spare the Air Day."

City of Oakley Strategic Energy Plan

The City of Oakley adopted a Strategic Energy Plan in 2015. The Strategic Energy Plan establishes the City Council's desire to promote energy-use reductions, clean energy generation, and GHG emissions reductions. To achieve such goals, the City became a Pilot City in the East Bay Energy Watch Strategic Planning Program, which was formed by PG&E in Alameda and Contra Costa counties. The Strategic Energy Plan is focused on municipal operations, and through careful consideration of energy-efficiency in City operations, the City hopes to provide achievable examples and demonstrations of financially viable and sustainably energy solutions to the community as a whole. Because the Strategic Energy Plan is focused on municipal operations, the policies within the document do not directly apply to private development within the City.

4.1.4 Impacts and Mitigation Measures

The standards of significance and methodology used to analyze and determine the proposed project's potential project-specific impacts related to air quality are described below. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, this chapter of the EIR considers a significant impact associated with air quality and/or GHG emissions to occur if the proposed project would result in any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations (including localized CO concentrations and TAC emissions);
- Result in other emissions (such as those leading to odors) affecting a substantial number of people;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

Issues Not Discussed Further

The Initial Study prepared for the proposed project (see Appendix C) determined that development of the proposed project would result in a less-than-significant impact with mitigation incorporated related to the following:

- Result in other emissions (such as those leading to odors) affecting a substantial number of people.

For the reasons cited in the Initial Study, the potential impacts associated with odors are not analyzed further in this EIR.

Criteria Pollutants, Localized CO, TACs, and GHGs

The air quality and GHG emissions analysis in this EIR uses the thresholds for criteria pollutants, localized CO, TAC emissions, and GHG emissions as discussed below.

The BAAQMD thresholds of significance for ozone precursor and PM emissions are presented in Table 4.1-6 and are expressed in pounds per day (lbs/day) for construction and operational average daily emissions and tons per year (tons/year) for maximum annual operational emissions. In addition to the thresholds of significance presented below for criteria air pollutants of particular concern for the Bay Area, BAAQMD has developed thresholds for GHG emissions, localized CO emissions, and TACs. Pursuant to CEQA Guidelines Section 15064.4(b)(2), the lead agency is charged with determining a threshold of significance that is applicable to the project. For the analysis within this EIR, the City has elected to use the BAAQMD's thresholds of significance.

Table 4.1-6
BAAQMD Thresholds of Significance

	Construction	Operational	
Pollutant	**Average Daily Emissions (lbs/day)**	**Average Daily Emissions (lbs/day)**	**Maximum Annual Emissions (tons/year)**
ROG	54	54	10
NO_X	54	54	10
PM_{10} (exhaust)	82	82	15
$PM_{2.5}$ (exhaust)	54	54	10

Source: BAAQMD, CEQA Guidelines, May 2017.

Localized CO Emissions

If a project would cause localized CO emissions to exceed the 1-hour and 8-hour CAAQS of 20.0 ppm and 9.0 ppm, respectively, BAAQMD would consider the project to result in a significant impact to air quality. In order to provide a conservative indication of whether a project would result in localized CO emissions that would exceed the applicable threshold of significance, the BAAQMD has established screening criteria for localized CO emissions. According to BAAQMD, a project would result in a less-than-significant impact related to localized CO emission concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans;
- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and
- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, underpass, etc.).

TAC Emissions

According to BAAQMD, a significant impact related to TACs would occur if a project would cause any of the following:

- An increase in cancer risk levels of more than 10 persons in one million;
- A non-cancer (chronic or acute) hazard index greater than 1.0; or
- An annual average $PM_{2.5}$ concentration of 0.3 micrograms per cubic meter ($\mu g/m^3$) or greater.

An impact associated with TACs would also occur if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source, or from the location of a receptor, plus the contribution from the project, would exceed the following:

- An increase in cancer risk levels (from all local sources) of more than 100 persons in one million;
- A chronic non-cancer hazard index (from all local sources) greater than 10.0; or
- An annual average $PM_{2.5}$ concentration (from all local sources) of 0.8 µg/m^3 or greater.

GHG Emissions

The BAAQMD developed a threshold of significance for project-level GHG emissions in 2009. The District's approach to developing the threshold was to identify a threshold level of GHG emissions for which a project would not be expected to substantially conflict with existing California legislation. At the time that the thresholds were developed, the foremost legislation regarding GHG emissions was AB 32, which established an emissions reductions goal of reducing statewide emissions to 1990 levels by 2020.[26] If a project would generate GHG emissions above the threshold level, the project would be considered to generate significant GHG emissions and conflict with AB 32. The GHG emissions thresholds of significance recommended by BAAQMD to determine compliance with AB 32 are as follows:

- 1,100 $MTCO_2e$/yr; or
- 4.6 $MTCO_2e$/SP/yr, where "SP" equates to service population, which is the total residents plus employees.

Because BAAQMD emissions thresholds include both a mass emissions threshold (i.e., 1,100 $MTCO_2e$/yr), and an emissions efficiency threshold (i.e., 4.6 $MTCO_2e$/SP/yr), a project may result in operational emissions in excess of 1,100 $MTCO_2e$/yr, but still avoid a significant impact by resulting in emissions below the 4.6 $MTCO_2e$/SP/yr efficiency threshold, or vice versa. It should be noted that the foregoing thresholds are intended for use in assessing operational GHG emissions only. However, construction of a proposed project would result in GHG emissions over a short-period of time. To capture the construction-related GHG emissions due to buildout of the proposed project, such emissions are amortized over the duration of the construction period and added to the operational GHG emissions. Given that construction-related GHG emissions would not occur concurrently with operational emissions and would cease upon completion of construction activities, combining the two emissions sources represents a conservative estimate of total project GHG emissions.

Since the adoption of BAAQMD's GHG thresholds of significance, the State legislature has passed AB 197 and SB 32, which builds off of AB 32 and establishes a statewide GHG reduction target of 40 percent below 1990 levels by 2030. Considering the legislative progress that has occurred regarding statewide reduction goals since the adoption of BAAQMD's standards, the emissions thresholds presented above would determine whether a proposed project would be in compliance with the 2020 emissions reductions goals of AB 32, but would not demonstrate whether a project would be in compliance with SB 32. In accordance with the changing legislative environment, the BAAQMD has begun the process of updating the District's CEQA Guidelines; however, updated thresholds of significance have not yet been adopted. In the absence of

[26] Bay Area Air Quality Management District. *California Environmental Quality Act Guidelines Update: Proposed Thresholds of Significance*. December 7, 2009.

BAAQMD-adopted thresholds to assess a project's compliance with SB 32, the City has chosen to consider additional GHG emissions thresholds.

The BAAQMD has determined that projects with operational emissions equal to or less than 1,100 $MTCO_2e$/yr or 4.6 $MTCO_2e$/SP/yr would comply with the emission reductions target of 1990 levels by 2020 set forth by AB 32. SB 32 requires that by 2030 statewide emissions be reduced by 40 percent beyond the 2020 reduction target set by AB 32; therefore, in the absence of specific guidance from BAAQMD or the CARB, the City assumes that in order to meet the reduction targets of SB 32, a proposed project would be required to reduce emissions by an additional 40 percent beyond the emissions reductions currently required by BAAQMD for compliance with AB 32. Assuming a 40 percent reduction from current BAAQMD targets would be in compliance with SB 32, a proposed project would be in compliance with SB 32 if the project's emissions did not exceed the following thresholds:

- 660 $MTCO_2e$/yr; or
- 2.76 $MTCO_2e$/SP/yr.

In addition to the quantitative thresholds described above, the City has also determined that a qualitative analysis assessing the project's compliance with the CARB's 2017 Scoping Plan is warranted. The CARB's 2017 Scoping Plan establishes a strategy to meet California's 2030 GHG targets; accordingly, should the project be shown to comply with the 2017 Scoping Plan, the proposed project would be considered consistent with Statewide reduction targets for the year 2030. Based on recommendations from BAAQMD, a project's compliance with the local actions contained in Appendix B of the 2017 Scoping Plan can be used to assess a project's compliance with the 2017 Scoping Plan.[27]

By using the BAAQMD thresholds of significance for GHG, the updated SB 32 thresholds, and the local actions within Appendix B of the 2017 Scoping Plan, the City would comply with Section 15064.4(b)(3) of the CEQA Guidelines, which suggests that lead agencies consider the extent that the project would comply with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction of GHG emissions.

Method of Analysis

A comparison of project-related emissions to the thresholds discussed above shall determine the significance of the potential impacts to air quality and climate change resulting from the proposed project. Emissions attributable to the proposed project which exceed the significance thresholds could have a significant effect on regional air quality and the attainment of the federal and State AAQS. Where potentially significant air quality impacts are identified, mitigation measures are described that would reduce or eliminate the impact.

Construction Emissions

The proposed project's short-term construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 software, which is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions from land use projects. The model applies inherent default values for various land uses, including trip generation rates based on the

27 Flores, Arienna, Bay Area Air Quality Management District. Personal communication [phone], Jacb Byrne, Senior Associate/Air Quality Technician, Raney Planning & Management. September 17, 2019.

ITE Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data was available, such data was input into the model.

As explained in the Project Description chapter of this EIR, construction of the proposed project is assumed to occur over approximately three years. For the purposes of analyzing air quality impacts related to implementation of the proposed project, construction would likely occur in two phases. The first phase of construction would be the only one to include demolition and would result in approximately 10,000 sf of building material being demolished. In addition, phase one would include construction of improvements to Bridgehead Road. After phase one, phase two is anticipated to involve mass grading of the remaining portion of the project site, and subsequent construction of all remaining site improvements. Per the applicant, phase two is anticipated to begin within approximately six months of the initiation of phase one.

The assumption that construction phases would overlap provides the most conservative approach to this analysis. It should further be noted that the proposed project would include off-site improvements related to wastewater pipeline improvements and improvements to an off-site drainage basin. The off-site improvements were modeled in CalEEMod separately from on-site construction work. Off-site improvements include work related to improvements at the Del Antico stormwater basin and sewer line improvements within Bridgehead Road and Main Street.

Based on project information, the following assumptions were made for the construction modeling for the proposed project:

- The Industrial Park and Unrefrigerated Warehouse land uses were applied;
- Demolition would involve removal of approximately 10,000 sf of debris from the project site, which would include debris from the demolition of existing structures within the project site;
- Construction would begin in March of 2020;
- Construction of the second, overlapping phase would begin six months after initiation of the first phase of construction;
- A total of approximately 40 acres would be disturbed during the first grading phase;
- The remaining area of the site would be graded during phase two;
- 2.86 acres would be disturbed at the off-site Del Antico Basin during project implementation; and
- Off-site sewer line improvements would involve placement of a new four-inch water line that would be approximately 2,500 feet in length as well as upsizing approximately 1,015 feet of existing sewer line with a new six-inch diameter line.

The results of emissions estimations were compared to the standards of significance discussed above in order to determine the associated level of impact. Results of the modeling are expressed in lbs/day for criteria air pollutant emissions and MTCO_2*e*/yr for GHG emissions, which allows for comparison between the model results and the thresholds of significance. All CalEEMod modeling results are included in Appendix D to this EIR.

Operational Emissions

The proposed project's operational emissions were estimated using CalEEMod. Operation of the proposed project would result in direct and indirect emissions from various sources including energy consumption, grounds keeping, and mobile emissions from workers as well as deliveries.

The modeling performed for the proposed project included compliance with BAAQMD rules and regulations (i.e., low-VOC [volatile organic compounds] paints and low-VOC cleaning supplies), as well as with the 2019 California Building Energy Efficiency Standards Code. All buildings within the State of California are required to comply with the mandatory standards within the 2019 California Building Energy Efficiency Standards Code. CalEEMod Version 2016.3.2 assumes new structures would be built in accordance with the 2016 California Building Energy Efficiency Standards Code. The CalEEMod inputs for the proposed project were adjusted to reflect the energy efficiency improvements inherent in the 2019 California Building Energy Efficiency Standards Code over the 2016 California Building Energy Efficiency Standards Code.[28] The proposed project's compliance with such would be verified as part of the City's building approval review process. Furthermore, the CO_2 intensity factor was adjusted within CalEEMod in order to reflect PG&E's anticipated progress towards the State RPS goal by 2030.[29] Project-specific vehicle trip data was provided by Abrams Associates, and the trip rate data was applied to the project modeling.

The results of emissions estimations were compared to the standards of significance discussed above in order to determine the associated level of impact. Results of the modeling are expressed in lbs/day for project-level emissions, tons/yr for cumulative emissions, and $MTCO_2e$/yr for GHG emissions, which allows for comparison between the model results and the thresholds of significance. All CalEEMod modeling results are included in Appendix D to this EIR.

Project-Specific Impacts and Mitigation Measures

Global climate change is, by nature, a cumulative impact. Emissions of GHG contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change (e.g., sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts). While GHG emissions from a project in combination with other past, present, and future projects contribute to the world-wide phenomenon of global climate change and the associated environmental impacts, a single project could not generate enough GHG emissions to contribute noticeably to a change in the global average temperature. Because the effects of GHG emissions are cumulative by nature, separate discussions for project-level and cumulative-level impacts for the proposed project are not necessary for this section of the EIR.

However, potential impacts related to air quality may occur on both a project-level and a cumulative basis. Accordingly, a project-level analysis of potential air quality-related impacts is presented below.

4.1-1 Conflict with or obstruct implementation of the applicable air quality plan during project construction. Based on the analysis below and despite implementation of mitigation, the impact is *significant and unavoidable*.

During construction of the project, various types of equipment and vehicles would temporarily operate on the project site and within off-site improvement areas. Construction-related emissions would be generated from demolition activity,

28 California Energy Commission. *2019 Building Energy Efficiency Standards*. March 2018.

29 California Public Utilities Commission. *California Renewables Portfolio Standard (RPS)*. Available at: http://www.cpuc.ca.gov/renewables/. Accessed August 2019.

construction equipment, utility work related to off-site improvements, vegetation clearing and earth movement activities, construction workers' commute, and construction material hauling for the entire construction period. The aforementioned activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions of criteria pollutants. Project construction activities also represent sources of fugitive dust, which includes $PM_{2.5}$ emissions. As construction of the proposed project would generate emissions of criteria air pollutants, including ROG, NO_X, and PM_{10}, intermittently within the site and in the vicinity of the site, until all construction has been completed, construction is a potential concern, as the proposed project is located in a nonattainment area for ozone and PM.

The proposed project is required to comply with all BAAQMD rules and regulations including Regulation 8, Rule 3 related to architectural coatings. In addition, all projects under the jurisdiction of the BAAQMD are recommended to implement all of the Basic Construction Mitigation Measures provided in the BAAQMD CEQA Guidelines, which include the following:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
8. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Using CalEEMod, the proposed project's maximum construction-related emissions were estimated and are presented in Table 4.1-7. Although BAAQMD recommends that all construction activity within the SFBAAB implement the above listed Basic Construction Mitigation Measures, the proposed project was modeled without the inclusion of such measures to provide a conservative, worst-case emissions scenario. If project construction included any of the Basic Construction Mitigation Measures, PM emissions would likely be reduced from what is presented below.

Modeling assumptions are discussed in the Method of Analysis section above. As presented in Table 4.1-7, the proposed project would result in construction-related emissions of PM_{10}, and $PM_{2.5}$ below the applicable thresholds of significance. However, emissions of ROG and NO_X would exceed the applicable threshold of significance. Therefore, the proposed project could contribute to the region's nonattainment status of ozone and violate an air quality standard, and a ***significant*** impact associated with construction-related emissions of ROG and NO_X could result.

Table 4.1-7
Maximum Unmitigated Construction Emissions (lbs/day)

Pollutant	On-Site Project Emissions	Off-Site Project Emissions	Total Project Emissions	Threshold of Significance	Exceeds Threshold?
ROG	150.02	4.00	154.02	54	**YES**
NO_x	122.14	41.29	163.43	54	**YES**
PM_{10} (exhaust)	3.71	2.00	5.71	82	**NO**
PM_{10} (fugitive)	20.53	12.52	33.05	None	**N/A**
$PM_{2.5}$ (exhaust)	3.45	1.85	5.3	54	**NO**
$PM_{2.5}$ (fugitive)	7.05	6.70	13.75	None	**N/A**

Source: CalEEMod, September and October 2019 (see Appendix D).

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the construction-related emissions of ROG and NO_X to the maximum extent practicable. The reductions in ROG resulting from the following mitigation measures would be sufficient to reduce ROG below the BAAQMD's thresholds. However, as shown in Table 4.1-8 NO_X would remain in excess of the applicable threshold of significance of 54 lbs/day. Additional feasible mitigation does not exist to reduce the NO_X emissions to below the applicable threshold of significance. Thus, despite implementation of the following mitigation measure, the impact would remain *significant and unavoidable*.

Table 4.1-8
Maximum Mitigated Construction Emissions (lbs/day)

Pollutant	On-Site Project Emissions	Off-Site Project Emissions	Total Project Emissions	Threshold of Significance	Exceeds Threshold?
ROG	7.53	0.62	8.15	54	**NO**
NO_X	56.74	2.45	59.19	54	**YES**
PM_{10} (exhaust)	0.45	0.07	0.52	82	**NO**
PM_{10} (fugitive)	20.53	12.52	33.05	None	**N/A**
$PM_{2.5}$ (exhaust)	0.43	0.07	0.50	54	**NO**
$PM_{2.5}$ (fugitive)	7.05	6.70	13.75	None	**N/A**

Source: CalEEMod, September and October 2019 (see Appendix D).

4.1-1(a) *Prior to issuance of a grading permit, the project applicant shall show on the grading plans via notation that the contractor shall ensure that all off-road heavy-duty diesel-powered equipment (e.g., rubber tired dozers, excavators, graders, scrapers, pavers, paving equipment, and cranes) to be used for each phase of construction of the project (i.e., owned, leased, and subcontractor vehicles) shall meet California Air Resources Board*

(CARB) Tier 4 emissions standards or cleaner. The grading plans shall be submitted for review and approval by the Public Works and Engineering Department. In addition, all off-road equipment operating at the construction site must be maintained in proper working condition according to manufacturer's specifications. Idling shall be limited to 5 minutes or less in accordance with the Off-Road Diesel Fueled Fleet Regulation as required by CARB.

Idling shall be limited to five minutes or less for all on-road related and/or delivery trucks in accordance with CARB's On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation. Clear Signage regarding idling restrictions should be placed at the entrances to the construction site.

4.1-1(b) *All Improvement Plans for the proposed project shall identify, via notation, that all architectural coatings, paints, finishes and adhesives used within the project site during project construction and operations shall be zero-VOC emitting. Furthermore, all future leases signed for proposed structures or operational spaces within the project site must contain binding language informing future tenants of the requirement that only zero-VOC architectural coatings, paints, finishes and adhesives may be used within the project site. Inclusion of such language within Improvement Plans for project construction shall be confirmed through submittal of Improvement Plans to the City of Oakley Planning Division for review and approval.*

4.1-2 Conflict with or obstruct implementation of the applicable air quality plan during project operation. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Operational emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ would be generated by the proposed project from both mobile and stationary sources. Day-to-day activities such as future employees' vehicle trips and delivery truck trips to and from the project site would make up the majority of the mobile emissions. Emissions would occur from area sources such as natural gas combustion from heating mechanisms, landscape maintenance equipment exhaust, and consumer products (e.g., deodorants, cleaning products, spray paint, etc.).

The proposed project's daily unmitigated operational emissions have been estimated using CalEEMod and are presented in Table 4.1-9 below. The various assumptions included in the modeling are discussed above.

As shown in Table 4.1-9 below, the proposed project would result in operational emissions of NO_X, PM_{10} and $PM_{2.5}$ below the applicable thresholds of significance. However, emissions of ROG would exceed the applicable thresholds of significance, and thus, could generate long-term operational criteria air pollutant emissions in excess of thresholds, the project could contribute to the region's nonattainment status of ozone and/or violate an air quality standard.

Table 4.1-9 Maximum Unmitigated Project Operational Emissions (lbs/day)						
Pollutant	**Project Emissions**				**Threshold of Significance**	**Exceeds Threshold?**
	Area	**Energy**	**Mobile**	**Total**		
ROG	48.44	0.63	5.97	**55.05**	54	**YES**
NO_X	0.00	5.76	24.36	**30.12**	54	**NO**
PM_{10} (exhaust)	0.00	0.44	0.19	**0.63**	82	**NO**
PM_{10} (fugitive)	-	-	22.91	**22.91**	None	**N/A**
$PM_{2.5}$ (exhaust)	0.00	0.44	0.18	**0.62**	54	**NO**
$PM_{2.5}$ (fugitive)	-	-	6.13	**6.13**	None	**N/A**
Source: CalEEMod, September and October 2019 (see Appendix D).						

As stated previously, the applicable regional air quality plans include the 2001 Ozone Attainment Plan and the 2017 CAP. The air quality plans contain mobile source controls, stationary source controls, and transportation control measures to be implemented within the region to attain the State and federal ozone standards within the SFBAAB. According to the BAAQMD CEQA Guidelines, if a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation, the project may be considered consistent with the air quality plans. Additionally, if approval of a project would not cause the disruption, delay, or otherwise hinder the implementation of any air quality plan control measure, the project may be considered consistent with the air quality plans. Because the proposed project is expected to generate long-term operational criteria air pollutant emission in excess of thresholds, the project would be considered to conflict with or obstruct implementation of regional air quality plans.

Based on the above, the proposed project would result in a ***significant*** impact associated with the generation of operational emissions of ROG in excess of thresholds and a conflict with or obstruction of implementation of regional air quality plans.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the emission of ROG, related to project operations as shown in Table 4.1-10. As shown in the table, Mitigation Measure 4.1-2 would reduce ROG emissions generated by project operations below the BAAQMD's threshold of 54 lbs/day. Therefore, following implementation of the following mitigation, the impact would be *less than significant*.

4.1-2 Implement Mitigation Measure 4.1-1(b).

Table 4.1-10
Mitigated Maximum Project Operational Emissions (lbs/day)

	ROG	NO_X	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Unmitigated Proposed Project	55.05	30.12	0.63	0.62
Mitigated Proposed Project	49.31	30.12	0.63	0.62
Difference	*-5.74*	*-0.00*	*-0.00*	*-0.00*
BAAQMD Thresholds	54	54	82	54
Mitigated Emissions Exceed Thresholds?	**NO**	**NO**	**NO**	**NO**
Source: CalEEMod, September and October 2019 (see Appendix D).				

4.1-3 Expose sensitive receptors to substantial pollutant concentrations. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

The major pollutant concentrations of concern are localized CO emissions, TAC emissions, and criteria pollutants, all of which are addressed in further detail below.

Localized CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. Implementation of the proposed project would increase traffic volumes on streets near the project site; therefore, the project would be expected to increase local CO concentrations. High levels of localized CO concentrations are only expected where background levels are high, and traffic volumes and congestion levels are high. The statewide CO Protocol document identifies signalized intersections operating at Level of Service (LOS) E or F, or projects that would result in the worsening of signalized intersections to LOS E or F, as having the potential to result in localized CO concentrations in excess of the State or federal AAQS, as a result of large numbers of cars idling at stop lights.[30]

In accordance with the State CO Protocol, the BAAQMD has established preliminary screening criteria for determining whether the effect that a project would have on any given intersection would cause a potential CO hotspot. If the following criteria are met by the proposed project at all affected intersections, the proposed project would not be expected to result in a CO hotspot:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans;
- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and

30 California Department of Transportation. *Transportation Project-Level Carbon Monoxide Protocol*. Revised December, 1997.

- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, underpass, etc.).

The East County Action Plan includes several adopted traffic management plans and programs for selected arterials in East Contra Costa County. The potential traffic-related impacts from development of the project are discussed in comparison with such plans and other regulations in further detail in Chapter 4.4, Transportation and Circulation of this EIR. The Contra Costa Congestion Management Program (CCMP) outlines strategies for managing the performance of regional transportation within the County, including standards, performance measures, a capital program of projects, and a travel demand element. The Transportation Impact Analysis (TIA) prepared for the proposed project used the growth estimates, travel demand model, and other information from the CCMP, and the analysis presented in Chapter 4.4, of this EIR, includes consideration of the project's compliance with the CCMP. In addition, the Contra Costa Transportation Authority (CCTA) and associated Regional Transportation Planning Committees have set various standards on specific roadways, called Multi-Modal Transportation Service Objectives (MTSO's), which are specific to each region and regulate the routes of regional significance. The TIA prepared for the proposed project evaluated the potential for the proposed project to conflict with multi-modal transportation within the project area, including routes of regional significance, and the use of alternative means of transportation. As discussed in detail in Chapter 4.4, Transportation and Circulation of this EIR, impacts related to MTSO's would be reduced to less than significant and the proposed project would not result in impacts to alternative modes of transportation or routes of regional significance. Therefore, the proposed project would be considered to be consistent with the applicable congestion management programs or transportation plans.

Based on data provided in the TIA prepared for the proposed project, the maximum traffic volume anticipated at an affected intersection would not reach 44,000 vehicles per hour. In addition, the project would not increase traffic volumes to over 24,000 vehicles at any intersections where vertical and/or horizontal mixing is substantially limited. Therefore, the proposed project would be expected to result in substantial levels of localized CO at surrounding intersections or generate localized concentrations of CO that would exceed standards.

TAC Emissions

Another category of environmental concern is TACs. The CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook) provides recommendations for siting new sensitive land uses near sources typically associated with significant levels of TAC emissions, including, but not limited to, freeways and high traffic roads, distribution centers, and rail yards.[31] The CARB has identified DPM from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Health risks from TACs are a function of both the concentration of emissions and the duration of exposure.

[31] California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.

The proposed project would involve construction activity within the project site, as well as in off-site improvement areas. Furthermore, the proposed use of the project site would be anticipated to involve frequent heavy-duty vehicle traffic. Both construction activity and project operations could result in TAC emissions as discussed in further depth below.

Construction activities have the potential to generate DPM emissions related to the number and types of equipment typically associated with construction. Off-road heavy-duty diesel equipment used for site grading, paving, utility trenching and other construction activities result in the generation of DPM. The nearest sensitive receptors to the project site and off-site improvement areas could become exposed to DPM emissions during construction activities. However, construction is temporary and occurs over a relatively short duration for each development phase. Off-site improvements are limited relative to on-site construction activity, and would be completed over a short construction period. Because health risks associated with exposure to DPM or any TAC are typically correlated with high concentrations over a long period of exposure, the completion of construction activities over a short period of time would reduce the potential for nearby receptors to be exposed to substantial concentrations of DPM. In addition, buildout of the proposed project would likely occur in phases, where only portions of the site or off-site improvement areas would be disturbed at a time, with operation of construction equipment occurring intermittently throughout the course of a day. All construction equipment and operation thereof would be regulated per CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation.[32] The In-Use Off-Road Diesel Vehicle Regulation includes emissions reducing requirements such as limitations on vehicle idling, disclosure, reporting, and labeling requirements for existing vehicles, as well as standards relating to fleet average emissions and the use of Best Available Control Technologies. In addition, Mitigation Measure 4.1-1 requires the use of Tier 4 compliant engines for all pieces of off-road equipment. Tier 4 compliant engines reduce PM emissions, including DPM, to the maximum extent practicable. In fact, comparing the estimated unmitigated and mitigated emissions related to project construction, presented in Table 4.1-7 and Table 4.1-8, demonstrates that estimated $PM_{2.5}$ emissions would be reduced by approximately 80 percent through the implementation of Tier 4 engines. DPM is a subset of $PM_{2.5}$; thus, the reduction in $PM_{2.5}$ is considered to represent a reduction in DPM emissions. Considering the intermittent nature of construction equipment operating within an influential distance to the nearest sensitive receptors, the relatively short duration of construction activities, and the implementation of Tier 4 engines, the likelihood that sensitive receptors would be exposed to high concentrations of DPM for any extended period of time would be low. Thus, construction of the proposed project would not be expected to expose sensitive receptors to substantial concentrations of TACs.

The CARB's Handbook considers facilities (distribution centers) with associated diesel truck trips of more than 100 trucks per day, or 40 trucks per day if each truck is equipped with a transportation refrigeration unit (TRU), as a source of substantial TAC emissions, specifically DPM, and recommends that such facilities should not be cited within 1,000 feet of nearby sensitive receptors. The proposed project would involve development of approximately 143.3 acres within the larger 375.7-acre subject

[32] California Code of Regulations, Title 13, Article 4.8, Chapter 9, Section 2449.

property. Although portions of the 143.3-acre project site are within 1,000 feet from the nearest sensitive receptors to the southwest of the project site, other portions of the project site are separated from the nearest receptor by much greater distances. Furthermore, the CARB's principal concern related to distribution centers is DPM emissions from diesel vehicles resulting from the movement of goods to and from distribution centers. The amount of heavy-duty vehicle use as well as the distribution of such vehicles within the site determines the pattern of DPM emissions, and the potential for such emissions to disperse off-site and effect nearby receptors. The greatest amount of DPM emissions from the project site would occur in areas of the project site experiencing frequent diesel vehicle traffic and diesel vehicle idling. Diesel truck travel within the site would occur within the proposed internal roadways, while truck idling would primarily occur within the loading dock areas of the project site.

With regard to truck travel to the site, the project plans to direct employees and trucks to use the Wilbur Avenue interchange in an effort to avoid/minimize congestion on E. 18th Street at its interchange with SR 160, and also on surface street in surrounding cities. From the Wilbur Avenue interchange, heavy-duty trucks and passenger vehicles would access the site by way of three proposed vehicular access points. The northernmost site access would be located over 2,800 feet to the north of the nearest sensitive receptors, the central/main access point, at Wilbur Avenue, would be over 1,500 feet from the nearest sensitive receptor, and the southernmost access point would be between 800 and 1,000 feet from the nearest sensitive receptor to the southwest of the site. Thus, two of the three site access points would be separated from the nearest sensitive receptors by distances well in excess of 1,000 feet.

In addition to the separation of two of the site accesses from the nearest receptor by more than 1,000 feet, based on the proposed site plans, presented in Chapter 3, Project Description, none of the proposed loading docks would be within 1,000 feet of the nearest sensitive receptor to the southwest. However, the loading dock to Building 1, depicted on Figure 3-6, of Chapter 3 of this EIR, is located just outside of the CARB's recommended screening distance. With the exception of the loading dock and associated drive aisle for Building 1, all other loading docks and drive aisles within the site would be at least 1,500 feet from the mobile home park. Consequently, emissions from the majority of on-site drive aisles and loading docks would be sufficiently separated from nearby sensitive receptors to ensure that nearby receptors would not be exposed to excess concentrations of DPM.

Although the majority of proposed drive aisles and loading docks would be separated from the nearest sensitive receptors by at least 1,500 feet, the southernmost access point to the project site is between 800 and 1,000 feet from the nearest sensitive receptor to the southwest of the site. Based on the configuration of proposed site accesses and drive aisles, the southernmost project entry point would be used solely to provide access to the loading dock associated with Building 1, and would not provide access to any other portions of the project site. Consequently, the drive aisle closest to the mobile home park would only experience heavy-duty diesel truck traffic related to operations at Building 1. According to Abrams and Associates, Building 1 would experience 1,100 total daily trips from all types of vehicles, and approximately nine percent of the total daily trips or 99 trips, would be associated with heavy-duty trucks. It should be noted that although the southernmost project entry would only provide access to Building 1, two additional access points from Wilbur Avenue would provide vehicular access to Building 1. Thus, the 1,100 daily trips associated with Building 1 would likely be split between all of the available access points, and, thus, the majority of trips related to operations at Building 1 would likely occur at distances in excess of 1,000 feet from the nearest receptor.

Because the loading dock associated with Building 1 would only be accessible from the southernmost access point to the site, all 99 heavy-duty truck trips associated with operation of Building 1 are assumed to access and leave the project site by way of the southernmost site entry. Even in the event that all of the heavy-duty trucks accessing Building 1 use the southern entry, Building 1 is only anticipated to experience 99 heavy-duty truck trips per day. A total of 99 truck trips per day would be below CARB's screening threshold for distribution centers, and would not be anticipated to expose the nearest sensitive receptors to substantial DPM emissions.

Additionally, the prevailing wind pattern in the project region is westerly, with air moving from the San Francisco Bay area into the Central Valley. The westerly pattern of air movement would generally disperse pollutants released within the project site away from the sensitive receptors located to the southwest of the project site.

Based on the above, the majority of heavy-duty truck trips to and from the project site would occur well outside of the CARB's recommended separation distances of 1,000 feet. Operations related to Building 1 could involve heavy-duty vehicle traffic within 1,000 feet of the nearest sensitive receptor; however, the proposed loading dock for Building 1 would be outside of the recommended 1,000-foot separation distance, and Building 1 would not be anticipated to attract 100 or more heavy-duty trucks per day. Although operations of Building 1 are not anticipated to attract more than 100 heavy-duty trucks per day, trucks accessing Building 1 could include trucks using TRUs. TRUs are typically diesel powered, and continuous stationary operation of TRUs at the loading dock associated with Building 1 would constitute a source of localized DPM. Should project operations result in more than 40 TRU equipped trucks per day accessing Building 1, idling of TRUs at the Building 1 loading dock could result in exposure of nearby receptors to substantial concentrations of DPM related to idling TRUs and heavy-duty diesel vehicles.

Criteria Pollutants

As noted in Impact 4.1-1 of this section, construction-related activities included in the proposed project would have the potential to result in a significant and unavoidable impact related to the emission of criteria air pollutants. In particular, construction related activities associated with implementation of the proposed project would result in NO_X emissions in excess of the BAAQMD's thresholds of significance. The largest NO_X generating activity would be from off-site sources during building construction of each project phase. Specifically, off-site sources during building construction relate to the movement of goods and construction materials to and from the site by project vendors.

The BAAQMD's thresholds of significance were established with consideration given to the health-based air quality standards established by the NAAQS and CAAQS, and are designed to aid the district in achieving attainment of the NAAQS and CAAQS.[33] The BAAQMD's thresholds of significance are intended to aid achievement of the NAAQS and CAAQS for which the SFBAAB is in nonattainment, but the thresholds of significance do not represent a level above which individual project-level emissions would directly result in public health impacts. Rather, the thresholds of significance represent emissions levels that would ensure that project-specific emissions would not inhibit attainment of regional NAAQS and CAAQS through cumulatively considerable contributions to basin-wide emissions. On a regional level, the long-term operational emissions of the proposed project would have a greater potential to affect the attainment of the NAAQS and the CAAQS, compared to short-term construction emissions, given that operational emissions would occur on an on-going basis throughout the life of the project. As discussed under Impact 4.1-2 of this section, the operational emissions of the proposed project would be below BAAQMD's thresholds of significance following implementation of mitigation. Consequently, the proposed projects would not inhibit attainment of regional NAAQS and CAAQS on a long-term, on-going basis.

As noted above, construction activity would result in emissions in excess of the BAAQMD's standards; however, several factors would reduce the likelihood that short-term construction-related emissions would result in adverse health impacts. Emissions related to construction activity would occur over a relatively limited amount of time. For instance, project construction is only anticipated to occur over a four-year period, which, relative to the anticipated operational lifetime of the project, is relatively short. Furthermore, the largest source of emissions during each construction phase would be the transport of construction material to the site by vendors. Emissions from vendor trips to the site and off-site improvement areas would be distributed throughout the entire route taken by each vendor, which would result in the dispersal of emissions from the vendor vehicles. Criteria pollutant emissions from vendor vehicles would be dispersed through regional wind patterns, which generally push pollutants out of the SFBAAB and throughout nearby air basins. Thus, emissions resulting from project-related construction would be dispersed throughout a large area, and emissions related to the proposed project would represent a small fraction of emissions resulting from activities throughout the SFBAAB and nearby air basins. Dispersal of vendor vehicle emissions would reduce the likelihood that any single receptor would be subject to excess concentrations of criteria pollutants due to project construction sufficient to result in health impacts. In summary, construction-related emissions would occur over a relatively short period of time and would be dispersed throughout the project region as vendor vehicles move to and from the project site.

Standard methodologies for assessing health impacts related to pollutant exposure involve conducting dispersion modeling that considers the location and type of emission sources, the location of existing sensitive receptors, and environmental factors such as climate, wind direction, and topography. Various sources exist within the project region that may be used to supply construction material to the project site; however, should the proposed project be implemented, some of the currently available locations for construction material may have ceased operations, and other sites not yet in operation may become available sources of construction. Thus, the source of construction material and the path taken to deliver such material to the project site

[33] Bay Area Air Quality Management District. *Air Quality Guidelines*. May 2017.

cannot be known at this time. Because emissions from construction activity would occur over a large area, and the exact route of vendor trips to and from the site is not currently known, dispersion modeling for project-related emissions would be highly speculative. Additionally, dispersion models with sufficient computational power to estimate pollutant dispersion and resultant health impacts throughout the entire SFBAAB and nearby air basins are not currently available.

Considering the above, implementation of the proposed project would not result in long-term emissions of criteria pollutants that would exceed BAAQMD standards, and, thus, would not inhibit attainment of regional NAAQS and CAAQS. In addition, due to the factors discussed above, although construction activity would result in short-term emission of NO_X in excess of the BAAQMD's standards, such emissions would be unlikely to result in health impacts because construction emissions would occur over a short-duration and would be dispersed on- and off-site throughout the SFBAAB and nearby air basins.

Conclusion

As discussed above, the proposed project would not cause any substantial levels of localized CO concentrations nor would the project result in substantial exposure of sensitive receptors to criteria pollutants. Construction-related emissions would be temporary, intermittent throughout the day, spread over the project site, and regulated. In addition, DPM emitted from heavy-duty diesel vehicles during project operations would be spread over the project site and would occur outside of the CARB's recommended separation distance from the nearest sensitive receptor. However, should operations of Building 1 involve the use of more than 40 trucks equipped with TRUs each day, idling TRUs could result in substantial emissions of DPM, which could affect the nearest sensitive receptors. Thus, the proposed project would result in a ***potentially significant*** impact associated with exposure of sensitive receptors to substantial levels of pollutant concentrations.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the need for TRUs to be operated within the project site. Reducing the operation of TRUs would result in a reduction in the amount of DPM emitted at loading docks within the project site, which would reduce the likelihood of any nearby sensitive receptors being exposed to substantial concentrations of pollutants. Accordingly, with implementation of the following mitigation measure, the impact would be *less than significant*.

4.1-3 *Prior to issuance of building permits for each phase of development, the project applicant shall show on the building plans that all loading docks shall be equipped with dedicated electrical outlets sufficient to provide power to any truck mounted transportation refrigerated units accessing the loading docks. In addition, all loading docks shall be equipped with signage stating the following, "*State regulations prohibit engine idling in excess of five minutes.*" The building plans shall be submitted for review and approval by the City of Oakley Building Division.*

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, "cumulative impacts" refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects. The geographic context for the cumulative air quality analysis includes Contra Costa County and surrounding areas within the portion of the SFBAAB that is designated nonattainment for ozone and PM_{10}.

4.1-4 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). Based on the analysis below, the project's incremental contribution to this significant cumulative impact is *less than cumulatively considerable*.

The long-term emissions associated with operation of the proposed project in conjunction with other existing or planned development in the area would incrementally contribute to impacts to the region's air quality. The proposed project's contribution to cumulative emissions of criteria air pollutants were calculated using CalEEMod and are presented in Table 4.1-11.

Table 4.1-11
Unmitigated Project Cumulative Emissions (tons/yr)

	ROG	NO_X	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Unmitigated Project Emissions	9.90	5.40	0.12	0.11
BAAQMD Thresholds	10	10	15	10
Emissions Exceed Thresholds?	**NO**	**NO**	**NO**	**NO**
Source: CalEEMod, September and October 2019 (see Appendix D).				

As shown in the table, the proposed project's operational cumulative emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ would be below BAAQMD's thresholds of significance for cumulative project emissions. Therefore, unmitigated emissions resulting from project operations would not have the potential to result in a cumulatively considerable net increase in criteria pollutant emissions, for which the region is in nonattainment for federal and state ozone standards. As such, the proposed project's incremental contribution to regional air quality impacts would be ***less than cumulatively considerable***.

Mitigation Measure(s)

None required.

4.1-5 Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Based on the analysis below and despite implementation of all feasible mitigation measures, the proposed project's incremental contribution to this significant cumulative impact is *cumulatively considerable* and *significant and unavoidable*.

An individual project's GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

Implementation of the proposed project would cumulatively contribute to increases of GHG emissions that are associated with global climate change. Estimated GHG emissions attributable to future development would be primarily associated with increases of CO_2 and, to a lesser extent, other GHG pollutants, such as CH_4 and N_2O. Sources of GHG emissions include area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste.

Potential impacts resulting from project implementation are considered in comparison with BAAQMD's adopted thresholds of significance and the year 2030 thresholds of significance discussed above, as well in comparison with the Local Actions included in Appendix B of the CARB's Scoping Plan.

GHG Emissions Thresholds

Construction GHG emissions are a one-time release and are, therefore, not typically expected to generate a significant contribution to global climate change. Neither the City nor BAAQMD has an adopted threshold of significance for construction-related GHG emissions and does not require quantification. Nonetheless, the proposed project's construction GHG emissions have been estimated. The CalEEMod emissions estimates prepared for the proposed project determined that unmitigated project construction would result in total emissions of 8,839.59 $MTCO_2e$.

Following estimation of construction related emissions, such emissions were amortized and included in the annual operational GHG emissions. Amortizing the construction GHG emissions (a one-time release that would occur only during construction of the project) and including them in the annual operational emissions (which would occur every year over the lifetime of the entire project) would represent a conservative analysis for the annual operational emissions. The BAAQMD does not recommend any specific operational lifetimes for use in amortizing construction-related GHG emissions; however, the emissions were amortized based on information from California Executive Order D-16-00 and the US Green Building Council's 2013 report on *The Costs and Financial Benefits of Green Buildings*.[34] In the absence of specific BAAQMD recommendations, a 25-year operational lifetime is used for this analysis. Therefore, the total construction emissions amortized over 25 years would be 353.58 $MTCO_2e$/yr.

According to the US Green Building Council, an industrial park type development have typical employee generation rates of 500 sf per employee. Warehousing type land uses involve between 781 sf per employee. The proposed project would involve development of five industrial buildings within the project site, which includes features similar to both warehouses and industrial parks. Given the range of employment factors available, the conservative factor of 781 sf per employee was chosen for this analysis. Using an employment generation factor of 781 sf per employee, 2,542 employees would be anticipated to work at the project site.[35] The number of employees is used below to calculate the annual emissions per service population for project operations.

The proposed project's operational GHG emission estimations were conducted using CalEEMod and are included in Appendix D to this EIR.

Compliance with AB 32

As shown in Table 4.1-12, the project's total unmitigated annual GHG emissions in the first year of project operation, 2023, including amortized construction-related emissions, were estimated to be approximately 10,988.70 $MTCO_2e$/yr, which results in emissions of 4.32 $MTCO_2e$/SP/yr. Thus, implementation of the proposed project would result in emissions below the BAAQMD's 4.6 $MTCO_2e$/SP/yr threshold of significance for GHG emissions, and the proposed project would be considered to comply with the emissions reductions targets of AB 32.

Table 4.1-12
Unmitigated Year 2023 Project GHG Emissions

	Annual GHG Emissions
Construction-Related GHG Emissions	353.58 MTCO2e/yr
Operational GHG Emissions:	10,635.12 MTCO2e/yr
Area	0.06 MTCO2e/yr
Energy	4,537.80 MTCO2e/yr
Mobile	3,977.05 MTCO2e/yr
Waste	1,215.40 MTCO2e/yr
Water	904.80 MTCO2e/yr
Total Annual GHG Emissions	10,988.70 MTCO2e/yr
Total Annual GHG Emissions Per Service Population[1]	**4.32 MTCO2e/SP/yr**
BAAQMD AB 32 Threshold	4.6 MTCO2e/SP/yr
Exceeds Threshold?	**NO**

Note:
[1] Service population for project calculated to be 2,542 based on one employee per 781 sf.

Source: CalEEMod, September and October 2019 (see Appendix D).

[34] Sacramento Metropolitan Air District. *Guide to Air Quality Assessment in Sacramento County*. Available at: http://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools. Accessed September 2019.
[35] U.S. Green Building Council. *Building Area Per Employee by Business Type*. May 13, 2008.

Compliance with SB 32

As shown in Table 4.1-13, the project's total unmitigated annual GHG emissions in the first year of project operation, 2023, including amortized construction-related emissions, were estimated to be approximately 9,407.45 MTCO_2*e*/yr, which results in emissions of 3.70 MTCO_2*e*/SP/yr. Thus, implementation of the proposed would result in emissions above the 660 MTCO_2*e*/yr and 2.76 MTCO_2*e*/SP/yr thresholds of significance being used for GHG emissions in the year 2030, and, thus, the proposed project would be considered to conflict with SB 32.

Table 4.1-13
Unmitigated Year 2030 Project GHG Emissions

	Annual GHG Emissions
Construction-Related GHG Emissions	353.58 MTCO2e/yr
Operational GHG Emissions:	9,053.87 MTCO2e/yr
Area	0.06 MTCO2e/yr
Energy	3,571.21 MTCO2e/yr
Mobile	3,442.27 MTCO2e/yr
Waste	1,215.40 MTCO2e/yr
Water	824.93 MTCO2e/yr
Total Annual GHG Emissions	9,407.45 MTCO2e/yr
Total Annual GHG Emissions Per Service Population[1]	**3.70 MTCO2e/SP/yr**
BAAQMD SB 32 Threshold	2.76 MTCO2e/SP/yr
Exceeds Threshold?	**YES**

Note:
[1] Service population for project calculated to be 2,542 based on one employee per 781 sf.

Source: CalEEMod, September and October 2019 (see Appendix D).

Project Consistency with the 2017 Scoping Plan

Appendix B to the CARB's 2017 Scoping Plan provides a examples of potentially feasible mitigation measures that could be considered to assess a project's compliance with the 2017 Scoping Plan. Because the 2017 Scoping Plan represents the CARB's strategy for meeting the State's 2030 GHG emissions reductions goals, compliance with the Local Actions within the 2017 Scoping Plan would demonstrate the project's compliance with SB 32. The project's consistency with the Local Actions within the 2017 Scoping Plan is assessed in Table 4.1-14 below.

Table 4.1-14
Project Consistency with the 2017 Scoping Plan

Suggested Measure	**Consistency Discussion**
Construction	
Enforce idling time restrictions for construction vehicles.	Mitigation Measure 4.1-1(a) requires enforcement of idling time restrictions for on-road and off-road construction vehicles. Thus, the proposed project would comply with this suggested measure.
Require construction vehicles to operate with the highest tier engines commercially available.	Mitigation Measure 4.1-1(a) requires the use of Tier 4 engines in all on-site equipment. Tier 4 engines are the highest tier engines commercially available. Thus, the proposed project would comply with this suggested measure.

Table 4.1-14
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
Divert and recycle construction and demolition waste, and use locally-sourced building materials with a high recycled material content to the greatest extent feasible.	The CALGreen code requires the diversion of construction and demolition waste, and the proposed project would be required to comply with the requirements within the most up-to-date CALGreen Code. The project applicant has not committed to using locally-sourced building materials or materials with a high recycled content, and, thus, compliance with this suggested measure is uncertain at this time.
Minimize tree removal, and mitigate indirect GHG emissions increases that occur due to vegetation removal, loss of sequestration, and soil disturbance.	Implementation of the proposed project is anticipated to result in removal of some or all of the 662 existing on-site trees. Thus, the proposed project would not comply with this suggested measure.
Utilize existing grid power for electric energy rather than operating temporary gasoline/diesel powered generators.	The project applicant has not committed to the use of grid power for electric energy rather than operating temporary power generators; thus, compliance with this suggested measure is uncertain at this time.
Increase use of electric and renewable fuel powered construction equipment and require renewable diesel fuel where commercially available.	The project applicant has not committed to the use of alternatively fueled construction equipment. Furthermore, the commercial availability of renewable diesel in the project area is currently unknown. Consequently, compliance with this suggested measure is uncertain at this time.
Require diesel equipment fleets to be lower emitting than any current emission standard.	Use of Tier 4 engines in compliance with Mitigation Measure 4.1-1(a) would ensure that diesel equipment used during project construction would be lower emitting than any current emission standard. Thus, the proposed project would comply with this suggested measure.
Operations	
Comply with lead agency's standards for mitigating transportation impacts under SB 743.	The City of Oakley has not yet adopted standards for mitigating transportation impacts under SB 743. Accordingly, this suggested measure is not applicable to the proposed project.
Require on-site EV charging capabilities for parking spaces serving the project to meet jurisdiction-wide EV proliferation goals.	Per the 2019 CALGreen Code, the project is required to provide the infrastructure necessary to facilitate installation of EV charging systems in six percent of total on-site parking spaces. Compliance with the 2019 CALGreen Code would ensure that the proposed project provides sufficient EV charging infrastructure to comply with this suggested measure.
Allow for new construction to install fewer on-site parking spaces than required by local municipal building code, if appropriate.[1]	The project is a logistics and intermodal center that will facilitate the movement of goods in the area. Thus, limitations on parking are impractical for the proposed uses and the proposed project would not comply with this suggested measure.
Dedicate on-site parking for shared vehicles.	The project applicant has not committed to providing on-site parking for shared vehicles. Therefore, compliance with this suggested measure is uncertain at this time.
Provide adequate, safe, convenient, and secure on-site bicycle parking and storage in multi-family residential projects and in non-residential projects.	The project applicant has not committed to providing on-site bicycle parking. Therefore, compliance with this suggested measure is uncertain at this time.
Provide on- and off-site safety improvements for bike, pedestrian, and transit connections, and/or	The proposed project would include provision of on- and off-site pedestrian facilities related to internal roadways and improvements to Bridgehead Road. In addition, improvements

Table 4.1-14
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
implement relevant improvements identified in an applicable bicycle and/or pedestrian master plan.	to Bridgehead Road would include provision of northbound bicycle lanes. Consequently, the proposed project would comply with this suggested measure.
Require on-site renewable energy generation.	The project applicant has not committed to providing on-site renewable energy generation. As a result, compliance with this suggested measure is uncertain at this time.
Prohibit wood-burning fireplaces in new development, and require replacement of wood-burning fireplaces for renovations over a certain size development.	The proposed project would not include wood-burning fireplaces. Thus, the proposed project would comply with this suggested measure.
Require cool roofs and "cool parking" that promotes cool surface treatment for new parking facilities as well as existing surface lots undergoing resurfacing.	The project applicant has not committed to providing cool roofs and/or cool parking. Therefore, compliance with this suggested measure is uncertain at this time.
Require solar-ready roofs.	The CBSC requires that new non-residential structures be built with solar-ready roofs. Therefore, the proposed project would be required to provide solar-ready roofs and would comply with this suggested measure.
Require organic collection in new developments.	Chapter 20 of the City's Municipal Code requires that the owner of any property that generates green waste must subscribe with a franchisee for collection and disposal service. Project operations are anticipated to result in the production of organic waste. Thus, green waste collection would be required, and the proposed project would comply with this suggested measure.
Require low-water landscaping in new developments (see CALGreen Divisions 4.3 and 5.3 and the Model Water Efficient Landscape Ordinance [MWELO], which is referenced in CALGreen). Require water efficient landscape maintenance to conserve water and reduce landscape waste.	Chapter 31 of the City's Municipal Code requires that new developments with a total landscape area equal to or greater than 2,500 sf must comply with water-efficient landscape requirements. Consequently, the proposed project would be required to provide water-efficient landscaping, and the project would comply with this suggested measure.
Achieve Zero Net Energy performance building standards prior to dates required by the Energy Code.	The project applicant has not committed to achieving Zero Net Energy. Thus, compliance with this suggested measure is uncertain at this time.
Encourage new construction, including municipal building construction, to achieve third-party green building certifications, such as the GreenPoint Rated program, LEED rating system, or Living Building Challenge.	The project applicant has not committed to achieving third-party green building certification. Consequently, compliance with this suggested measure is uncertain at this time.
Require the design of bike lanes to connect to the regional bicycle network.	The project applicant has not committed to accommodating a proposed extension of the Big Break Regional Trail through the project site. Although the project would include the provision of bicycle lanes along Bridgehead Road, because the project would not include provision of connections to Big Break Regional Trail, which is a regional bicycle network, the project

(Continued on next page)

Table 4.1-14
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
	compliance with this suggested measure is uncertain at this time.
Expand urban forestry and green infrastructure in new land development.	The project applicant has not finalized a landscaping plan for the proposed project. The inclusion of flow-through planters and bioretention areas for stormwater treatment could be considered green infrastructure. However, because a landscaping plan has not been finalized, the provision of on-site trees to contribute to an expansion of urban forestry is uncertain, and, consequently, compliance with this suggested measure is uncertain at this time.
Require preferential parking spaces for park and ride to incentivize carpooling, vanpooling, commuter bus, electric vehicles, and rail service use.	The project applicant has not committed to dedicating preferential spaces for carpooling, vanpooling, electric vehicles, or park and ride spaces for commuter bus and rail service use. Thus, compliance with this suggested measure is uncertain at this time.
Require a transportation management plan for specific plans which establishes a numeric target for non-single occupancy vehicle travel and overall VMT.	The proposed project does not include a transportation management plan. Thus, the proposed project would not comply with this suggested measure.
Develop a rideshare program targeting commuters to major employment centers.	Although the project is anticipated to be a major employment center, the project applicant has not committed to developing a rideshare program. Thus, the proposed project would not comply with this suggested measure.
Require the design of bus stops/shelters/express lanes in new developments to promote the usage of mass-transit.	The proposed project does not involve the construction of new bus stops/shelters/express lanes. Accordingly, the suggested measure is not applicable to the proposed project.
Require gas outlets in residential backyards for use with outdoor cooking appliances such as gas barbeques if natural gas service is available.	The proposed project is not a residential project. Consequently, the suggested measure is not applicable to the proposed project.
Require the installation of electrical outlets on the exterior walls of both the front and back of residences to promote the use of electric landscape maintenance equipment.[2]	The proposed project is not a residential project. Consequently, the suggested measure is not applicable to the proposed project.
Require the design of the electric outlets and/or wiring in new residential unit garages to promote electric vehicle usage.	The proposed project is not a residential project. Consequently, the suggested measure is not applicable to the proposed project.
Require electric vehicle charging station (Conductive/inductive) and signage for non-residential developments.	Although the 2019 CALGreen Code requires the provision of infrastructure necessary to facilitate installation of EV charging systems, the project applicant has not committed to installing signed, operational EV charging stations. Therefore, compliance with this suggested measure is uncertain at this time.

(Continued on next page)

Table 4.1-14
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
Provide electric outlets to promote the use of electric landscape maintenance equipment to the extent feasible on parks and public/quasi-public lands.	The proposed project does not include parks or public/quasi-public lands, and, as such, the suggested measure is not applicable to the proposed project.
Require each residential unit to be "solar ready," including installing the appropriate hardware and proper structural engineering.	The proposed project is not a residential project. Consequently, the suggested measure is not applicable to the proposed project.
Require the installation of energy conserving appliances such as on-demand tank-less water heaters and whole-house fans.	The project applicant has not committed to installing energy conserving appliances. As a result, compliance with this suggested measure is uncertain at this time.
Require each residential and commercial building equip buildings [sic] with energy efficient AC units and heating systems with programmable thermostats/timers.	The project applicant has not committed to installing energy efficient AC units and heating systems. Therefore, compliance with this suggested measure is uncertain at this time.
Require large-scale residential developments and commercial buildings to report energy use, and set specific targets for per-capita energy use.	The project applicant has not committed to reporting energy use or setting specific energy use targets. Accordingly, compliance with this suggested measure is uncertain at this time.
Require each residential and commercial building to utilize low flow water fixtures such as low flow toilets and faucets (see CALGreen Divisions 4.3 and 5.3 as well as Appendices A4.3 and A5.3).	The proposed project would be required to comply with the non-residential water efficiency regulations within CALGreen. Thus, the proposed project would comply with this suggested measure.
Require the use of energy-efficient lighting for all street, parking, and area lighting.	Plans for street, parking, and area lighting have not been finalized. Thus, the use of energy-efficient lighting features within the project site is currently unknown, and compliance with this suggested measure is uncertain at this time.
Require the landscaping design for parking lots to utilize tree cover and compost/mulch.	Landscaping plans for the project site have not been finalized. Thus, the use of tree cover and compost/mulching within the project site is currently unknown, and compliance with this suggested measure is uncertain at this time.
Incorporate water retention in the design of parking lots and landscaping, including using compost/mulch.	The proposed project would incorporate flow-through planters as well as bioretention areas for stormwater management on-site. While the use of compost/mulch in these areas is currently unknown, due to the stormwater features included in the project, the project is considered to comply with this measure.
Require the development project to propose an off-site mitigation project which should generate carbon credits equivalent to the anticipated GHG emission reductions. This would be implemented via an approved protocol for carbon credits from California Air Pollution Control Officers Association (CAPCOA), the California Air	The project applicant has not committed to an off-site mitigation project that would generate carbon credits. Consequently, compliance with this suggested measure is uncertain at this time.

(Continued on next page)

Table 4.1-14
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
Resources Board, or other similar entities determined acceptable by the local air district.	
Require the project to purchase carbon credits from the CAPCOA GHG Reduction Exchange Program, American Carbon Registry (ACR), Climate Action Reserve (CAR) or other similar carbon credit registry determined to be acceptable by the local air district.	The project applicant has not committed to purchasing carbon credits. Accordingly, compliance with this suggested measure is uncertain at this time.
Encourage the applicant to consider generating or purchasing local and California-only carbon credits as the preferred mechanism to implement its off-site mitigation measure for GHG emissions and that will facilitate the State's efforts in achieving the GHG emission reduction goal.	The project applicant has not committed to purchasing local or California-only carbon credits. Therefore, compliance with this suggested measure is uncertain at this time.

Notes:
[1] This is not to be confused with the Americans with Disabilities Act (ADA) requirements or other minimum parking requirements for dedicating space to clean air vehicles and/or EV charging infrastructure
[2] The requirements for outdoor receptacle outlets are located in the California Electrical Code, Article 210.52(E).

***Source:** California Air Resources Board. AB 32 Scoping Plan [Appendix B]. Accessible at: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed September 2019.*

As shown in Table 4.1-14 the proposed project would comply with some of the suggested measures. However, the project would not comply with the majority of the applicable measures, and, as a result, the proposed project would not be considered to be consistent with the 2017 Scoping Plan. Because the 2017 Scoping Plan is the CARB's strategy for meeting the State's 2030 emissions goals established by SB 32, the project would be considered to conflict with SB 32.

Conclusion

Based on the above, project emissions in the year 2023 would be below the BAAQMD's threshold of significance and could be considered in compliance with the emissions reductions required by AB 32. However, project emissions in the year 2030 would not achieve the emissions reductions required by SB 32 and the project would conflict with the 2017 Scoping Plan, which is the CARB's strategy for achieving the emissions reductions goals of SB 32. Therefore, the proposed project would be considered to conflict with the goals of SB 32, and would contribute to a ***cumulatively considerable*** impact related to GHG emissions.

Mitigation Measure(s)

The use of Tier 4 construction equipment, as required by Mitigation Measure 4.1-1(a), would reduce construction equipment fuel consumption by approximately five percent.[36] Increased fuel efficiency and decreased total fuel consumption would directly reduce construction-related GHG emissions, and requiring the use of Tier 4 engines is considered to be the maximum feasible mitigation measure available for construction-related GHG emissions.

Implementation of the following mitigation measures would reduce GHG emissions from operation of the proposed project. However, unless subsequent GHG emissions analysis can be performed to show otherwise, the impact is assumed to remain *cumulatively considerable* and *significant and unavoidable*.

4.1-5(a) *Implement Mitigation Measure 4.1-1(a).*

4.1-5(b) *Implement Mitigation Measure 4.1-3.*

4.1-5(c) *Improvement Plans and building plans for the proposed project shall identify all feasible mitigation measures developed in coordination with the BAAQMD and as determined by the City of Oakley Planning Division to reduce significant impacts to the extent feasible. Mitigation Measures may include, but would not be limited to, BAAQMD's recommended mitigation measures such as the following:*

- *Orient buildings to maximize passive solar heating;*
- *Improve bike and pedestrian network (complete sidewalks, connection to adjacent areas, connection to bike network, etc.);*
- *Implement bicycle and pedestrian facilities such as bike lanes, routes, and paths, bike parking, sidewalks, and benches;*
- *Dedicate land on-site to facilitate future connections with the Big Break Regional Trail;*
- *Promote ridesharing, transit, bicycling, and walking for work trips through dedication of preferential parking spaces, provision of on-site bicycle parking, provision of end-of-trip facilities such as bicycle lockers and on-site showers;*
- *Subsidize employee transit passes;*
- *Install electric vehicle charging infrastructure in excess of existing CBSC requirements;*
- *Provide charging stations and preferential parking spots for electric vehicles;*
- *Install energy star appliances;*
- *Install solar water heating;*
- *Install on-site renewable energy systems;*
- *Use water efficient landscapes and native/drought-tolerant vegetation;*
- *Provide outdoor electrical outlets to allow for use of electrically powered landscaping equipment;*
- *Construct on-site or fund off-site carbon sequestration projects (such as tree plantings or reforestation projects); and*

[36] Empire Cat. *Tier 4 Emissions Technology*. Available at: http://www.empire-cat.com/Power_Systems/Emissions_Solutions/Tier_4_Technology.aspx. Accessed June 2019.

- *Purchase carbon credits to offset project annual emissions. Carbon offset credits shall be verified and registered with The Climate Registry, the Climate Action Reserve, or another source approved by CARB, BAAQMD, or the City of Oakley.*

If off-site mitigation measures are proposed, the applicant must be able to show that the emission reductions from identified projects are real, permanent through the duration of the project, enforceable, and are equal to the pollutant type and amount of the project impact being offset. In addition, any off-site measures shall be subject to review and approval by to City of Oakley Planning Division. BAAQMD recommends that off-site mitigation projects occur within the nine-county Bay Area in order to reduce localized impacts and capture potential co-benefits. If BAAQMD has established an off-site mitigation program at the time a development application is submitted, as an off-site mitigation measure, the applicant may choose to enter into an agreement with BAAQMD and pay into the established off-site mitigation program fund, where BAAQMD would commit to reducing the type and amount of emissions identified in the agreement.

4.2 Biological Resources

4.2. BIOLOGICAL RESOURCES

4.2.1 INTRODUCTION

The Biological Resources chapter of the EIR evaluates the potential for the proposed project to result in impacts to biological resources known to occur or potentially occur within the proposed project site or within off-site improvement areas. Information for the Biological Resources chapter is primarily drawn from the following studies prepared for the proposed project: Planning Survey Report (PSR),[1] a special-status plant survey,[2] and a supplemental Memorandum[3] prepared for the proposed project by Moore Biological (see Appendix E), a Biological Assessment of the proposed stormwater discharge prepared by FISHBIO,[4] an Arborist Report prepared for the project site by Trees, Bugs, Dirt consulting (Appendix F),[5] as well as the City of Oakley General Plan[6] and associated EIR.[7]

In addition to the project-specific PSR and other documents listed above, the site has been extensively studied in relation to the on-going Chemours Remediation Project at the site. Studies of the site related to the Chemours Remediation Project included rare plant surveys, wetland delineations, and special-status species surveys. In drafting the project-specific PSR and supplemental Memorandum, Moore Biological integrated information from previous work completed for the Chemours Remediation Project.

4.2.2 EXISTING ENVIRONMENTAL SETTING

The following sections describe the regional and project setting of the site, as well as the existing biological resources occurring in the proposed project area.

Regional Setting

The City of Oakley is located in Contra Costa County, in the East Bay region of the San Francisco Bay. The City is located along the San Joaquin-Sacramento River Delta. The City of Oakley is bordered by the San Joaquin River (northern region), the City of Antioch (western region), and the City of Brentwood (southern region). The eastern border of the City is adjacent to agricultural and open space areas within the San Joaquin-Sacramento River Delta region.

Elevations within the City of Oakley range from sea level to approximately 120 feet above mean sea level. Vegetation communities characteristic of the City and surrounding area includes agricultural lands, ruderal fields, perennial and seasonal marshes, orchards, developed areas, and communities endemic to the area's dunes and other natural features.

---

1 Moore Biological Consultants. *Application and Planning Survey Report*. September 27, 2019.

2 Moore Biological Consultants. *"Oakley Logistics Center", Oakley, California: 2019 Surveys for Special-Status Plants in Waters of the U.S. Outside the East Contra Costa County Habitat Conservation Plan. September 19, 2019.*

3 Moore Biological Consultants. *Memorandum: "Contra Costa Logistics Center", Oakley, California: Overview of Special-Status Species in the Portion of the Site Outside the East Contra Costa County Habitat Conservation Plan*. July 18, 2019.

4 FISHBIO. *Biological Assessment of the Oakley Logistics Center Stormwater Discharge Outlet*. July 15, 2019.

5 Trees, Bugs, Dirt, Consulting. *Final Arborist Report*. December 7, 2018.

6 City of Oakley. *City of Oakley 2020 General Plan*. Adopted December 16, 2002.

7 City of Oakley. *General Plan Draft Environmental Impact Report*. September 2002.

The East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (ECCC HCP/NCCP) covers approximately 174,000 acres in the eastern portion of Contra Costa County, including most of the City of Oakley. The ECCC HCP/NCCP seeks to provide a regional approach to the protection of several threatened, endangered, and special-status species in the ECCC HCP/NCCP area. As such, the ECCC HCP/NCCP authorizes take coverage pursuant to the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA), and provides compensatory mitigation for 28 special-status plant and animal species. Because the ECCC HCP/NCCP provides a regional approach to the protection of endangered species, participants in the ECCC HCP/NCCP permitting process are provided streamlined permitting from the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW). Streamlined permitting is achieved by requiring proposed developments to pay standardized impact fees, conduct focused surveys, and implement standardized minimization, avoidance, and mitigation measures. Development projects within the ECCC HCP/NCCP Permit Area are subject to such requirements. The majority of the City of Oakley is included in the ECCC HCP/NCCP Permit area and development within portions of the City within the ECCC HCP/NCCP Permit area are subject to the ECCC HCP/NCCP permitting process.

Project Setting

The subject property consists of approximately 375.70 acres located on the northwest portion of the City of Oakley, adjacent to State Route (SR) 160, on Bridgehead Road, north of Main Street and the Burlington Northern Santa Fe (BNSF) Railroad. The property includes 12 parcels, identified as Assessor's Parcel Numbers (APNs) 037-020-008, -009, -010, -014, -015, -016, -017, -018, -019, -020, -021, and -022. Elevations within the subject property range from approximately 10 to 30 feet above mean sea level (MSL). While the entire property is approximately 375.70 acres, the proposed project would only develop approximately 143.3 acres within the southwestern portion of the property. The 143.3-acre development area, which includes 1.51-acres of off-site improvements along the east side of Bridgehead Road adjacent to the property, is hereinafter referred to as the "project site" while the entire 375.70-acre property is referred to as the subject property (see Figure 3-2 of the Project Description Chapter of this EIR). In addition to the 143.3-acre project site, the proposed project would involve various off-site improvement activities. The off-site improvements include utility infrastructure construction work within Bridgehead Road and Main Street, and improvement work at the 2.95-acre Del Antico Stormwater Basin (identified by APN 035-402-009). Within the 375.70-acre subject property and off-site improvement areas, Moore Biological studied a total of 169.37-acres, which encompassed the entire 143.3-acre project site, additional areas adjacent to the project site that may be disturbed through soil borrowing or grading, and the Del Antico Stormwater Basin.

Portions of the subject property were previously developed with a chemical manufacturing facility that operated from 1956 to 1997. Following cessation of manufacturing activity, the majority of the on-site structures were demolished. The project site has been listed as a corrective action site since 2008 by the Department of Toxic Substances Control (DTSC) and is a former interim status Resource Conservation and Recovery Act (RCRA) facility.

Currently, the southwest portion of the subject property consists primarily of paved and unmaintained urban land, while the northeastern portion of the subject property consists of marsh areas associated with the San-Joaquin River. Two existing buildings, totaling approximately 11,778 sf and 2,640 sf, respectively, are located within the western portion of the project site, near Bridgehead Road. Previous development of the subject property as well as on-going remediation of the subject property by Chemours has resulted in a highly disturbed landscape within the site. On-going remediation activity includes the use of heavy equipment throughout the site as well as ground disturbance and vegetation removal.

The subject property is bordered by Bridgehead Road to the west and BNSF railroad tracks to the south. Various industrial and commercial uses, including a boat repair shop, are located west of the property, across Bridgehead Road. The areas to the south and east of the property consist of actively managed agricultural land, that are currently vineyards. A mobile home park is located to the southwest of the property, and a single-family residential subdivision is located further east of the property, east of Big Break Road. The Big Break Marina and a construction equipment storage yard are located to the north of the subdivision. Existing uses to the north of the subject property include the Driftwood Marina, the Lauritzen Yacht Harbor, the Antioch/Oakley Regional Shoreline Park, and a canvas supply store (Canvas Factory).

ECCC HCP/NCCP Permit Area

The ECCC HCP/NCCP Permit Area encompasses the majority of the City of Oakley; however, as shown in Figure 4.2-1 and Figure 4.2-2 portions of the project site are outside of the ECCC HCP/NCCP Permit Area. Within the 169.37 acres studied by Moore Biological Consultants, approximately 145.05 acres of land are included within the ECCC HCP/NCCP Permit Area and 24.32 acres of land are outside of the ECCC HCP/NCCP Permit Area. The majority of development associated with the proposed project would take place within the 145.05-acre portion of the subject property inside the ECCC HCP/NCCP Permit Area. Moreover, all 4.46 acres of off-site improvement areas are within the ECCC HCP/NCCP Permit Area. Consequently, the majority of the area to be developed as part of the proposed project is within the ECCC HCP/NCCP Permit Area, and the remaining portion of the project site, equaling approximately 24.32 acres, is outside of the ECCC HCP/NCCP Permit Area.

All work completed within the ECCC HCP/NCCP Permit Area is subject to the requirements of the ECCC HCP/NCCP, which provides a programmatic approach to reducing impacts to endangered species.

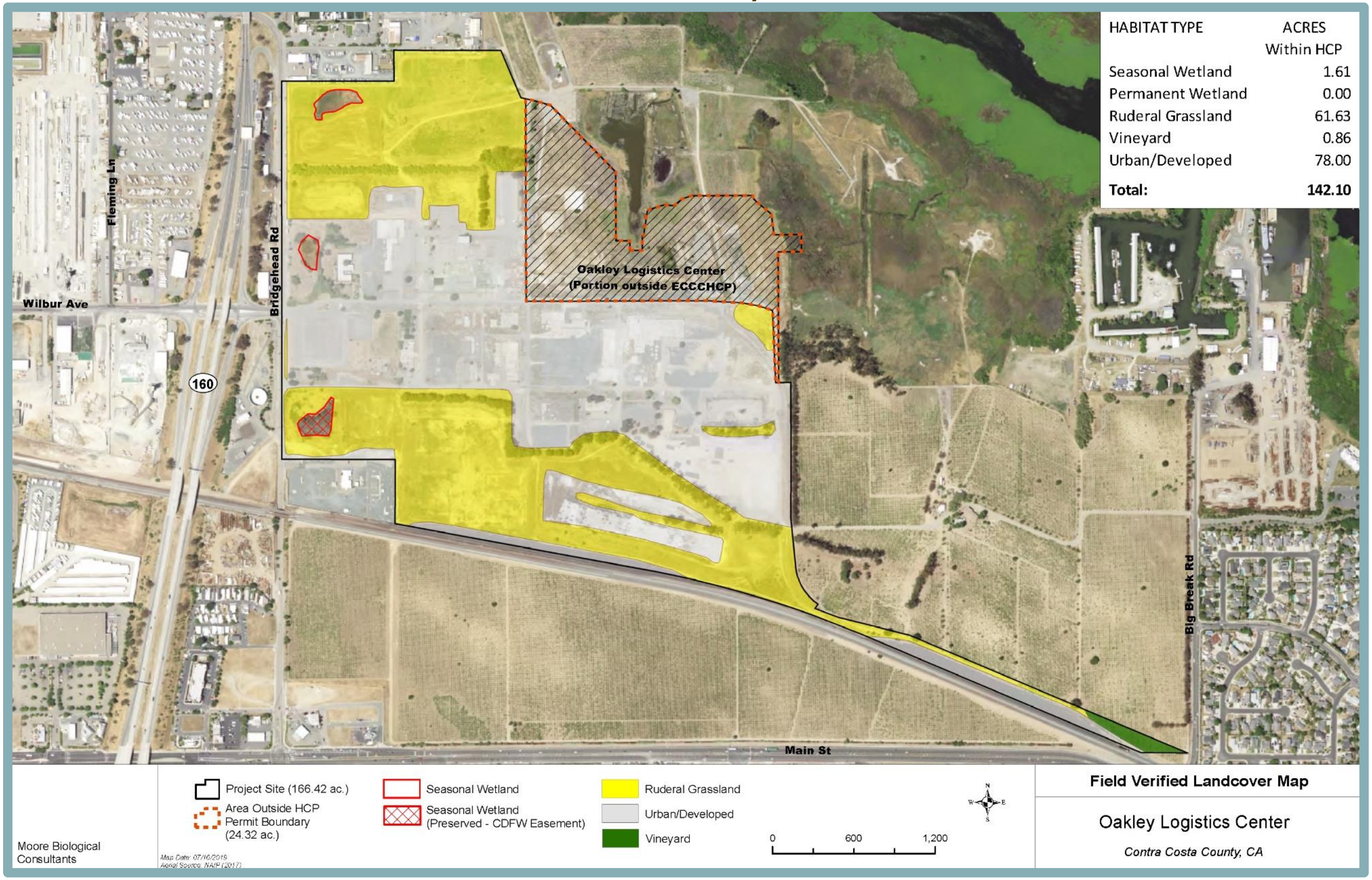
Vegetation Communities and Land Cover Types

Several land cover types exist within the subject property, including a large slough, expansive tidal and alkali wetlands, grassland, seasonal wetlands, permanent wetland, urban/developed land, and vineyards. However, the only vegetation communities and land cover types existing within the project site and area studied by Moore Biological are ruderal grassland, seasonal wetlands, permanent wetlands, vineyard, and urban/developed land, which are described in the following sections. The vegetation communities and land cover types within the project site are presented in Figure 4.2-1 and Figure 4.2-2, while the land cover types present at the Del Antico Basin are presented in Figure 4.2-3. It should be noted that much of the area within the subject property has been heavily disturbed through past site development and demolition activity, as well as on-going remediation work. Furthermore, the Del Antico Basin is regularly maintained through vegetation management.

Ruderal Grassland

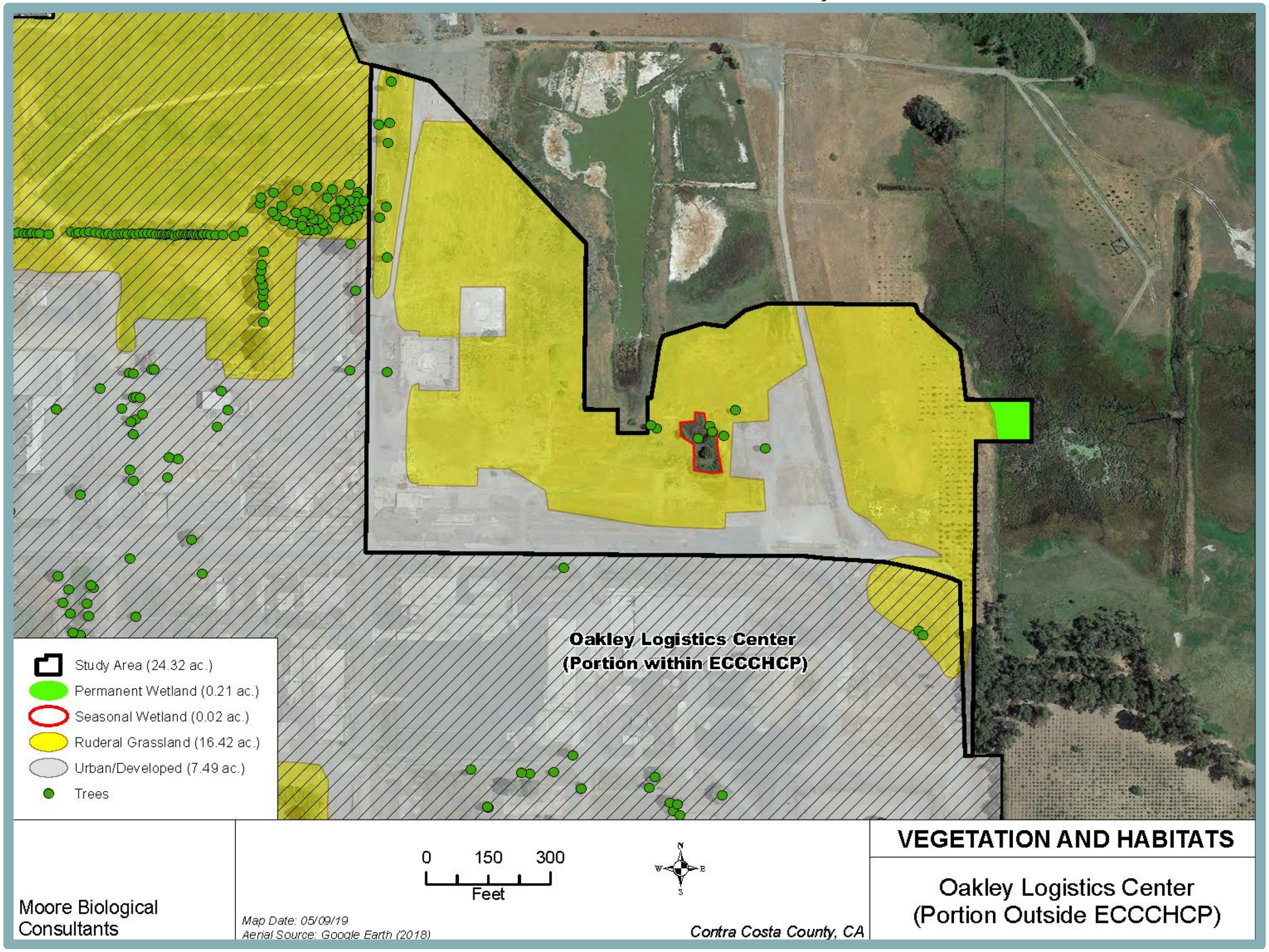
A large portion of the project site, including the shoulder of Bridgehead Road adjacent to the property, is comprised of ruderal grassland vegetation that has been highly disturbed by previous development, soil remediation, and other human activities. Grasslands within the project site appear to be periodically mowed and disked for weed abatement.

Figure 4.2-1
Land Cover within ECCC HCP/NCCP Permit Area



Source: Moore Biological Consultants, 2019

Figure 4.2-2
Land Cover Outside of the ECCC HCP/NCCP Area



Source: Moore Biological Consultants, 2019.

Figure 4.2-3
Land Cover at the Del Antico Basin

Source: Moore Biological Consultants, 2019.

Ruderal grassland vegetation primarily consists of non-native weedy species. Within the site, the dominant grassland species include oats (*Avena fatua),* soft chess brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis*), wall barley (*Hordeum mrinum*), perennial ryegrass (*Lolium perenne*), yellow star thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), bull thistle (*Cirsium vulgare*), black mustard (*Brassica nigra*), and filaree (*Erodium sp.*).

Vineyard

A small area of vineyard exists within the panhandle extending southeast from the body of the site, generally within Parcel B (Figure 4.2-1). The vineyard extends off-site, to the east, and the vineyard ends near existing railroad tracks. Ruderal grassland vegetation is present at ground-level, beneath the vines.

Urban/Developed Land

Several portions of the project site show evidence of former buildings and previous development. Former buildings and foundations are located throughout the project site, as are paved and gravel areas; the paved portion of Bridgehead Road is also urban land (Figure 4.2-1 and Figure 4.2-2). An administrative building complex located in the western portion of the site is currently being used as an on-site office associated with ongoing on-site remediation efforts. Areas where off-site utility infrastructure improvements would be conducted are located within urban/developed land associated with Bridgehead Road and Main Street rights-of-way.

Off-Site Improvement Areas

The proposed project includes utility infrastructure construction work within Bridgehead Road and Main Street, and improvement work at the Del Antico Stormwater Basin. These off-site improvement areas are within the ECCC HCP/NCCP Permit Area, and, thus, work within such areas is required to comply with the ECCC HCP/NCCP. The existing vegetation communities and land cover types at each of the off-site improvement areas are discussed in further depth below.

Del Antico Basin

The Del Antico Basin is an existing stormwater basin located off Del Antico Avenue within the City of Oakley. The basin receives stormwater for the surrounding developments. Regular maintenance of the basin includes vegetation control; thus, while the basin may experience growth of ruderal grassland vegetation, such vegetation is frequently maintained. As shown in Figure 4.2-3 the Del Antico Basin contains 2.926 acres of grassland habitat and 0.019 acre of urban/developed land.

Off-Site Utility Work

The proposed project would include off-site infrastructure improvements within Bridgehead Road and Main Street. All such infrastructure improvements would occur within areas that have previously been developed for roadways. Consequently, the land cover type for the area of improvements would be considered urban/developed land.

Aquatic Resources

On-site aquatic resources have been identified through a process that began with delineation in 2006 and a jurisdictional determination issued by the U.S. Army Corps of Engineers (USACE) in 2008. The original delineation of on-site aquatic resources was subsequently submitted for reverification in 2016, and further updates to the delineation of on-site wetlands were prepared by Ascent Environmental in December of 2018 and verified by the USACE in March 2019. The PSR and supplemental memorandum prepared by Moore Biological Consultants incorporates the previous delineation activity conducted within the project site and relies on the most-up-to-date information related to delineated aquatic resources within the site.

Aquatic resources mapped within the entire subject property are summarized in Table 4.2-1. Aquatic resources mapped within the project site, which represent a subset the aquatic resources mapped within the subject property, are summarized in Table 4.2-2 and depicted in Figure 4.2-4.

Table 4.2-1
Aquatic Resources Mapped within the Subject Property

Resource Type	Area (acres)
Seasonal Wetland	1.80
Permanent Wetland	110.16
Open Water	64.19
Total Aquatic Resources Within the Subject Property	**176.15[1]**

Note:
[1] Corps verification letter cites 176.16 acres; the 0.01-acre discrepancy appears related to rounding of the area of Central Slough ("Wetland B"), which is outside of the project site.

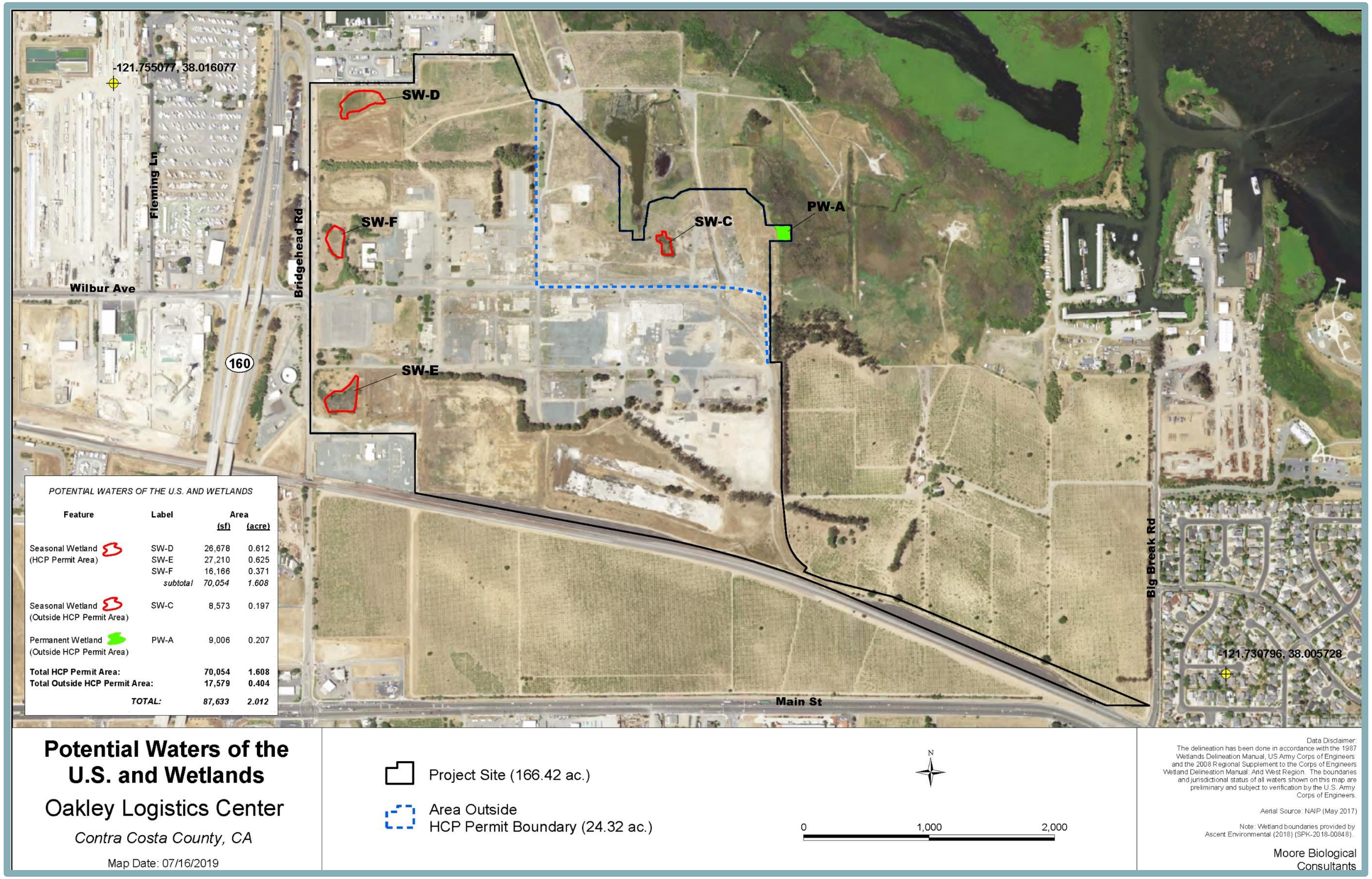
Source: Moore Biological Consultants, July 2019.

Table 4.2-2
Aquatic Resources Mapped within the Project Site

Resource Type	Area	
	Square Feet	Acreage
Within ECCC HCP/NCCP Permit Area		
Seasonal Wetland (SW-D)	26,678	0.612
Seasonal Wetland (SW-E)	27,210	0.625
Seasonal Wetland (SW-F)	16,166	0.371
Subtotal	*70,054*	*1.608*
Outside of ECCC HCP/NCCP Permit Area		
Seasonal Wetland (SW-C)	8,573	0.197
Permanent Wetland (PW-A)	9,006	0.207
Subtotal	*17,579*	*0.404*
Total Aquatic Resources Within the Project Site	**87,633**	**2.012**

Source: Moore Biological Consultants, July 2019.

Figure 4.2-4
Potential Waters of the U.S. and Wetlands



Source: Moore Biological Consultants, 2019

As noted in Table 4.2-2, open water aquatic resources do not exist within the project site. Furthermore, only a small portion of permanent wetland area exists within the project site, in an area identified for construction of a stormwater outfall structure. The area of permanent wetland within the project site is outside of the ECCC HCP/NCCP Permit Area. Because the proposed project does not include any proposed changes or activity within areas outside of the project site, the following discussion focuses on the 2.012 acres of seasonal wetland and permanent wetland habitats existing within the project site.

It should be noted that all wetlands within the ECCC HCP/NCCP Permit Area are subject to the regulations of the ECCC HCP/NCCP. Furthermore, the off-site improvement areas do not contain any areas identified as potentially jurisdictional wetlands or other aquatic resources.

Seasonal Wetlands

Four seasonal wetlands have been delineated within the project site (see Figure 4.2-4). Three of the seasonal wetlands are located in the western portion of the site, within the ECCC HCP/NCCP Permit Area. The fourth seasonal wetland is located in the northeastern portion of the site, outside of the ECCC HCP/NCCP Permit Area. All of the above seasonal wetlands occur within shallow basins incised several feel below adjacent grasslands. None of the above wetlands have habitat attributes resembling vernal pools. Soils in the wetlands are sandy and appear to be well-draining.

Two of the three on-site seasonal wetlands within the ECCC HCP/NCCP Permit Area and the seasonal wetland located outside of the ECCC HCP/NCCP Permit Area are surrounded by woody riparian species including California black walnut (*Juglans californica*), Gooding's black willow (*Salix goodingii*), Pacific willow, (*Salix lsiandra*), Fremont's cottonwoods (*Populus fremontii*), and coast live oak (*Quercus agrifolia*). Although riparian species are present, due to the composition of the wetlands, riparian habitat is not considered present within the project site. The seasonal wetland in the northwest corner of the site contains only a few willow saplings in the southwestern tip of the wetland. Dominant wetland species found within the floors of the above seasonal wetlands include seaside barley (*Hordeum marinum*, perennial ryegrass (*Lolium perenne*), annual rabbit's-foot grass (*Polypogon monspeliensis*), and curly dock (*Rumex crispus*). In addition, some patches of saltgrass (*Distichlis spicata*), hard-stem club-rush (i.e., tules) (*Schoenoplectus acutus*), and cattails (*Typha* sp.) exist within some of the seasonal wetlands.

Permanent Wetlands

A permanent wetland area is located within the eastern portion of the area outside of the ECCC HCP/NCCP Permit Area. The on-site permanent wetland area is a small portion of a larger complex of permanent wetlands associated with the San Joaquin River to the north of the site. Vegetation within the permanent wetland feature is dominated by thick cattails (*Typha latifolia*) and tules (*Schoenoplectus acutus*). The on-site permanent wetland is along the edge of the larger complex of permanent wetlands, with relatively limited habitat value compared to more central portions of the larger wetland complex.

Special-Status Species

For this analysis, special-status species are considered any of the following:

- Listed or proposed for listing as threatened or endangered under federal Endangered Species Act (ESA) or candidates for possible future listing (U.S. Fish and Wildlife Service [USFWS] 2015);
- Listed or candidates for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA);

- Listed as Fully Protected under the California Fish and Game Code;
- Animals identified by CDFW as species of special concern;
- Plants considered by CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR). The CDFW system includes five rarity and endangerment ranks for categorizing plant species of concern, which are summarized as follows:
  - CRPR 1A Plants presumed to be extinct in California;
  - CRPR 1B Plants that are rare, threatened, or endangered in California and elsewhere;
  - CRPR 2 Plants that are rare, threatened, or endangered in California but more common elsewhere;
  - CRPR 3 Plants about which more information is needed (a review list); and
  - CRPR 4 Plants of limited distribution (a watch list);
- Meeting the definition of rare or endangered under CEQA Sections 15380(b) and (d).

Moore Biological Consultants determined the special-status plant and wildlife species present in the project vicinity by consulting the CDFW's California Natural Diversity Database (CNDDB), as well as the USFWS's Information for Planning and Consultation (IPaC) system

Special-Status Plants

Based on queries of the CNDDB and IPaC, as well as previously completed special-status plant surveys completed for the Chemours remediation activity, Moore Biological Consultants concluded that 36 species of special-status plants have the potential to occur within the query area. Table 4.2-3 provides a list of all special-status plant species that are known to occur or have the potential to occur within the query area. The table provides information for each species, including common and scientific name, protected status, habitat suitability of the site, and potential for each species to occur based on previous surveys of the project site and existing conditions within the site.

As noted in the Table 4.2-3, field surveys for the presence of special-status plants have been conducted of the project site in association with soil remediation work conducted within the project site. Moore Biological Consultants also conducted surveys for special-status plants in August 2019 in the seasonal wetland and permanent wetland outside of the ECCC HCP/NCCP Permit Area. Pursuant to the ECCC HCP/NCCP, the areas of ruderal grasslands in the project site and the Del Antico Basin are not considered as having potential to support special-status plants covered by the ECCC HCP/NCCP. Due to an absence of potentially suitable habitat for special-status plants, focused surveys during the blooming period of each species were not warranted. As the Del Antico Basin is comprised entirely of ruderal grassland, Table 4.2-3 and the following discussion only pertains to the site

Of the 36 special-status plants recorded in the query area, only a few have the potential to occur within the project site. The expansive tidal wetlands in the northeast part of the overall property provide potentially suitable habitat for soft salty bird's-beak (*Chloropyron molle* ssp. *molle*), Bolander's water hemlock (*Cicuta maculata var. bolanderi*), woolly rose mallow (*Hibiscus lasiocarpus*), Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), Mason's lilaeopsis (*Lilaeopsis masonii*), Delta mudwort (*Limosella australis*), eel-grass pondweed (*Potamogeton zosteriformis*), and Suisun marsh aster (*Symphotrichum lentum*). The storm drain outfall site is along the edge of the tidal wetlands and provides potentially suitable habitat for some of these species. However, none of these species, or any other special-status plant species, was observed in the site during any of the surveys.

Table 4.2-3
Special-Status Plant Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site
Large-flowered fiddleneck	*Amsinckia grandiflora*	FE/CE/1B	Cismontane woodland, valley and foothill grassland; elevations 902-1,805 feet; blooms April - May.	**Unlikely**: the ruderal grassland habitats in the site are highly disturbed and do not provide suitable habitat for large-flowered fiddleneck; the site is also well below the elevation range of this species (CNPS, 2019). The nearest occurrence of large-flowered fiddleneck in the CNDDB (2019) search area is approximately seven miles southwest of the site.
Mt. Diablo manzanita	*Arctostaphylos auriculata*	--/--/1B	Chaparral, only on the Mt. Diablo area of Contra Costa County; elevations 443-2,133 feet; blooms January - March.	**Unlikely**: the site does not provide suitable habitat for Mt. Diablo manzanita. The site is not in the elevation range of this species (CNPS, 2019). The nearest occurrence of the Mt. Diablo manzanita in the CNDDB (2019) search area is approximately six miles southwest of the site.
Alkali Milk-Vetch	*Astragalus tener var. tener)*	--/--/1B	Alkali playas and vernal pools; elevations 3-197 feet; blooms March - June.	**Unlikely**: the project site does not provide suitable habitat for this species; vernal pools and alkali playas do not exist within the site. The nearest occurrence of alkali milk-vetch in the CNDDB (2019) search area is approximately 8.5 miles northwest of the site.
Brittlescale	*Atriplex depressa*	--/--/1B	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pool habitats within alkaline clay soils; elevations 3-1,050 feet; blooms April - October.	**Unlikely**: the ruderal grassland in the project site is highly disturbed and does not provide suitable habitat for brittlescale; there are also no other habitats in the site to support this species. The nearest occurrence of this species in the CNDDB (2019) search area is approximately five miles south of the site.

(Continued on next page)

Table 4.2-3
Special-Status Plant Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site
Big tarplant	*Blepharizonia plumosa ssp. plumosa*	--/--/1B	Valley and foothill grassland, usually in clay soils; elevations 98-1,657 feet; blooms July - October.	**Unlikely**: the ruderal grassland in the site is highly disturbed and does not provide suitable habitat for big tarplant. The site is also not within the elevation range of this species (CNPS, 2019). The nearest occurrence of this species in the CNDDB (2019) search area is approximately five miles southwest of the site.
Mt. Diablo fairy-lantern	*Calochortus pulchellus*	--/--/1B	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland; elevations 98-2,756 feet; blooms April - June.	**Unlikely**: the ruderal grassland in the project site is highly disturbed and does not provide suitable habitat for Mt. Diablo fairy-lantern. The site is not within the elevation range of this species (CNPS, 2019). The nearest occurrence of Mt. Diablo fairy-lantern in the CNDDB (2019) search area is approximately eight miles southwest of the site.
Congdon's Tarplant	*Centromadia parryi ssp. congdonii)*	--/--/1B	Valley and foothill grassland, usually in alkaline soils; elevations 0-754 feet; blooms May - October.	**Unlikely:** the ruderal grasslands in the site are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of Congdon's tarplant in the CNDDB (2019) search area is approximately 5.5 miles southeast of the site.
Soft salty bird's beak	Chloropyron mole ssp. molle	FE/CR/1B	Coastal salt marsh; elevations 0-10 feet; blooms July - November.	**Unlikely**: the permanent wetland is choked with cattails and tules and provides poor quality habitat for this species. Additionally, soft salty bird's-beak was not observed in the permanent wetland during the rare plant survey for the remediation project (California Environmental Services, 2017) or during the recent 2019 surveys by Moore Biological Consultants. The nearest occurrence of soft salty bird's-beak in the CNDDB (2019) search area is

(Continued on next page)

Table 4.2-3
Special-Status Plant Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site
				approximately one mile north of the site. The site is not in designated critical habitat for this species (USFWS, 2007)
Bolander's water-hemlock	*Cicuta maculata var. bolanderi*	--/--/2	Fresh or brackish water marshes; elevations 0- 656 feet; blooms July - September.	**Unlikely**: because the on-site seasonal wetlands are wet only seasonally, they provide poor quality marsh habitat for Bolander's water hemlock; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. Bolander's water hemlock was not observed during the rare plant survey for the remediation project (California Environmental Services, 2017) or during the recent 2019 surveys by Moore Biological Consultants. The nearest occurrence of this species in the CNDDB (2019) search area is mapped nonspecifically approximately one mile east of the site.
Hoover's cryptantha	Cryptantha hooveri	--/--/1B	Inland dunes; sandy areas in valley and foothill grasslands; elevations 30-492 feet; blooms April - May.	**Unlikely**: there are no dunes in the site and the ruderal grasslands are heavily disturbed and do not provide suitable habitat for Hoover's cryptantha; the site is also at the very low end of the elevation range of this species (CNPS, 2019). The nearest occurrence of Hoover's cryptantha in the CNDDB (2019) search area is approximately two miles southwest of the site.
Dwarf downingia	*Downingia pusilla*	--/--/2	Vernal pools; elevations 3-1,460 feet; blooms March - May.	**Unlikely**: there are no vernal pools in the site and the seasonal wetlands in the site do not provide habitat for vernal pool plants. The nearest occurrence of dwarf downingia in the CNDDB (2019) search area is

Table 4.2-3
Special-Status Plant Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site
				approximately 9.5 miles northwest of the site.
Antioch Dunes buckwheat	*Eriogonum nudum var. psychicola*	--/--/1B	Inland dunes; elevations 0-66 feet; blooms July - October.	**Unlikely**: the site does not provide dune habitat for Antioch Dunes buckwheat. The nearest occurrence of this species in the CNDDB (2019) search area is approximately two miles west of the site. Additionally, this species was not observed during the recent rare plant survey for the remediation project (California Environmental Services, 2017).
Mt. Diablo buckwheat	*Eriogonum truncatum*	--/--/1B	Coastal scrub, valley and foothill grassland and coastal scrub; usually on sandy soils; elevations 10-1,148 feet; blooms April - December.	**Unlikely**: the ruderal grasslands are highly disturbed and do not provide suitable habitat for Mt. Diablo buckwheat; the site is also at the very low end of the elevation range of this species (CNPS, 2019). The nearest occurrence of Mt. Diablo buckwheat in the CNDDB (2019) search area is approximately three miles southwest of the site.
Jepson's coyote thistle	*Eryngium jepsonii*	--/--/1B.2	Valley and foothill grasslands, within vernal pools; elevations 10–985 feet; blooms April - August.	**Unlikely**: the site does not provide suitable habitat for Jepson's coyote thistle. The site is also at the very low end of the elevation range of Jepson's coyote thistle (CNPS, 2019). The nearest occurrence of this species in the CNDDB (2019) search area is approximately eight miles southwest of the site.
Contra Costa wallflower	*Erysimum capitatum var. angustatum*	FE/CE/Rank 1B	Inland dunes; elevations 10-66 feet; blooms March - July.	**Unlikely**: the site does not provide dune habitat for Contra Costa wallflower. The nearest occurrence of this species in the CNDDB (2019) search area is approximately two miles west of the site. The site is not in designated critical habitat for Contra Costa wallflower (CFR, 1999a).

(Continued on next page)

Table 4.2-3
Special-Status Plant Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site
Diamond-petaled California poppy	*Eschscholzia rhombipetala*	--/--/1B	Valley and foothill grasslands in alkaline, clay soils; elevations 0-3,200 feet; blooms March - April.	**Unlikely**: the on-site grasslands are highly disturbed and do not provide suitable habitat for diamond-petaled California poppy. The site is at the very low end of the elevation range of this species, which is considered extirpated in Contra Costa County (CNPS, 2019). The nearest occurrence of diamond-petaled California poppy in the CNDDB (2019) search area is approximately 2.5 miles northwest of the site.
San Joaquin spearscale	*Extriplex joaquiniana*	--/--/1B	Chenopod scrub, meadows, playas and seeps, valley and foothill grassland; within alkaline soils; elevations 3-2,740 feet; blooms April - October.	**Unlikely**: the ruderal grasslands in the site are highly disturbed and do not provide suitable habitat for this species. The site is also at the very low end of the elevation range of this species (CNPS, 2019). The nearest occurrence of San Joaquin spearscale in the CNDDB (2019) search area is approximately five miles south of the site.
Fragrant fritillary	*Fritillaria liliacea*	--/--/1B	Coastal scrub, valley and foothill grassland and coastal prairie; often on serpentine soils; elevations 10-1,345 feet; blooms February - April.	**Unlikely**: the ruderal grasslands are highly disturbed and do not provide suitable habitat for fragrant fritillary; no areas of serpentine soils were observed in the site. The site is also at the very low end of the elevation range of this species (CNPS, 2019). The nearest occurrence of fragrant fritillary in the CNDDB (2019) search area is approximately 9.5 miles northwest of the site.
Diablo helianthella	*Helianthella castanea*	--/--/1B	Broad-leaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; elevations 197-4,265 feet; blooms March - June.	**Unlikely**: Unlikely: the on-site ruderal grasslands are heavily disturbed and provides poor quality habitat for Diablo helianthella. The site is also not within the elevation range of this species (CNPS,

Table 4.2-3
Special-Status Plant Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site
				2019) and below the elevation range of the potential habitat for this species as modeled in the ECCC HCP/NCCP. The nearest occurrence of Diablo helianthella in the CNDDB (2019) search area is approximately 7.5 miles southwest of the site.
Brewers western flax	*Hesperolinon breweri*	--/--/1B	Chaparral, cismontane woodland, valley and foothill grassland; usually serpentine soils; elevations 98-3,100 feet; blooms May - July.	**Unlikely**: the ruderal grasslands in the project site are highly disturbed and does not provide suitable habitat for Brewers western flax. The site is also not within the elevation range of this species (CNPS, 2019). The nearest occurrence of Brewers western flax in the CNDDB (2019) search area is approximately five miles southwest of the project site.
Woolly rose-mallow	*Hibiscus lasiocarpos var. occidentalis*	--/--/1B.2	Freshwater marshes and swamps, usually along the edges of delta islands; elevations 0-393 feet; blooms June - September.	**Unlikely**: because the on-site seasonal wetlands are wet only seasonally, they provide poor quality marsh habitat for woolly rose mallow; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. Additionally, woolly rose mallow was not observed during the rare plant survey for the remediation project (California Environmental Services, 2017) or during the recent 2019 surveys by Moore Biological Consultants. The nearest occurrence of this species in the CNDDB (2019) search area is approximately six miles northeast of the project site.
Contra Costa Goldfields	*Lasthenia conjugens*	FE/--/1B	Valley and foothill grassland within vernal pools and swales; elevations 0-1,542 feet; blooms March - June.	**Unlikely**: the site does not provide suitable habitat for Contra Costa goldfields; there are no vernal pools in the site and the seasonal wetlands in the site do not provide suitable

Table 4.2-3
Special-Status Plant Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site
				habitat for vernal pool plants. The site is at the very low end of the elevation range of this species (CNPS, 2019) and the nearest occurrence of Contra Costa goldfields in the CNDDB (2019) search area is a record mapped nonspecifically surrounding the city of Antioch, approximately three miles southwest of the site. The site is not in designated critical habitat for this species (USFWS 2005a).
Delta tule pea	*Lathyrus jepsonii var. jepsonii*	--/--/1B	Marshes and swamps, usually along the edges of delta islands; elevations 0-16 feet; blooms May - September.	**Unlikely**: because the on-site seasonal wetlands are wet only seasonally, they provide poor quality marsh habitat for delta tule pea; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. Additionally, delta tule pea was not observed during the rare plant survey for the remediation project (California Environmental Services, 2017) or during the recent 2019 surveys by Moore Biological Consultants. The nearest occurrence of delta tule pea in the CNDDB (2019) search area is approximately two miles northwest of the site.
Mason's lilaeopsis	*Lilaeopsis masonii*	--/CR/1B	Marshes, swamps and riparian scrub, usually along the edges of delta islands; elevations 0-33 feet; blooms April - November.	**Unlikely**: because the on-site seasonal wetlands are wet only seasonally, they provide poor quality marsh habitat for Mason's lilaeopsis; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. Additionally, this species was not observed during the rare plant survey for the remediation project (California Environmental Services, 2017)

Table 4.2-3
Special-Status Plant Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site
				or during the recent 2019 surveys by Moore Biological Consultants. The nearest occurrences of Mason's lilaeopsis recorded in the CNDDB (2019) search area are a few records along delta waterways within a mile north and northeast of the site.
Delta mudwort	*Limosella australis*	--/--/2B.1	Marshes and swamps, usually along the edges of delta islands; elevations 0-10 feet; blooms May - August.	**Unlikely**: because the on-site seasonal wetlands are wet only seasonally, they provide poor quality marsh habitat for Delta mudwort; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. Additionally, this species was not observed in the wetlands during the recent rare plant survey for the remediation project (California Environmental Services, 2017). The nearest occurrences of Delta mudwort recorded in the CNDDB (2019) search area are a few records along delta waterways within a mile north and northeast of the site.
Showy golden madia	*Madia radiata*	--/--/1B	Cismontane woodland, valley and foothill grassland; elevations 82- 3,986 feet; blooms March - May.	**Unlikely**: the on-site grasslands are heavily disturbed and do not provide suitable habitat for showy golden madia; this species is also considered extirpated in Contra Costa County (CNPS, 2019). The nearest occurrence of showy golden madia in the CNDDB (2019) search area is approximately 4.5 miles southwest of the site.
Hall's bush-mallow	*Malacothamnus hallii*	--/--/1B.	Chaparral, coastal scrub at elevations between 32-2,493 feet above sea level. Blooms May - October.	**Unlikely**: the site does not contain suitable habitat for this species; there is no chaparral habitat within the project site. The nearest occurrence of Hall's bush mallow in the CNDDB (2019) search area is

Table 4.2-3
Special-Status Plant Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site
				approximately eight miles southwest of the site.
Shining navarretia	*Navarretia nigelliformis ssp. radians*	--/--/1B	Cismontane woodland, valley and foothill grassland, vernal pools, usually in clay soils; elevations 249-3,281 feet; blooms April - July.	**Unlikely**: the on-site grasslands are heavily disturbed and do not provide suitable habitat for shining navarretia and there are no vernal pools in the site. The site is also well below the elevation range of this species (CNPS, 2019). The nearest occurrence of shining navarretia in the CNDDB (2019) search area is approximately five miles southwest of the site.
Colusa Grass	*Neostapfia colusana*	FT/CE/1B	Vernal pools (large and deep); elevations 16-656 feet; blooms May - August.	**Unlikely**: there are no vernal pools in the site. There are no occurrences of Colusa grass in the CNDDB (2019) search area. The site is not in designated critical habitat for this species (USFWS 2005a).
Antioch Dunes evening-primrose	*Oenothera deltoides ssp. howellii*	FE/CE/1B	Interior dunes in the Delta region; elevations 0-98 feet; blooms March – September.	**Unlikely**: the site does not contain dune habitat for this species. Additionally, this species was not observed in the site during the recent rare plant survey for the remediation project (California Environmental Services, 2017). The nearest occurrences of Antioch dunes evening primrose in the CNDDB (2019) search area is a few records within one mile southwest and west of the site. The site is not in designated critical habitat for this species (CFR, 1999b).
Bearded popcornflower	*Plagiobothrys hystriculus*	--/--/1B	Vernal pools, valley and foothill grassland; elevations 0-899 feet; blooms April – May.	**Unlikely**: the ruderal grassland in the site is highly disturbed and there are no vernal pools in the site to support bearded popcorn-flower. The site is at the low end of the elevation range of this species (CNPS, 2019). The nearest occurrence of bearded

Table 4.2-3 Special-Status Plant Species				
Common Name	**Scientific Name**	**Status**	**Habitat**	**Potential for Occurrence in the Project Site**
				popcornflower in the CNDDB (2019) search area is approximately nine miles northwest of the site.
Eel-grass pondweed	*Potamogeton zosteriformis*	--/--/2	Marshes and swamps at elevations between 0-6,102 feet above sea level. Blooms June – July.	**Unlikely**: because the on-site seasonal wetlands are wet only seasonally, they provide poor quality marsh habitat for eel-grass pondweed; the nearshore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. The site is also at the very low end of the elevation range of this species (CNPS, 2019). Additionally, eel-grass pondweed was not observed during the rare plant survey for the remediation project (California Environmental Services, 2017) or during the recent 2019 surveys by Moore Biological Consultants. The nearest occurrence of this species in the CNDDB (2019) search area is approximately six miles northeast of the site.
Chaparral ragwort	*Senecio aphanactis*	--/--/2	Cismontane woodland, coastal scrub, within drying alkaline flats; elevations 49-2,625 feet; blooms January – April.	**Unlikely**: the site does not contain suitable habitat for chaparral ragwort; the site is also below the elevation range of this species (CNPS, 2019). The nearest occurrence of this species in the CNDDB (2019) search area is approximately 8.5 miles southwest of the site
Keck's checkerbloom	*Sidalcea keckii*	--/FE/1B	Cismontane woodland, valley and foothill grassland, usually serpentine or clay soils; elevations 246-2,132 feet; blooms April - June.	**Unlikely**: the on-site grasslands are highly disturbed and do not provide suitable habitat for this species. The site is also well below the elevation range of this species (CNPS, 2019) The nearest occurrence of Keck's checkerbloom in the CNDDB (2019) search area is approximately 10 miles

Table 4.2-3
Special-Status Plant Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site
				northwest of the site.
Suisun marsh aster	*Symphyotrichum lentum*	--/--/1B	Marshes and swamps, usually along the edges of delta island; elevations 0-10 feet; blooms May - November.	**Unlikely**: because the on-site seasonal wetlands are wet only seasonally, they provide poor quality marsh habitat for Suisun marsh aster; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. Additionally, this species was not observed during the rare plant survey for the remediation project (California Environmental Services, 2017) or during the recent 2019 surveys by Moore Biological Consultants. The nearest occurrence of this species in the CNDDB (2019) search area is a record mapped nonspecifically within one mile east of the site.
Caper-fruited tropidocarpum	*Tropidocarpum capparideum*	--/--/1B	Valley and foothill grassland, alkaline soils; elevations 3-1,493 feet; blooms March - April.	**Unlikely**: the on-site grasslands are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of caper-fruited tropidocarpum in the CNDDB (2019) search area is approximately 10.5 miles southeast of the site.
Oval-leaved viburnum	*Viburnum ellipticum*	--/--/2	Chaparral, cismontane woodland, and lower montane coniferous forest; elevations 705-4,593 feet; blooms May - June.	**Unlikely**: the site does not contain suitable habitat for this species. The site is also well below the known elevation range of oval-leaved viburnum (CNPS, 2019). The nearest occurrence of this species in the CNDDB (2019) search area is approximately 11.5 miles southwest of the site.

Notes:
T= Threatened; E = Endangered; C = Candidate. T= Threatened; E = Endangered; R = Rare; FP = Fully Protected Species; SC = Species of Special Concern

Table 4.2-3
Special-Status Plant Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site
per California Department of Fish and Wildlife. CNPS List 1B includes species that are rare, threatened, or endangered in California and elsewhere; List 2 includes plants that are rare, threatened or endangered in California but are more common elsewhere.				

Sources: ***Moore Biological Consultants, 2019.***
California Environmental Services. Focused Rare Plant Surveys, Chemours-Oakley, California Site. September 7, 2017.
Code of Federal Regulations. Title 50. Volume 1 - Wildlife and Fisheries. Section 17.96 - Critical habitat-plants. Designation of critical habitat for Contra Costa wallflower (Erysimum capitatum var. angustatum). Designated in Federal Register notice 43:39044; August 31, 1978. 1999a.
Code of Federal Regulations. Volume 1 - Wildlife and Fisheries. Section 17.96 – Critical habitat-plants. Designation of critical habitat for Antioch dunes evening primrose (Oenothera deltoides var. howellii). Designated in Federal Register notice 43:39042; August 31, 1978. 1999b.
USFWS. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Cirsium hydrophilum var. hydrophilum (Suisun thistle) and Cordylanthus mollis ssp. mollis (soft bird's-beak). Final Rule. Federal Register Vol. 72, No. 70, April 12, 2007.
USFWS. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Evaluation and Economic Exclusions from August 2003 Final Designation, Final Rule. Federal Register Vol. 70, No. 154, August 11 2005.
CNDDB (California Natural Diversity Database). 2019. California Department of Fish and Wildlife's Natural Heritage Program, Sacramento, California.
CNPS (California Native Plant Society). 2019. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). California Native Plant Society, Sacramento, CA. http://www.rareplants.cnps.org

Table 4.2-4
Special-Status Wildlife Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site/Off-Site Improvement Areas
Invertebrates				
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T/--	Elderberry shrubs, usually in Central Valley riparian habitats.	**Unlikely**: there are no blue elderberry shrubs in or adjacent to the site. There are no occurrences of valley elderberry longhorn beetle recorded in the CNDDB (2019) in the search area. The site is not in designated critical habitat for this species (USFWS 1980a).
Vernal pool fairy shrimp	*Branchinecta lynchi*	T/--	Vernal pools.	**Unlikely**: there are no vernal pools in the site. The nearest occurrence of vernal pool fairy shrimp in the CNDDB (2019) search area is approximately 5.5 mile southwest of the site. The site is not in designated critical habitat of this species(USFWS, 2005a).
Conservancy fairy shrimp	*Branchinecta conservation*	E/--	Vernal pools.	**Unlikely**: there are no vernal pools in the site. The nearest occurrence of Conservancy fairy shrimp in the CNDDB (2019) search area is approximately 9.5 miles northwest of the site. The site is not in designated critical habitat for this species (USFWS 2005a).
Vernal pool tadpole shrimp	*Lepidurus packardi*	E/--	Vernal Pools	**Unlikely**: there are no vernal pools in or near the site. The nearest occurrence of this species in the CNDDB (2019) search area is approximately nine miles northwest of the site. The site is not in designated critical habitat for vernal pool tadpole shrimp (USFWS, 2005a).
San Bruno elfin butterfly	*Callophrys mossii bayensis*	E/--	Rocky outcrops and cliffs in coastal scrub habitats.	**Unlikely**: the site does not provide suitable habitat for this species. There are no occurrences of San Bruno elfin butterfly in the CNDDB (2019) search area.
Lange's	*Apodemia mormo*	E/--	Inhabits stabilized dunes along the	**Unlikely**: there is no dune habitat in the

(Continued on next page)

Table 4.2-4
Special-Status Wildlife Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site/Off-Site Improvement Areas
metalmark butterfly	*langei*		San Joaquin River.	project site. The closest occurrence of Lange's metalmark butterfly in the CNDDB (2019) search area is approximately seven miles northwest of the site.
Delta green ground beetle	*Elaphrus viridis*	T/--	Margins of vernal pools in grasslands.	**Unlikely**: there are no vernal pools in the site. There are no occurrences of delta green ground beetle in the CNDDB (2019) in the search area. The site is not in designated critical habitat of this species (USFWS 1980b).
Fish				
Central Valley steelhead	*Oncorhynchus mykiss*	T/--	Riffle and pool complexes with adequate spawning substrates within Central Valley drainages.	**None**: the site does not provide suitable habitat for this species; Central Valley steelhead is known to occur in the San Joaquin River north of the site. The nearest occurrence of this species in the CNDDB (2019) search area is in the San Joaquin River, north of the site. The site is not in designated as critical habitat for Central Valley steelhead (NOAA, 2005).
Delta smelt	*Hypomesus transpacificus*	T/T	Shallow lower delta waterways with submersed aquatic plants and other suitable refugia.	**None**: the site does not provide suitable habitat for this species; delta smelt occur in the San Joaquin River north of the site and there is an occurrence of delta smelt in the CNDDB (2019) search area is in the San Joaquin River just north of the site. Like much of Oakley, the project site is within designated critical habitat for delta smelt (USFWS, 1994) as the critical habitat of this species is generally defined by elevation.
Winter-run Chinook salmon	*Oncorhynchus tshawytscha*	E/E	Deep flowing pools and riffle complexes with adequate spawning substrates.	**Unlikely**: the site does not provide suitable habitat for this species; winter-run Chinook salmon occur in the San Joaquin River

(Continued on next page)

Table 4.2-4
Special-Status Wildlife Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site/Off-Site Improvement Areas
				north of the site. There are no occurrences of this species recorded in the CNDDB (2018) within the search area.
Spring-run Chinook salmon	*Oncorhynchus tshawytscha*	T/T	Deep flowing pools and riffle complexes with adequate spawning substrates.	**Unlikely**: the site does not provide suitable habitat for this species; spring-run Chinook salmon occur in the San Joaquin River north of the site. There are no occurrences of this species recorded in the CNDDB (2018) within the search area.
Longfin smelt	*Spirinchus thaleichthys*	--/SC	Brackish estuarine habitats.	**None**: the site does not provide suitable habitat for this species; longfin smelt is known to occur in the San Joaquin River north of the site and there is an occurrence of longfin smelt in the CNDDB (2019) search area is in the San Joaquin River just north of the site.
Green sturgeon	*Acipenser medirostris*	T/SC	Freshwater and saltwater habitats; spawn in freshwater rivers.	**Unlikely**: the site does not provide suitable habitat for this species; green sturgeon isknown to occur in the San Joaquin River north of the site. There are no occurrences of green sturgeon recorded in the CNDDB (2019) within the search area.
Sacramento perch	*Archoplites interruptus*	--/SC	Sloughs, lakes, and low-moving Central Valley Rivers; requires warm water.	**None**: the site does not provide suitable habitat for Sacramento perch; this species may occur in the San Joaquin River north of the site. The nearest occurrence of this species in the CNDDB (2019) search area is in the San Joaquin River just north of the site.

(Continued on next page)

Table 4.2-4
Special-Status Wildlife Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site/Off-Site Improvement Areas
Reptiles and Amphibians				
California tiger salamander	*Ambystoma californiense*	T/T	Seasonal water bodies without fish (i.e., vernal pools and stock ponds) and grassland/ woodland habitats with summer refugia (i.e., burrows).	**Unlikely**: there is no suitable habitat within or near the site for California tiger salamander. This species occurs in the transitional bands between the valley floor and foothills and is not known to occur in the delta. The nearest occurrence of California tiger salamander in the CNDDB (2019) search area is approximately 3.5 miles southwest of the site. The site is not within designated critical habitat for this species (USFWS, 2005b).
Giant garter snake	*Thamnophis gigas*	T/T	Freshwater marsh and low gradient streams; also adapted to drainage canals and irrigation ditches, primarily for dispersal or migration.	**Unlikely**: while this highly aquatic species may occur in regional delta waterways, the site provides poor quality habitat for giant garter snake. The nearest occurrence of this species in the CNDDB (2019) search area is a historical record (1987) mapped as "best guess". This record includes a large area mapped nonspecifically, including a portion of the north part of the site.
California red-legged frog	*Rana draytonii*	T/SC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	**Unlikely**: there is no suitable habitat for California red-legged frog in or near the project site. This species is also presumed extinct on the floor of the Central Valley of California. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 5.5 miles southwest of the site. The site is not in California red-legged frog designated critical habitat (USFWS, 2006a).
Foothill yellow-legged frog	*Rana boylii*	--/SC	Perennial water bodies (i.e., streams and ponds) with abundant riparian	**Unlikely**: there is no suitable aquatic habitat for foothill yellow-legged frog in the

(Continued on next page)

Table 4.2-4 Special-Status Wildlife Species				
Common Name	**Scientific Name**	**Status**	**Habitat**	**Potential for Occurrence in the Project Site/Off-Site Improvement Areas**
			vegetation.	project site. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 10.5 miles southwest of the site.
Northern California legless lizard	*Aniella pulchra pulchra*	--/SC	Sandy or loose loamy soils under sparse vegetation.	**Unlikely**: the site provides marginally suitable habitat for northern California legless lizard. The nearest occurrence of this species in the CNDDB (2019) search area is approximately one mile southeast of the site.
Alameda whipsnake	*Masticophis lateralis euryzanthus*	T/T	Scrub, chaparral, grassland, and woodland habitat mosaics. South-facing slopes and ravines.	**Unlikely**: the grasslands in the site are highly disturbed and do not provide suitable habitat for Alameda whipsnake. The nearest occurrence of this species in the CNDDB (2019) search area is approximately five miles southwest of the site. The site is not in designated critical habitat for Alameda whipsnake (USFWS, 2006b).
California glossy snake	*Arizona elegans occidentalis*	--/SC	Arid scrub, rocky washes, grasslands, and chaparral.	**Unlikely**: the highly disturbed grasslands in the site do not provide suitable habitat for California glossy snake. The nearest occurrence of this species in the CNDDB (2019) search area is approximately two miles west of the site.
Western pond turtle	*Emys marmorata*	--/SC	Ponds, marshes, streams, and ditches with emergent aquatic vegetation and basking areas.	**Unlikely**: the site provides poor quality habitat for this species. The nearest occurrence of western pond turtle in the CNDDB (2019) search area is approximately one mile north of the site.

(Continued on next page)

Table 4.2-4
Special-Status Wildlife Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site/Off-Site Improvement Areas
Birds				
Burrowing Owl	*Athene cunicularia*	--/SC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	**Low**: the ruderal grassland in the site is highly disturbed and portions are routinely mowed. No burrowing owls or burrows with evidence of owl occupancy were observed. The nearest occurrence of nesting burrowing owls in the CNDDB (2019) search area is approximately one mile southwest of the site. Nevertheless, the grassland portion of the project site within the ECCC HCP/NCCP Permit Area is considered potential habitat for the species.
Golden Eagle	*Aquila chrysaetos*	--/FP	Nesting areas are associated with cliff-walled canyons and large trees. Foraging habitat includes rolling hills and mountain areas.	**Low**: due to the highly disturbed nature of the project site and surrounding area, the project site is not considered to represent habitat for the species. However, the project site is included in the ECCC HCP/NCCP as an area of potential habitat for the species.
Swainson's hawk	*Buteo swainsoni*	--/T	Breeds in stands of tall trees in open areas. Requires adjacent suitable foraging habitats such as grasslands or alfalfa fields supporting rodents.	**Moderate**: there are several large trees in and surrounding the project site suitable for nesting by Swainson's hawks. Additionally, there is annual cropland and suitable foraging habitat in close proximity to the site. There is a record of Swainson's hawks in the CNDDB (2019) nesting along the west edge of the site. A pair of Swainson's hawks was documented nesting in one of the eucalyptus trees in the southwest part of the site during 2018 and Swainson's hawks were observed soaring around the same trees during a March 21, 2019 site visit. The CNDDB (2019) does not yet contain this occurrence.

(Continued on next page)

Table 4.2-4
Special-Status Wildlife Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site/Off-Site Improvement Areas
White-tailed kite	*Elanus leucurus*	--/FP	Herbaceous lowlands with variable tree growth and dense population of voles.	**Moderate**: grasslands in the site and grasslands and annual cropland in the close proximity to the projects site provides foraging habitat for white-tailed kite. Relatively large trees in and surrounding the site are suitable for nesting. The nearest occurrence of white-tailed kite in the CNDDB (2019) search area is approximately 2.5 miles southeast of the site. This species was documented nesting in the subject property during surveys conducted for the remediation project (Ardea & Bumgardner, 2017).
Tricolored blackbird	*Agelaius tricolor*	--/CE/SC	Requires open water and protected nesting substrate, usually cattails and riparian scrub with surrounding foraging habitat.	**Low**: the emergent wetland vegetation in the seasonal wetlands in the site and at the storm drain outfall site may provide suitable tricolored blackbird nesting habitat. The nearest occurrence of this species in the CNDDB (2019) search area is approximately nine miles southeast of the site.
California black rail	*Laterallus jamaicensis coturniculus*	--/T	Mainly inhabits salt marshes bordering larger bays.	**Low**: the seasonal wetlands in the site do not provide habitat for California black rail.. In contrast, the near-shore portions of the permanent wetland provide potentially suitable habitat for this species. The nearest occurrence of California black rail in the CNDDB (2019) search area is in the mosaic of pickleweed wetlands and coastal salt marsh habitats just northeast of the site. The CNDDB record is noted that there has been development in this area since the detection and it is "unknown if this site is still populated". California black rail was

(Continued on next page)

Table 4.2-4
Special-Status Wildlife Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site/Off-Site Improvement Areas
				documented nesting in the subject property during surveys conducted for the remediation project (Ardea & Bumgardner, 2017).
California clapper rail	*Rallus longirostris obsoletus*	E/E	Salt water and brackish marshes traversed by tidal sloughs in the San Francisco Bay, associated with abundant growths of pickleweed.	**Unlikely**: while there is suitable habitat to support California clapper rail near the site, the site is located outside the known range of this species. There are no occurrences of California clapper rail in the CNDDB (2019) search area.
California least tern	*Sturnula antillarum browni*	E/E	Estuaries and bays; nests on exposed tidal flats or beaches.	**Unlikely**: while there is suitable habitat to support California least tern near the site, the site is located outside the known range of this species. There are no occurrences of California least tern in the CNDDB (2019) search area.
Bank swallow	Riparia riparia	--/T	Nests colonially in riparian habitats; requires vertical banks and cliffs with fine textured soils.	**Unlikely**: there is no suitable nesting habitat for bank swallows in the site. The only occurrence of this species in the CNDDB (2019) search area is approximately 7.5 miles northeast of the project site.
Saltmarsh common yellowthroat	*Geothlypis trichas sinuosa*	--/SC	Fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging.	**Low**: the seasonal wetlands in the site are small and support limited marsh vegetation. In contrast, the near-shore portions of the permanent wetland provide potentially suitable habitat for this species. Saltmarsh common yellowthroat was documented in the subject property during surveys conducted support of the ongoing remediation project (Ardea & Bumgardner, 2017). The nearest occurrence of this species in the CNDDB (2019) search area is approximately seven miles northwest of

(Continued on next page)

Table 4.2-4
Special-Status Wildlife Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site/Off-Site Improvement Areas
				the project site.
Loggerhead shrike	*Lanius ludovicianus*	BCC/CSC	Annual grasslands and agricultural areas throughout the Central Valley; nests in trees and shrubs.	**Moderate**: the highly disturbed ruderal grasslands in the site provide suitable foraging for this species, which is relatively widespread in the area, in low numbers. Additionally, loggerhead shrike may nest in trees or shrubs in the site. The nearest occurrence of this species in the CNDDB (2019) search area is approximately three miles southeast of the site. Loggerhead shrike was documented nesting in the overall property during surveys conducted for the remediation project (Ardea & Bumgardner, 2017)
Suisun song sparrow	*Melospiza melodia maxillaris*	--/SC	Resident of brackish water marshes, usually in or near Suisun Bay. Inhabits cattails, tules, and tangles bordering sloughs.	**Low**: the seasonal wetlands in the site provide low quality marsh habitat for this species. In contrast, the near-shore portions of the permanent wetland provide potentially suitable habitat for this species. The nearest occurrence of Suisun song sparrow in the CNDDB (2019) search area is approximately five miles northwest of the site.
Song sparrow "Modesto" population	*Melospiza melodia*	--/SC	Resident of brackish water marshes. Inhabits cattails, tules, and tangles bordering sloughs.	**Low**: the seasonal wetlands in the site support small amounts of marsh vegetation and provides low quality marsh habitat for the "Modesto" population of song sparrow. In contrast, the near-shore portions of the permanent wetland provide potentially suitable habitat for this species. The nearest occurrence of song sparrow ("Modesto" population) in the CNDDB (2019) search area is approximately 3.5

(Continued on next page)

Table 4.2-4
Special-Status Wildlife Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site/Off-Site Improvement Areas
				miles northeast of the site.
Mammals				
San Joaquin kit fox	*Vulpes macrotis mutica*	E/T	Inhabits open, dry grasslands and scrublands with loose textured soils.	**Unlikely**: the grasslands in the site are heavily disturbed and portions are routinely mowed. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 5.5 miles southwest of the site.
American badger	*Taxidea taxus*	--/SC	Drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	**Unlikely**: the site does not provide suitable habitat for American badger. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 5 miles southwest of the site.
Salt-marsh harvest mouse	*Reithrodontomys raviventris*	E/E	Saline emergent wetlands dominated by pickleweed.	**Unlikely**: the site is outside of the range of this species. The nearest occurrence of salt-marsh harvest mouse in the CNDDB (2019) search area is a historical record (1985) approximately five miles northwest of the site.
Pallid bat	*Antrozous pallidus*	--/SC	Open and dry habitats with rocky areas for roosting.	**Unlikely**: the site does not provide suitable habitat for this species. The nearest occurrence of pallid bat in the CNDDB (2019) search area is approximately 12 miles southwest of the site.
Western red bat	*Lasiurus blossevillii*	--/SC	Roosts in trees in a wide variety of habitats.	**Unlikely**: although some trees in the site may be suitable for western red bat for roosting, this species is not known to be widespread in the area. The nearest occurrence of western red bat in the CNDDB (2019) search area is mapped nonspecifically in the City of Antioch, approximately four miles west of the site.

(Continued on next page)

Table 4.2-4
Special-Status Wildlife Species

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence in the Project Site/Off-Site Improvement Areas

Notes:
T= Threatened; E = Endangered; C = Candidate. T= Threatened; E = Endangered; R = Rare; FP = Fully Protected Species; SC = Species of Special Concern per California Department of Fish and Wildlife. CNPS List 1B includes species that are rare, threatened, or endangered in California and elsewhere; List 2 includes plants that are rare, threatened or endangered in California but are more common elsewhere.

Sources: ***Moore Biological Consultants, 2019.***
Ardea & Bumgardner (Ardea Consulting & Bumgardner Biological Consulting). Wildlife Resources at Chemours-Oakley, California Site. Prepared for Parsons, Walnut Creek, California. October 2017.
National Oceanic and Atmospheric Administration (NOAA). Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule. Federal Register 70 (170): 52488-52585. September 2, 2005.
USFWS. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17. Listing the Valley Elderberry Longhorn Beetle as a Threatened Species with Critical Habitat. Federal Register 45 No. 155, pp. 52803-52807, August 8, 1980.
USFWS. Endangered and Threatened Wildlife and Plants; Listing the Delta Green Ground Beetle as a Threatened Species with Critical Habitat; Final Rule. Federal Register Vol. 45, No. 155, August 8, 1980, pp. 52807 – 52810. 1980b.
USFWS. Final Critical Habitat for the Delta Smelt (Hypomesus transpacificus). Federal Register Vol. 59, No. 242, December 19, 1994, pp. 65256 – 65279. 1994.
USFWS. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Evaluation and Economic Exclusions from August 2003 Final Designation, Final Rule. Federal Register Vol. 70, No. 154, August 11, 2005a.
USFWS. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Tiger Salamander, Central Population; Final Rule. Federal Register Vol. 70, No. 162, August 23, 2005, pp. 49390 – 49458. 2005b.
USFWS. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for California Red-Legged Frog, and Special Rule Exemption Associated with Final Listing for Existing Routine Ranching Activities, Final Rule. Federal Register Vol. 71, No. 71, April 13. 2006a.
USFWS. Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Alameda Whipsnake, Final Rule. Federal Register Vol. 71, No. 190, October 2, 2006b.

Special-Status Wildlife Species

Based on queries of the CNDDB and IPaC, previously completed studies prepared for the Chemours remediation activity, as well as surveys of existing site conditions conducted by Moore Biological Consultants, 39 special-status wildlife species known to occur within the query area, ten of which are considered to have a low or moderate potential to occur within the subject property (see Table 4.2-4). The remaining 31 special-status wildlife species are considered unlikely to occur within the subject property or do not have any potential to occur within the subject property.

Each of the ten species considered to have the potential to occur within the project site, are discussed in further depth below.

Birds

A total of 10 special-status bird species were identified as having the potential to occur within the project site based on literature review, site conditions, and the landcover types deemed to be potential habitats for the species in the ECCC HCP/NCCP (see Table 4.2-4). The Del Antico Basin provides potentially suitable habitat for four of these species: burrowing owl (*Athene cunicularia*), golden eagle (*Aquila chrysaetos*), Swainson's hawk (*Buteo swainsoni*), and white-tailed kite (*Elanus leucurus*).

During site visits in 2017 associated with the Chemours remediation activity, several special-status birds were documented as nesting within the subject property, including California black rail, white-tailed kite, and loggerhead shrike. In addition, Saltmarsh common yellowthroat was observed during the nesting season, but nesting of the species was not documented.

Brief descriptions of the 10 special-status bird species that are present or have the potential to occur within the project area and/or off-site improvement areas are presented below.

Burrowing Owl

The burrowing owl is not listed pursuant to either CESA or FESA; however, the burrowing owl is designated as a federal Bird of Conservation Concern and a California Species of Special Concern. Burrowing owls inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. The burrowing owl can also inhabit developed areas such as golf courses, cemeteries, road sides within cities, airports, vacant lots in residential areas, school campuses, and fairgrounds. The burrowing owl species typically uses burrows created by fossorial mammals, most notably the California ground squirrel, but may also use manmade structures such as cement culverts or pipes; cement, asphalt, wood debris piles, or openings beneath cement or asphalt pavement. The breeding season typically occurs between February 1 and August 31. Burrowing owls are a covered species under the ECCC HCP/NCCP.

Due to the presence of grassland habitat within the subject property, portions of the subject Due to the presence of grassland habitat, portions of the site and the Del Antico Basin are considered suitable habitat for the species. Moore Biological Consultants inspected the site and the Del Antico Basin for burrowing owls, ground squirrel burrows, and burrows with evidence of burrowing owl occupancy, but did not identify any such features or individual burrowing owls. It should be noted that the past and on-going disturbance of grassland areas within the project site reduces the suitability of the site as habitat for the species. Nevertheless, because the ECCC HCP/NCCP assumes that the grassland on-site and the Del Antico Basin is suitable habitat, and because potentially suitable habitat is present in the portion of the site outside the

ECCC HCP/NCCP Permit Area, the potential for burrowing owl to occur within the project site and the Del Antico Basin is considered within this EIR.

Golden Eagle

The golden eagle is not listed pursuant to either CESA or FESA. However, the golden eagle is fully protected according to §3511 of the California Fish and Game Code and the federal Bald and Golden Eagle Protection Act. Golden eagles generally nest on cliff ledges and/or large lone trees in rolling to mountainous terrain. Golden eagles nest throughout California except the Central Valley, the immediate coast, and portions of southeastern California. Occurrences within the Central Valley are usually dispersing post-breeding birds, non-breeding sub-adults, or migrants. Foraging habitat includes open grassland and savannah and nesting occurs during February through August. Golden Eagle are a covered species under the ECCC HCP/NCCP.

The site is within the range of the species, and a few potential nest trees exist within the project site or are visible from the site and the Del Antico Basin. Golden eagles were not observed within the site, and the species is more frequently found nesting on cliffs in remote natural areas. Furthermore, the species demonstrates preference for less urbanized settings, and the on-going remediation work at the site would likely reduce to the suitability of on-site nesting trees as habitat for the species. The CNDDB does not contain records of the species in the project area. Nevertheless, because the portion of the project site within the ECCC HCP/NCCP Permit Area and the Del Antico Basin contain potential nest trees, the project site and the Del Antico Basin are considered potentially suitable habitat. Because the ECCC HCP/NCCP assumes that the grassland on-site and the Del Antico Basin is suitable golden eagle habitat, and because potentially suitable habitat is present in the portion of the site outside the ECCC HCP/NCCP Permit Area, the potential for golden eagle to occur within the project site and the Del Antico Basin is considered within this EIR

Swainson's Hawk

Swainson's hawk is listed as a threatened species and is protected pursuant to the CESA. In California, the nesting season for Swainson's hawk ranges from early March to late August. Swainson's hawk nest within tall trees in a variety of wooded communities including riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas, among others. Foraging habitat includes open grassland, savannah, low-cover row crop fields, and livestock pastures. According to Moore Biological Consultants, several large trees within the project site and a few trees in the Del Antico Basin provide potential nesting habitat for Swainson's hawk while grassland and cropland in the site, basin, and surrounding areas provide potentially suitable foraging habitat.

The CNDDB contains a 2012 record of Swainson's hawks nesting in a redwood tree in the project site near Bridgehead Road. This record indicates two juvenile Swainson's hawks successfully fledged in 2011 and there were several failed nesting attempts in 2012 before the nesting tree was removed. A pair of Swainson's hawks were documented nesting in a eucalyptus tree within the project site during 2018, and Swainson's hawks were observed soaring around the same trees during a March 21, 2019 site visit. Considering the species' nest site affinity, Swainson's hawks are expected to return to the site to nest in future years. As the Del Antico Basin is surrounded by subdivisions and a vineyard, Swainson's hawks are unlikely to nest in the basin. Because the ECCC HCP/NCCP assumes that the grassland on-site and the Del Antico Basin is suitable Swainson's hawk habitat, and because potentially suitable habitat is present in the portion of the site outside the ECCC HCP/NCCP Permit Area, the potential for Swainson's hawk to occur within the project site and the Del Antico Basin is considered within this EIR.

White-Tailed Kite

White-tailed kite is not listed pursuant to either CESA or FESA; however, the white-tailed kite is fully protected pursuant to §3511 of the California Fish and Game Code. In northern California, white-tailed kite nesting occurs from March through early August, with nesting activity peaking from March through June. Nesting habitat includes trees within riparian, oak woodland, savannah, and agricultural communities that are near foraging areas such as low elevation grasslands, agricultural, meadows, farmlands, savannahs, and emergent wetlands.

White-tailed kite has been documented nesting in the subject properties during previous site surveys conducted in relation to the Chemours remediation activity. According to Moore Biological Consultants, several large trees within the project site and a few trees in the Del Antico Basin provide potential nesting habitat for white-tailed kite while grassland and cropland in the site, basin, and surrounding areas provide potentially suitable foraging habitat. Because the ECCC HCP/NCCP assumes trees are potentially suitable white-tailed kite nesting habitat, and because potentially suitable nesting habitat is present in the portion of the site outside the ECCC HCP/NCCP Permit Area, the potential for white-tailed kite to occur within the project site and the Del Antico Basin is considered within this EIR.

Tricolored Blackbird

Tricolored blackbirds (*Agelaius tricolor*) are not federally listed, but are state listed as threatened. Tricolored blackbirds are colonial nesters preferring to nest in dense stands of cattails, bulrush, or blackberry thickets, often associated with aquatic features. The tricolored blackbird nest in colonies that can range from several pairs to several thousand pairs, depending on prey availability, the presence of predators, or level of human disturbance. Tricolored blackbirds nesting habitat includes emergent marsh, riparian woodland/scrub, blackberry thickets, densely vegetated agricultural and idle fields (e.g., wheat, triticale, safflower, fava bean fields, thistle, mustard, cane, and fiddleneck), usually with some nearby standing water or ground saturation. The tricolored blackbirds feed mainly on grasshoppers during the breeding season, but may also forage upon a variety of other insects, grains, and seeds in open grasslands, wetlands, feedlots, dairies, and agricultural fields. The nesting season is generally from March through August. According to the Moore Biological Consultants, the nearest occurrence of the species is approximately nine miles to the southeast of the site. The emergent wetland vegetation in the seasonal and permanent wetland areas within the project site may provide suitable nesting habitat for the species. Grassland and cropland in the site, the Del Antico Basin, and surrounding areas provide potentially suitable foraging habitat. Because there is suitable tricolored blackbird nesting habitat in the site, the potential for tricolored blackbirds tricolored blackbirds to occur within the project site is considered within this EIR.

California Black Rail

The California black rail (*Laterallus jamaicensis coturnculus*) is a scarce bird that occurs in saline, brackish, and freshwater wetlands. The species is not federally listed, but is state listed as threatened. According to the CNDDB California black rails have not been documented within a five-mile radius of the study area. Although Moore Biological Consultants did not consider the seasonal wetlands to provide habitat for the species, the permanent wetlands on-site are considered suitable nesting habitat. The nearest reported CNDDB occurrence of the species occurred in the wetlands and coastal salt marsh habitats located to the northeast of the project site. Furthermore, field surveys of the site in 2017 documented nesting of the species within the subject property. Although the species is documented nesting in the subject property, the portion of the permanent wetlands included in the project site represents a small, relatively poor habitat for the species. Thus, the likelihood that the species would occur within the project site is low. Further, the Del Antico Basin does not provide suitable habitat for California black rail. Because potentially suitable habitat for California black rail is present in part of the site, the potential for California black rail to occur within the project site is considered within this EIR.

Saltmarsh Common Yellowthroat

The saltmarsh common yellowthroat (*Geothylpis trichas sinuosa*), also known as the San Francisco common yellowthroat, is a subspecies of the common yellowthroat that is endemic to the San Francisco Bay. The species is identified as a species of special concern by the CDFW, but is not listed as threatened or endangered by the CDFW or USFWS. Saltmarsh common yellowthroat occur year-round within the breeding range of the subspecies. Breeding season extends from mid-March to July. The current range of the species includes four main areas: coastal riparian and wetland areas of western Marin County, the tidal marsh system of the San Pablo Bay, the tidal marsh system of the southern San Francisco Bay, and coastal riparian and wetland areas in San Mateo County.

The permanent wetlands within the project site provide potentially suitable habitat for the species. During field surveys conducted in 2017, saltmarsh common yellowthroat was identified within the subject property. Although the species is documented in the subject property, the portion of the permanent wetlands included in the project site represents a small, relatively poor habitat for the species. Thus, the likelihood that the species would occur within the project site is low. Further, the Del Antico Basin does not provide suitable habitat for saltmarsh common yellowthroat. Because potentially suitable habitat for saltmarsh common yellowthroat is present in part of the site, the potential for saltmarsh common yellowthroat to occur within the project site is considered within this EIR.

Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is not listed pursuant to either CESA or FESA, but is designated a federal Bird of Conservation Concern and a California Species of Special Concern. Loggerhead shrikes nest in small trees and shrubs in open country with short vegetation such as pastures, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas, and open woodlands. The nesting season extends from March through June.

According to Moore Biological Consultants, loggerhead shrike were documented as nesting within the subject property during surveys conducted in 2017. Trees and shrubs within the Del Antico Basin also provide potentially suitable loggerhead shrike nesting. Because potentially suitable nesting habitat for loggerhead shrike is present in the site and the Del Antico Basin, the potential for loggerhead shrike to occur within the project site and the Del Antico Basin is considered within this EIR.

Suisun Song Sparrow

The Suisun song sparrow (*Melospiza melodia maxillaris*) is a subspecies of the Song Sparrow that is endemic to the Suisun Marsh within the San Joaquin-Sacramento River Delta. The sub species is not listed pursuant to either CESA or FESA, but is designated as a Species of

Special Concern per the CDFW. Suisun song sparrow are believed to prefer fully tidal marshes, but some muted tidal marshes or impounded wetlands may also provide suitable habitat. Along with the hydrologic regime, vegetation seems to be a factor in habitat selection. Dense vegetation is required for nesting sites, song perches, and refuge from predators. Nesting sites with higher perimeter-to-area ratios have shown lower nesting success and higher rates of predation than sites with lower perimeter-to-area ratios, suggesting that nesting success occurs more frequently in larger habitat patches.[8]

The permanent wetland area within the subject property represents potentially suitable habitat for the species, with the permanent wetland area included in the project site representing a small portion of the edge of such suitable habitat. The nearest CNDDB occurrence of the species is approximately five-miles to the northwest of the project site. The Del Antico Basin does not provide suitable habitat for Suisun song sparrow. Because potentially suitable habitat for Suisun song sparrow is present in part of the site, the potential for Suisun song sparrow to occur within the project site is considered within this EIR.

Song Sparrow "Modesto" Population

The Song Sparrow "Modesto" Population (Melospiza melodia) is not listed pursuant to either CESA or FESA. However, the species is designated as a Species of Special Concern per the CDFW. The Song Sparrow "Modesto" Population was considered a distinct subspecies until revisions in 2001, and may again be considered a distinct subspecies pending further research. The Song Sparrow "Modesto" Population is endemic to the north-central portion of the Central Valley, with some of the highest population densities occurring in the San Joaquin-Sacramento River Delta. The species is generally associated with wetland areas and riparian habitats.[9] The seasonal wetlands within the project site provide low quality marsh habitat, while the permanent wetland within the subject property provides potentially suitable habitat for the species. The Del Antico Basin does not provide suitable habitat for Song Sparrow "Modesto" Population. Because potentially suitable habitat for Song Sparrow "Modesto" Population is present in part of the site, the potential for Song Sparrow "Modesto" Population to occur within the project site is considered within this EIR.

Special-Status Fish

As noted in Table 4.2-4, seven fish species are known to occur in the San Joaquin River to the north of the project site. Because the project site does not contain any portion of the San Joaquin River, and the project site does not provide suitable habitat for any fish species, none of the seven fish species were considered to have any likelihood of occurring within the project site. Although the project site does not contain any habitat for special-status fish species, the proposed stormwater outfall within the project site would direct treated stormwater to the on-site permanent wetlands, which are a part of the larger permanent wetlands and open water aquatic resources within the subject property. In-turn, the larger permanent wetlands and open water aquatic resources are hydrologically connected to the San Joaquin River north of the project site. Thus, implementation of the proposed stormwater outfall could result in impacts to water quality in an area hydrologically connected with the San Joaquin River. As such, FISHBIO prepared an assessment of potential impacts to special-status fish species that could occur due

[8] Shuford, W.D., and Gardali T., editors. *California Bird Species of Special Concern A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California.* Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento. 2008.

[9] *Ibid*.

to inclusion of the proposed stormwater outfall structure. Based on research conducted by FISHBIO for the proposed project, FISHBIO determined that the San Joaquin River north of the project site provides suitable habitat for the following species, which may be impacted by the proposed project: Chinook salmon (*Oncorhynchus tshawytscha*), Central Valley steelhead (*Oncorhynchus mykiss irideus*), delta smelt (*Hypomesus transpacificus*), longfin smelt (*Spirinchus thaleichthys*), and the southern Distinct Population Segment (sDPS) of green sturgeon (*Acipenser medirostris*). Consequently, impacts to the foregoing species will be analyzed within this EIR.

Sensitive Natural Communities

Wetlands within the project site include both seasonal and permanent wetlands as shown in Figure 4.2-4. Wetlands are areas that are saturated by surface or ground water at a frequency and duration to support a prevalence of vegetation adapted for life in saturated soil conditions. Wetlands usually must possess plants adapted to saturated conditions, wetland hydrology, and soils that are periodically or permanently saturated. The plant and wildlife communities often supported by wetland areas are considered sensitive natural communities.

Project Site

A jurisdictional delineation of waters of the U.S. was conducted for the subject property in 2006 and verified by the USACE in 2008. An updated wetland delineation was conducted in 2016, refined in 2018, and verified by the USACE in March 2019. As shown in Table 4.2-1, the 2019 verified delineation included a total of approximately 176.15 acres of potentially jurisdictional waters of the U.S. within the subject property. The 176.15-acre total includes approximately 64.19 acres of open water, 110.16 acres of permanent wetlands, which includes 6.49 acres of Slough, and 1.80 acres of seasonal wetlands. Of the foregoing wetland areas within the subject property, all of the seasonal wetlands, but only 0.207 acres of the permanent wetlands are present within the project site. The project site does not include any areas identified as open water, but the on-site permanent wetlands are hydrologically connected to the open water portions of the subject property.

Trees

Trees, Bugs, and Dirt conducted an inventory of existing trees within the project site (Appendix F). In total, 662 trees are located within the project site. Several rows of large trees are scattered throughout the site, and consist primarily of *Eucalyptus* spp. and tamarisk (*Tamarix* sp.), as well as some pines (*Pinus* spp.) and coastal live oaks (*Quercus agrifolia*). In addition to isolated trees throughout various parts of the site, ornamental trees surround the administration building in the western portion of the site. Trees surrounding the seasonal wetlands consist of Fremont cottonwoods, willows, and black walnuts. Implementation of the proposed project would result in removal of most of the on-site trees, 130 of which are identified as heritage or protected trees.

In addition to the on-site trees, Moore Biological Consultants identified several existing trees within the Del Antico Basin. Trees within the Del Antico Basin are primarily tree of heaven, other ornamental tree, and one coastal live oak.

Wildlife Movement/Corridors

The project site is located within the northwestern corner of the City of Oakley in proximity to SR 160, and the City of Antioch. Despite the existence of relatively open vineyards to the south and east of the project site, the remaining areas surrounding the project site and the areas beyond the existing vineyards have been largely urbanized. Therefore, significant wildlife movement corridors do not exist within the land area adjacent to the project site, including the off-site utility improvement areas. The San Joaquin River is located immediately to the north of the project site, which connects to the San Joaquin-Sacramento River delta as well as the San Francisco Bay. The San Joaquin River acts as a major movement corridor for wildlife species including fish, avian species, and aquatic mammals.

The Del Antico Basin is located within a portion of the City of Oakley that is predominantly urbanized. Although vineyards exist to the northeast of the Del Antico Basin, the vineyards are surrounded by urban development including roadways and railroads. Consequently, the Del Antico Basin and surrounding area does not represent a wildlife movement corridor. Furthermore, dispersal of wildlife to the Del Antico Basin site is constrained by the existence of urban development around the basin and the adjacent vineyard.

4.2.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the CEQA review process.

Federal Regulations

The following are the federal environmental laws and policies relevant to biological resources.

Federal Endangered Species Act

Under the FESA, the Secretary of the Interior and the Secretary of Commerce have joint authority to list a species as threatened or endangered (16 USC § 1533(c)). Two federal agencies oversee the FESA: the USFWS has jurisdiction over plants, wildlife, and resident fish, while the National Marine Fisheries Service (NMFS) has jurisdiction over anadromous fish and marine fish and mammals. Section 7 of the FESA mandates that federal agencies consult with the USFWS and NMFS to ensure that federal agency actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species. The FESA prohibits the ‘take’ of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery. Take is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct.

Section 10 requires the issuance of an “incidental take” permit before any public or private action may be taken that could take an endangered or threatened species. The permit requires preparation and implementation of a habitat conservation plan (HCP) that would offset the take of individuals that may occur, incidental to implementation of a proposed project, by providing for the protection of the affected species.

Pursuant to the requirements of the FESA, a federal agency reviewing a project within the jurisdiction of the agency must determine whether any federally listed threatened or endangered species may be present in the project area and whether the proposed project will have a potentially significant impact on such species. In addition, the agency is required to determine whether the proposed action is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC § 1536(3), (4)).

Migratory Bird Treaty Act

Raptors (birds of prey), migratory birds, and other avian species are protected by a number of state and federal laws. The federal Migratory Bird Treaty Act (MBTA) prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior. Section 3503.5 of the California Fish and Game Code states, "It is unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the code or any regulation adopted pursuant thereto."

Clean Water Act

The USACE regulates discharge of dredged or fill material into waters of the U.S. under Section 404 of the Clean Water Act (CWA). "Discharge of fill material" is defined as the addition of fill material into waters of the U.S., including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for the construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 C.F.R. §328.2[f]). In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 C.F.R. §328.3[b]).

Furthermore, jurisdictional waters of the U.S.can be defined by exhibiting a defined bed and bank and the ordinary high water mark (OHWM). The OHWM is defined by the USACE as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 C.F.R. §328.3[e]).

State Regulations

The following are the State environmental laws and policies relevant to biological resources.

California Department of Fish and Wildlife

CDFW administers a number of laws and programs designed to protect fish and wildlife resources under the California Fish and Game Code (FGC), such as CESA (FGC Section 2050, et seq.), Fully Protected Species (FGC Section 3511) and the Lake or Streambed Alteration Agreement Program (FGC Sections 1600 to 1616). Such regulations are summarized in the following sections.

California Endangered Species Act

The State of California enacted CESA in 1984. CESA is similar to the FESA but pertains to State-listed endangered and threatened species. CESA requires State agencies to consult with CDFW when preparing CEQA documents to ensure that the State lead agency actions do not jeopardize the existence of listed species. CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. Agencies can approve a project that affects a listed species if they determine that "overriding considerations" exist; however, the agencies are prohibited from approving projects that would result in the extinction of a listed species.

CESA prohibits the taking of State-listed endangered or threatened plant and wildlife species. CDFW exercises authority over mitigation projects involving State-listed species, including those resulting from CEQA mitigation requirements. CDFW may authorize taking if an approved habitat management plan or management agreement that avoids or compensates for possible jeopardy is implemented. CDFW requires preparation of mitigation plans in accordance with published guidelines.

Fish and Game Code Section 3505

Birds of prey are protected in California under provisions of the California FGC, Section 3503.5, (1992), which states, "it is unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by CDFW.

Lake or Streambed Alteration Program

The CDFW is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the Fish and Game Code, Section 1602, requires notification to CDFW of any proposed activity that may substantially modify a river, stream, or lake. Notification is required by any person, business, state or local government agency, or public utility that proposes an activity that will:

- substantially divert or obstruct the natural flow of any river, stream or lake;
- substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or
- deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

For the purposes of Section 1602, rivers, streams and lakes must flow at least intermittently through a bed or channel. If notification is required and CDFW believes the proposed activity is likely to result in adverse harm to the natural environment, the CDFW will require that the parties enter into a Lake or Streambed Alteration Agreement.

CDFW Species of Special Concern

In addition to formal listings under FESA and CESA, plant and wildlife species receive additional consideration during the CEQA process. Species that may by considered for review are included on a list of "Species of Special Concern" developed by CDFW. Species whose numbers, reproductive success, or habitat may be threatened are tracked by CDFW in California.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. Currently 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants, but includes some exceptions for agricultural and nursery operations, emergencies, and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

Regional Water Quality Control Board

Pursuant to Section 401 of the CWA and EPA 404(b)(1) guidelines, in order for a USACE federal permit applicant to conduct any activity which may result in discharge into navigable waters, they must provide a certification from the Regional Water Quality Control Board (RWQCB) that such discharge will comply with the State water quality standards. The RWQCB has a policy of no-net-loss of wetlands in effect and typically requires mitigation for all impacts to wetlands before the RWQCB will issue water quality certification.

Under the Porter-Cologne Water Quality Control Act (Cal. Water Code Section 13000-14920), the RWQCB is authorized to regulate the discharge of waste that could affect the quality of the State's waters. Therefore, even if a project does not require a federal permit (i.e., a Nationwide Permit from the USACE), the project may still require review and approval by the RWQCB, in light of the approval of NWPs on March 9, 2000 and the Supreme Court's decision in the case of the Solid Waste Agency of Northern Cook County (SWANCC) vs. USACE. The RWQCB in response to the above case, issued guidance for regulation of discharges to "isolated" water on June 25, 2004. The guidance states:

> Discharges subject to Clean Water Act section 404 receive a level of regulatory review and protection by the USACE and are also subject to streambed alteration agreements issued by the CDFW; whereas discharges to waters of the State subject to SWANCC receive no federal oversight and usually fall out of CDFW jurisdiction. Absent of RWQCB attention, such discharges will generally go entirely unregulated. Therefore, to the extent that staffing constraints require the RWQCB to regulate some dredge and fill discharges of similar extent, severity, and permanence to federally-protected waters of similar value. Dredging, filling, or excavation of "isolated" waters constitutes a discharge of waste to waters of the State, and prospective dischargers are required to submit a report of waste discharge to the RWQCB and comply with other requirements of Porter-Cologne.

When reviewing applications, the RWQCB focuses on ensuring that projects do not adversely affect the "beneficial uses" associated with waters of the State. Generally, the RWQCB defines beneficial uses to include all of the resources, services and qualities of aquatic ecosystems and underground aquifers that benefit the State. In most cases, the RWQCB seeks to protect the beneficial uses by requiring the integration of water quality control measures into projects that will result in discharge into waters of the State. For most construction projects, RWQCB requires the use of construction and post-construction Best Management Practices (BMPs). In many cases, proper use of BMPs, including bioengineering detention ponds, grassy swales, sand filters, modified roof techniques, drains, and other features, will speed project approval from RWQCB. Development setbacks from creeks are also requested by RWQCB as they often lead to less creek-related impacts in the future.

Local Regulations

The following are the local government's environmental policies relevant to biological resources.

East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan

On January 25, 2000, the Contra Costa County Board of Supervisors made a declaration of intent to participate in the development of the ECCC HCP/NCCP. On June 30, 2000, the East Contra Costa County Habitat Conservation Plan Association Agreement went into effect. The agreement established the East Contra Costa Habitat Conservation Plan Association (HCPA) as the lead agency in drafting the ECCC HCP/NCCP for submittal to the governing boards and councils of member agencies, oversee compliance with CEQA and NEPA, and would serve as the lead agency under CEQA for developing the ECCC HCP/NCCP. The City of Oakley elected to participate in the development of the ECCC HCP/NCCP and was a member of the HCPA.

The City of Oakley approved the ECCC HCP/NCCP on November 13, 2007 (Resolution 19-07). The USFWS signed the federal permit for the HCP/NCCP on July 25, 2007, and the CDFW signed the State permit for the ECCC HCP/NCCP on August 6, 2007. Currently, all participating jurisdictions have approved the ECCC HCP/NCCP and have adopted implementing ordinances and the fee structures set forth in the ECCC HCP/NCCP.

Based on the ECCC HCP/NCCP and the data and analyses referenced therein, there is a reasonable relationship between the use of the ECCC HCP/NCCP mitigation fees authorized by the City of Oakley and the type of development projects subject to the fees. The Development Fee is used to fund the acquisition of land, the enhancement and management of habitat and the other activities to mitigate for impacts to open space habitat and covered species caused by affected development projects. The Wetland Mitigation Fee is used to fund the restoration, creation and management of jurisdictional wetlands and waters and riparian woodland/scrub and other actions in order to mitigate for impacts to jurisdictional wetlands and waters and riparian areas caused by affected development projects. The ECCC HCP/NCCP fees apply to development projects that impact open space, habitat suitable for one or more covered species, jurisdictional wetlands and waters, or riparian areas. In this way, the ECCC HCP/NCCP fees are used only for purposes reasonably related to the types of development projects that will be subject to the fees.

City of Oakley General Plan

The Oakley General Plan programs, goals, and policies relating to the protection of biological resources that are applicable to the proposed project are presented below.

Goal 2.6 — Ensure that open space areas are properly managed and designed to conserve natural resources and enhance the community's character and provide passive recreational opportunities.

- Policy 2.6.1 — Provide public access to the Delta and the waterfront wherever appropriate and feasible. Typically, such access should be unobstructed to the public by foot or bicycle, and where appropriate by horse, automobile, and/or boat.
- Policy 2.6.2 — Preserve, enhance, and/or restore selected existing natural habitat areas, as feasible.

Goal 6.3	Encourage preservation of important ecological and biological resources.	
	Policy 6.3.1	Encourage preservation of important ecological and biological resources
	Policy 6.3.3	Use land use planning to reduce the impact of urban development on important ecological and biological resources identified during application review and analysis.
	Policy 6.3.4	Encourage preservation and enhancement of the natural characteristics of the San Joaquin Delta and Dutch Slough in a manner that encourages public access.
	Policy 6.3.5	Encourage preservation and enhancement of Delta wetlands, significant trees, natural vegetation, and wildlife population.
	Policy 6.3.6	Encourage preservation of portions of important wildlife habitats that would be disturbed by major development, particularly adjacent to the Delta.
	Program 6.3.A	Prior to development within identified sensitive habitat areas, the area shall be surveyed for special status plant and/or animal species. If any special status plant or animal species are found in areas proposed for development, the appropriate resource agencies hall be contacted and species-specific management strategies established to ensure the protection of the particular species. Development in sensitive habitat areas should be avoided to the maximum extent possible.
	Program 6.3.B	Participate with regional, state, and federal agencies and organizations to establish and preserve open space that provides habitat for locally present wildlife.
	Program 6.3.C	Investigate and implement as appropriate a tree-planting program. Consider similar existing programs such as the Sacramento Tree Foundation.
	Program 6.3.D	Continue to implement (and update as needed) the City's Heritage Tree Preservation Ordinance.
	Program 6.3.E	As funding becomes available, prepare a detailed inventory of ecological resource areas, along with detailed maps showing the location of significant resources. Resources should include, but not be limited to, unique natural areas, wetland areas, habitats of rare, threatened, endangered, and other uncommon and protected species.
	Program 6.3.F	As funding becomes available, prepare a Wetland Protection Ordinance.
	Program 6.3.G	Evaluate the feasibility of expanding drainage easements along waterways and modifying banks and/or levees to increase the width of stream corridors.
	Program 6.3.H	Investigate and implement as appropriate City Zoning regulations requiring expanded setbacks, and land

dedications along waterways to allow expansion and enhancement of waterways.

City of Oakley Heritage and Protected Trees

Section 9.1.1112 of the City's Municipal Code provides for the preservation of certain protected trees within public and private property in the City of Oakley. Specifically, the Municipal Code defines both protected trees and heritage trees. Heritage trees are defined as a California native oak that measures at least 50 inches in circumference (i.e. 15.6 inches in diameter) at 4.5 feet above grade, regardless of location or health. Furthermore, a tree of a species other than a California native oak that measures at least 50 inches in circumference at 4.5 feet above grate and is either on an undeveloped property, located on public property or within the right-of-way, or located on private property and is found to provide benefits to the subject property as well as neighboring properties. For the purposes of Section 9.1.1112, an undeveloped property includes a parcel of land on which the structures are proposed to be demolished or relocated.

A protected tree is defined under Section 9.1.1112 as a heritage tree, or a tree adjacent to or part of a riparian habitat, foothill woodland or oak savanna area where the tree in question measures 20 inches or larger in circumference (i.e. 6.5 inches in diameter) as measured 4.5 feet above the natural grade. For a multi-stemmed tree the sum of the circumferences must measure 40 inches or more measured at 4.5 feet above the natural grade. To be considered protected under the foregoing standards, the tree must be of an indigenous species as identified in Section 9.1.1112(e)(1)(b). Alternatively, any tree shown to be preserved on an approved tentative map, development plan, site plan, or required for preservation as a condition of approval of project, or any tree required to be planted as a replacement for an unlawfully removed tree are considered protected.

Heritage and protected trees may only be destroyed or removed where a permit has been obtained for such actions, unless the tree removal is exempt from permit requirements per Section 9.1.1112. As a condition of approval of a tree removal permit, the permit applicant shall replace the removed trees either through designated replacement ratios, through the payment of in-lieu fees, or a combination of replacement and payment of in-lieu fees.

4.2.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology utilized to analyze and determine the proposed project's potential impacts related to biological resources. A discussion of the project's impacts, as well as mitigation measures, are also presented.

Standards of Significance

For the purposes of this EIR, the following standards of significance were adapted from Appendix G of the CEQA Guidelines. Impacts are considered significant if implementation of the proposed project would do any one or more of the following:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;

- Have a substantial adverse effect on State or Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Issues Not Discussed Further

The Initial Study prepared for the proposed project (see Appendix C) determined that development of the proposed project would result in a less-than-significant impact related to the following:

- Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan (NCCP), or other approved local, regional, or State habitat conservation plan.

For the reasons cited in the Initial Study, the potential impacts associated with the above are not analyzed further in this EIR.

Method of Analysis

The information contained in this analysis is primarily based on the PSR and supplemental memoranda prepared for the project site by Moore Biological Consultants, as well as the Arborist Report prepared by Trees, Bugs, Dirt, and the Biological Assessment addressing special-status fish prepared by FISHBIO.

In preparing the PSR and supplemental memorandum, Moore Biological Consultants performed pedestrian surveys of the accessible portions of the subject property on October 8 and 19, November 2 and 15, 2018, and March 21, 2019. Moore Biological Consultants performed additional special-status plant surveys on August 8 and 27, 2019 within Seasonal Wetland SW-C and within the permanent wetland PW-A (see Figure 4.2-4). The special-status plant surveys conducted in 2019 by Moore Biological were specifically intended to determine the presence or absence of salty bird's beak, Bolander's water hemlock, wooly rose mallow, Delta tule pea, Mason's lilaeopsis, Delta mudwort, eel-grass pondweed, and Suisun Marsh aster in areas outside of the ECCC HCP/NCCP Permit Area. The August 2019 special-status plant surveys were conducted during the appropriate blooming period for all species with the exception of eel-grass pondweed. Although the special-status plant surveys were conducted outside of the blooming season for eel-grass pondweed, the species is readily identifiable in August through vegetative characteristics.

Moore Biological Consultants conducted a survey of the off-site Del Antico Basin on September 24, 2019. The site survey included a systematic search of the entire basin by foot.

Furthermore, Moore Biological Consultants relied upon previous site-surveys conducted in relation to the Chemours Remediation Project. Site-surveys conducted for the remediation activity on-site include rare plant surveys in 2013 and 2015. Following the 2015 rare plant survey, a targeted list of 10 special-status plants with the potential to occur in the Chemours Remediation Project site was compiled. Additional rare plant surveys using the targeted list were conducted on June 27 and August 3, 2017. Site surveys conducted in connection with the

Chemours Remediation Project provided information related to the presence/absence of special-status wildlife within the subject property.

The PSR and technical memorandum relied on the findings of the jurisdictional determination prepared for the subject property, which was reverified by the USACE in March 2019.

As noted previously, Moore Biological Consultants performed queries of the CNDDB and IPaC to determine special-status species occurring within the project region.

FISHBIO relied on multiple sources of data to determine the special-status fish species with the potential to occur within the project area. The principal sources of data used by FISHBIO were the University of California, Davis PISCES database,[10] the USFWS's IPaC tool, data available from NOAA's fisheries website,[11] and data from the CDFW.[12]

Trees, Bugs, Dirt conducted field work between October 11 and November 14, during which time all on-site trees were surveyed. Each tree was tagged and the arborist noted the species, circumference, health, structural quality, and form of each tree.

During the survey of Del Antico Basin conducted by Moore Biological Consultants, several trees were noted within the basin.

Project-Specific Impacts and Mitigation Measures

The following discussion of biological resources impacts is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above. As noted previously, the project site includes 142.10 acres of land within the ECCC HCP/NCCP Permit Area and 24.32 acres of land outside of the ECCC HCP/NCCP Permit Area; the Del Antico Basin is within the ECCC HCP/NCCP Permit Area. The ECCC HCP/NCCP includes species specific minimization, avoidance, and mitigation measures for covered activities within the ECCC HCP/NCCP. Activities conducted in areas outside of the ECCC HCP/NCCP Permit Area are not considered covered activities under the ECCC HCP/NCCP. Consequently, the following impact discussions will include separate analyses for impacts within the ECCC HCP/NCCP Permit Area and impacts outside of the ECCC HCP/NCCP as needed.

4.2-1 Have a substantial adverse effect, either directly or through habitat modifications, on burrowing owl. Based on the analysis below and with implementation of mitigation, the impact would be *less than significant*.

The burrowing owl (*Athene cunicularia*) is not listed pursuant to either CESA or FESA; however, the burrowing owl is designated as a federal Bird of Conservation Concern and a California Species of Special Concern and is covered by the

---

10 University of California, Davis. *California Fish Website*. Available at: http://calfish.ucdavis.edu/location/. Accessed March 29, 2016.

11 NOAA. *Endangered species act critical habitat spatial data*. Available at: http://www.westcoast.fisheries.noaa.gov/maps_data/endangered_species_act_critical_habitat.html; data Accessed March 6, 2017.

12 CDFW. *Longfin Smelt Fact Sheet*. Available at: https://www.dfg.ca.gov/delta/data/longfinsmelt/documents/LongfinsmeltFactSheet_July09.pdf. Published 2009

Migratory Bird Treaty Act and the California Fish and Game Code Sections 3503, 3503.5.

Potential Impacts Outside of ECCC HCP/NCCP Permit Area

As described above, although the project site contains ruderal grassland and ground squirrel burrows, the grassland areas are routinely mowed and the existing burrows do not show signs of burrowing owl activity. On-going remediation within the project site involves frequent use of heavy-duty equipment and ground disturbance, which reduces the value of the site as habitat for the species. Despite the low habitat value of the site, the project site is conservatively considered to represent habitat for the species. Should the species be present within the project site, implementation of the proposed project could result in direct adverse effects to the species during ground disturbance and development.

Potential Impacts Within the ECCC HCP/NCCP Permit Area

As discussed above, the project site and subject property contain grassland areas that are considered to be habitat for burrowing owl under the ECCC HCP/NCCP. Consequently, while the signs of burrowing owl activity within the site have not been noted during multiple site visits, and the project site is heavily disturbed by on-going remediation work, grassland portions of the project site are considered to represent potential habitat for the species. Because implementation of the proposed project would result in conversion of some of the existing grassland areas within the project site to industrial uses, the proposed project would result in the loss of potential habitat under the ECCC HCP/NCCP. The ECCC HCP/NCCP provides compensatory habitat within dedicated preserve areas, which may be used as habitat by burrowing owl. The payment of ECCC HCP/NCCP fees as a result of the project would be used, in combination with other fees, to purchase preserve area, which would represent compensatory habitat for the species.

Furthermore, ground-disturbing activities, such as grading and development, within the project site would have the potential to disturb nesting or overwintering burrowing owls within the project site.

The ECCC HCP/NCCP includes minimization, avoidance, and mitigation measures intended to reduce the potential for covered activities, such as project-related construction activities, to result in direct impacts to covered species. Implementation of all applicable minimization, avoidance, and mitigation measures would be required to ensure the project's compliance with the ECCC HCP/NCCP.

Off-site Improvement Areas

It should be noted that the ECCC HCP/NCCP does not consider developed land, such as the off-site utility improvement areas, to represent suitable habitat for the species. Therefore, proposed off-site improvements related to utility work within or adjacent to existing roadways would not have the potential to result in impacts to burrowing owls.

The Del Antico Basin contains ruderal grassland that could provide habitat for the species. Signs of burrowing owl activity and ground squirrel burrows were not noted within the Del Antico Basin during Moore Biological Consultant's site visit.

Furthermore, the CNDDB does not contain any nearby occurrences of the species. Nevertheless, because the Del Antico Basin contains ruderal grassland, the proposed basin improvements could result in adverse effects both directly and through habitat modification on burrowing owls within the ECCC HCP/NCCP Permit Area. Because the Del Antico Basin is located within the ECCC HCP/NCCP Permit area, basin improvement activity would be required to comply with the minimization, avoidance, and mitigation measures included in the ECCC HCP/NCCP.

Conclusion

Considering the requirements of the ECCC HCP/NCCP, implementation of the proposed project within the ECCC HCP/NCCP Permit Area would be considered to have the potential to result in adverse effects on the species. Although Moore Biological Consultants determined that the project site is not likely to provide suitable habitat for the species, to maintain consistency with the ECCC HCP/NCCP, implementation of the project outside of the ECCC HCP/NCCP Permit Area is conservatively assumed to result in potential adverse effects to the species. Consequently, a ***significant*** impact on burrowing owls could result.

Mitigation Measure(s)

The proposed project's participation in the ECCC HCP/NCCP would provide a mechanism to adequately mitigate impacts to special-status species within the off-site improvement areas and the portion of the project site included in the ECCC HCP/NCCP Permit Area. Moreover, the ECCC HCP/NCCP includes minimization, avoidance, and mitigation measures intended to reduce potential impacts to covered species. The following mitigation measures have been designed to fulfill the requirements of the ECCC HCP/NCCP, including requirements related to a minimization, avoidance, and mitigation measures. Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

Areas of the Project Site Within the ECCC HCP/NCCP Permit Area and Off-Site Improvement Areas

4.2-1(a) *Prior to the issuance of grading or construction permits for each phase of development of the project, the applicant shall pay the applicable ECCC HCP/NCCP per-acre Development Fee in effect for Zone I in compliance with Article 7, Habitat Conservation Plan/Natural Community Conservation Plan Implementing Program, of the Oakley Municipal Code. The Development Fee will cover the development of habitat that primarily includes annual grassland. Payment of the Development Fee would address the loss of potential habitat of special-status plant species associated with grasslands. The fees would be used in part to protect these affected special-status plant species by bringing existing populations of the species under protection.*

Alternately, the project applicant may, in accordance with the terms of Oakley Municipal Code Article 7, offer to dedicate land in lieu of some or all of the mitigation fees. All applicable mitigation fees shall be paid, or an "in-lieu-of fee" agreement executed, prior to the issuance of a grading permit for the project.

The Oakley Planning Division and the Contra Costa County Conservancy shall approve the final method of compliance with the ECCC HCP/NCCP provisions.

4.2-1(b) Preconstruction Survey

Prior to any ground disturbance related to covered activities, a USFWS/CDFW- approved biologist will conduct a preconstruction survey in areas identified in the planning surveys as having potential burrowing owl habitat. The surveys will establish the presence or absence of western burrowing owl and/or habitat features and evaluate use by owls in accordance with CDFW survey guidelines (California Department of Fish and Game 1995).

On the parcel where the activity is proposed, the biologist will survey the proposed disturbance footprint and a 500-foot radius from the perimeter of the proposed footprint to identify burrows and owls. Adjacent parcels under different land ownership will not be surveyed. Surveys should take place near sunrise or sunset in accordance with CDFW guidelines. All burrows or burrowing owls will be identified and mapped. Surveys will take place no more than 30 days prior to construction. During the breeding season (February 1 to August 31), surveys will document whether burrowing owls are nesting in or directly adjacent to disturbance areas. During the nonbreeding season (September 1 to January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any disturbance area. Survey results will be valid only for the season (breeding or nonbreeding) during which the survey is conducted.

Areas of the Project Site Outside the ECCC HCP/NCCP Permit Area

4.2-1(c) Preconstruction Survey

Prior to any ground disturbance related to covered activities, a USFWS/CDFW-approved biologist will conduct a preconstruction survey in of potential burrowing owl habitat. The surveys will establish the presence or absence of western burrowing owl and/or habitat features and evaluate use by owls in accordance with CDFW survey guidelines (California Department of Fish and Game 2012).

Compensatory Habitat Mitigation

If active owl burrows are identified during pre-construction surveys in areas of the project site outside of the ECCC HCP/NCCP Permit Area and the project would impact active burrows, the project applicant shall provide compensatory mitigation for the permanent loss of burrowing owl habitat at a ratio of 2.5 acres of higher quality owl habitat for every one acre of suitable owl habitat disturbed. The calculation of habitat loss may exclude acres currently occupied by hardscape or structures. Such mitigation may include the permanent protection of land that is deemed to be suitable burrowing owl habitat through a conservation easement *deeded to a non-profit conservation organization or public agency with a conservation mission, or the purchase of burrowing owl conservation bank credits from a CDFW-approved burrowing owl conservation bank. A record of the compensatory mitigation provided by the project applicant shall be submitted to the City of Oakley Planning Division prior to initiation of ground disturbing activities.*

Entire Project Site and Off-Site Improvement Areas

4.2-1(d) Avoidance, Minimization, and Construction Monitoring

If burrowing owls are found during the breeding season (February 1 to August 31), the project proponent will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance will include establishment of a non-disturbance buffer zone (described below). Construction may occur during the breeding season if a qualified biologist monitors the nest and determines that the birds have not begun egg-laying and incubation or that the juveniles from the occupied burrows have fledged. During the nonbreeding season (September 1 to January 31), the project proponent should avoid the owls and the burrows they are using, if possible. Avoidance will include the establishment of a buffer zone (described below).

During the breeding season, buffer zones of at least 250 feet in which no construction activities can occur will be established around each occupied burrow (nest site). Buffer zones of 160 feet will be established around each burrow being used during the nonbreeding season. The buffers will be delineated by highly visible, temporary construction fencing.

If occupied burrows for burrowing owls are not avoided, passive relocation will be implemented. Owls should be excluded from burrows in the immediate impact zone and within a 160-foot buffer zone by installing one-way doors in burrow entrances. These doors should be in place for 48 hours prior to excavation. The project area should be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation (California Department of Fish and Game 1995). Plastic tubing or a similar structure should be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.

4.2-2 Have a substantial adverse effect, either directly or through habitat modifications, on Swainson's hawk. Based on the analysis below and with implementation of mitigation, the impact would be *less than significant*.

Several trees within and surrounding the project site and the Del Antico Basin are large enough to support Swainson's hawk nesting activity. A pair of Swainson's hawks were documented as nesting in one of the existing eucalyptus trees within the southwest portion of the project site in 2018. During field surveys conducted on March 21, 2019, Swainson's hawks were observed soaring around the same eucalyptus tree. Given the species' affinity for reusing nesting sites, Moore Biological Consultants concluded that Swainson's hawks could continue to return to the eucalyptus tree in future years.

Potential Impacts Outside of ECCC HCP/NCCP Permit Area

The CDFW considers five or more vacant acres located within 10 miles of an active nest, including nests that have been active within the last five years, to be significant foraging habitat for Swainson's hawk. The portion of the project site outside of the ECCC HCP/NCCP Permit Area that could be developed with implementation of the proposed project contains 16.42 acres of ruderal grassland. Considering the existence of a Swainson's hawk nest within the project site that was confirmed as being used as recently as 2018, implementation of the proposed project could result in the conversion of foraging habitat

The conversion of such foraging habitat is considered a significant impact, in accordance with the *Staff Report Regarding Mitigation for Impacts to Swainson's Hawk (Buteo swainsoni) in the Central Valley of California* (Staff Report).[13] The Staff Report states that foraging habitat loss within one mile of an active nest must mitigated at a ratio of 1:1.

It should be noted that the Swainson's hawk nest identified in the CNDDB (2019) is located in the western portion of the project site, within the ECCC HCP/NCCP Permit Area; the Swainson's hawk nest documented in 2018 in the southwest part of the site is also within the ECCC HCP/NCCP Permit Area. Nevertheless, should trees within the portion of the project site outside of the ECCC HCP/NCCP Permit Area be used by Swainson's hawks for nesting, implementation of the proposed project could result in removal of such trees. Removal of trees containing nesting Swainson's hawks could result in nesting failure or take of individual Swainson's hawks. Thus, removal of on-site trees both inside and outside of the ECCC HCP/NCCP Permit Area could result in significant adverse effects to Swainson's hawks.

Potential Impacts Within the ECCC HCP/NCCP Permit Area

Implementation of the proposed project would result in conversion of grassland areas within the ECCC HCP/NCCP Permit Area to industrial uses. The conversion of grassland to industrial uses would represent a loss of foraging habitat for the species. Furthermore, the proposed project is anticipated to involve removal of trees within the project site. Tree removal could involve loss of potential or existing nesting habitat.

Payment of the ECCC HCP/NCCP Zone I fees required as part of Mitigation Measure 4.2-1(a) would be used by the ECCC HCP/NCCP to purchase compensatory habitat for the conversion of grasslands on-site. The compensatory habitat would address impacts to suitable foraging habitat for Swainson's hawk within the ECCC HCP/NCCP area. The ECCC HCP/NCCP includes minimization, avoidance, and mitigation measures intended to reduce the potential for covered

13 Department of Fish and Wildlife. *Staff Report Regarding Mitigation for Impacts to Swainson's Hawk (Buteo swainsoni) in the Central Valley of California.* November 8, 1994.

activities, such as project-related construction activities, to result in direct impacts to covered species. Implementation of all applicable minimization, avoidance, and mitigation measures would be required to ensure the project's compliance with the ECCC HCP/NCCP.

Nevertheless, implementation of the proposed project could result in adverse effects both directly and through habitat modification on Swainson's hawks within the ECCC HCP/NCCP Permit Area.

Off-site Improvement Areas

It should be noted that off-site utility improvement areas do not represent suitable foraging or nesting habitat for the species.

However, Del Antico Basin contains several trees that could provide nesting habitat for the species. Moreover, the grassland portions of the basin could be considered foraging habitat for the species as well.

Consequently, while off-site utility improvements would not be anticipated to have the potential to result in impacts to the species, improvement work within the Del Antico Basin could result in adverse effects both directly and through habitat modification on Swainson's hawks within the ECCC HCP/NCCP Permit Area.

Conclusion

Implementation of the proposed project would result in the loss of Swainson's hawk foraging and nesting habitat within the project site, both within and outside the ECCC HCP/NCCP permit Area. As such, the proposed project could result in direct and indirect adverse effects on Swainson's hawks, which would be considered a ***significant*** impact.

Mitigation Measure(s)

The proposed project's participation in the ECCC HCP/NCCP would provide a mechanism to adequately mitigate impacts to special-status species within off-site improvement areas and the portion of the project site included in the ECCC HCP/NCCP Permit Area. Moreover, the ECCC HCP/NCCP include minimization, avoidance, and mitigation measures intended to reduce potential impacts to covered species. The following mitigation measures have been designed to fulfill the requirements of the ECCC HCP/NCCP, including requirements related to minimization, avoidance, and mitigation measures. Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

Areas of the Project Site Within the ECCC HCP/NCCP Permit Area and Off-Site Improvement Areas

4.2-2(a) *Implement Mitigation Measure 4.2-1(a).*

4.2-2(b) *Preconstruction Survey*

Prior to any ground disturbance related to covered activities that occurs during the nesting season (March 15 to September 15), a qualified biologist will conduct a preconstruction survey no more than 1 month prior *to construction to establish whether Swainson's hawk nests within 1,000 feet of the project site are occupied. If potentially occupied nests within 1,000 feet are off the project site, then their occupancy will be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the project site. If nests are occupied, minimization measures and construction monitoring are required (see below).*

Avoidance, Minimization, and Construction Monitoring

During the nesting season (March 15 to September 15), covered activities within 1,000 feet of occupied nests or nests under construction will be prohibited to prevent nest abandonment. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the Implementing Entity will coordinate with CDFW/USFWS to determine the appropriate buffer size. If young fledge prior to September 15, covered activities can proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project applicant can apply to the Implementing Entity for a waiver of this avoidance measure. Any waiver must also be approved by USFWS and CDFW. While the nest is occupied, activities outside the buffer can take place.

All active nest trees will be preserved on site, if feasible. Nest trees, including non-native trees, lost to covered activities will be mitigated by the project proponent according to the requirements of Mitigation Measure 4.2-2(c).

4.2-2(c) *Should the proposed project result in the loss of non-riparian Swainson's hawk nest trees, the project applicant shall implement the following measures:*

- *If determined to be feasible by the City of Oakley Planning Division, the project applicant shall provide for the planting of 15 saplings for every nest tree removed, with the objective of having at least five mature trees established for every tree lost, according to the requirements listed further below; and either of the following:*
    1. *Pay the Implementing Entity an additional fee to purchase, plant, maintain, and monitor 15 saplings on the ECCC HCP/NCCP Preserve System for every tree lost according to the requirements listed below; OR*
    2. *The project proponent will plant, maintain, and monitor 15 saplings for every tree lost at a site to be approved by the Implementing Entity (e.g., within an ECCC HCP/NCCP Preserve or existing open space linked to ECCC HCP/NCCP preserves), according to the requirements listed below.*

The following requirements shall be met for all planting options:

- *Tree survival shall be monitored at least annually for five years, then every other year until year 12. All trees lost during the first five years will be replaced. Success will be reached at the end of 12 years if at least five trees per tree lost survive without supplemental irrigation or protection from herbivory. Trees must also survive for at least three years without irrigation.*
- *Irrigation and fencing to protect from deer and other herbivores may be needed for the first several years to ensure maximum tree survival.*
- *Native trees suitable for this site should be planted. When site conditions permit, a variety of native trees will be planted for each tree lost to provide trees with different growth rates, maturation, and life span, and to provide a variety of tree canopy structures for Swainson's hawk. This variety will help to ensure that nest trees will be available in the short term (five-10 years for cottonwoods and willows) and in the long term (e.g., Valley oak, sycamore). This will also minimize the temporal loss of nest trees.*
- *Riparian woodland restoration conducted as a result of covered activities (i.e., loss of riparian woodland) can be used to offset the nest tree planting requirement above, if the nest trees are riparian species.*
- *Whenever feasible and when site conditions permit, trees should be planted in clumps together or with existing trees to provide larger areas of suitable nesting habitat and to create a natural buffer between nest trees and adjacent development (if plantings occur on the development site).*
- *Whenever feasible, plantings on the site should occur closest to suitable foraging habitat outside the urban development area.*
- *Trees planted in the HCP/NCCP preserves or other approved offsite location will occur within the known range of Swainson's hawk in the inventory area and as close as possible to high-quality foraging habitat.*

Prior to issuance of tree removal permits for the project site, the City of Oakley Planning Division shall be notified whether the proposed project would include removal of nesting trees. Should such removal be required for implementation of the proposed project, the Contra Costa County Conservancy shall be notified and the foregoing measures shall be implemented as applicable, through the tree removal permit granted by the City of Oakley.

Areas of the Project Site Outside the ECCC HCP/NCCP Permit Area

4.2-2(d) *Prior to initiation of ground disturbing activity for the project, the project applicant shall mitigate for the loss of suitable Swainson's hawk foraging habitat by implementing the following measure:*

- *One acre of suitable foraging habitat shall be protected for each acre of suitable foraging habitat developed outside of the ECCC HCP/NCCP Permit Area. Protection shall be via purchase of* *mitigation bank credits or other land protection mechanism acceptable to CDFW.*

Proof of purchase of mitigation credits as required per the above mitigation options, shall be provided to the Oakley Planning Division for review and approval prior to initiation of ground disturbance for any portion of the project site.

4.2-2(e) The project applicant shall implement the following avoidance measures for potential effects on Swainson's hawk nests during construction:

- *Prior to ground disturbing activities during the nesting season (March 15 through September 15), a qualified biologist shall conduct a pre-construction survey no more than one month prior to construction to establish whether occupied Swainson's hawk nests occur on or within 1,000 feet of the area of proposed construction. The results of the survey shall be submitted to the City of Oakley Planning Division. If occupied nests are not found, then further mitigation is not required.*
- *If occupied nests are found, project construction activity shall not occur within a 1,000-foot buffer zone distance from the nest unless a lesser buffer zone is approved by the City in consultation with CDFW. During the nesting season, construction activities shall be avoided within the established buffer zone to prevent nest abandonment. Construction monitoring shall be required to ensure that the established buffer zone is adhered to. If young fledge prior to September 15, construction activities can proceed normally without a buffer zone. If an active nest site is present but shielded from view and noise by other development or other features, the City may waive this avoidance measure (establishment of a buffer zone) if approved by the CDFW.*
- *All nest trees shall be preserved on site, if feasible. Nest trees that cannot be preserved may only be removed outside of the nesting season (i.e. nest trees may only be removed September 16 through March 14), and subject to the requirements of Mitigation Measure 4.2-2(b).*

4.2-3 Have a substantial adverse effect, either directly or through habitat modifications, on Golden Eagle. Based on the analysis below and with implementation of mitigation, the impact would be *less than significant*.

Moore Biological Consultants did not consider the area of the project site outside of the ECCC HCP/NCCP Permit Area to represent golden eagle habitat. However, the ECCC HCP/NCCP considers the undeveloped grassland areas of the project site within the ECCC HCP/NCCP Permit Area to represent potential golden eagle habitat. Furthermore, Moore Biological Consultants has identified various on-site trees within the ECCC HCP/NCCP Permit Area as providing potential nesting habitat for the species. Therefore, the following discussion focuses on the area of the project site within the ECCC HCP/NCCP Permit Area.

The proposed project would result in the conversion of potential on-site golden eagle foraging habitat from grassland to industrial land uses. The ECCC HCP/NCCP provides compensatory habitat within dedicated preserve areas, which may be used as habitat by golden eagle. The payment of ECCC HCP/NCCP fees as a result of the project would be used, in combination with other fees, to purchase preserve area, which would represent compensatory habitat for the species.

Under the ECCC HCP/NCCP construction activity within 0.5-mile of an active golden eagle nest is prohibited. Should golden eagles nest within 0.5-mile of any areas that would be disturbed due to implementation of the proposed project, initiation of construction activity would conflict with the ECCC HCP/NCCP and could result in adverse effects to the species. It should be noted that the ECCC HCP/NCCP includes minimization, avoidance, and mitigation measures intended to reduce the potential for covered activities, such as project-related construction activities, to result in direct impacts to covered species. Implementation of all applicable minimization, avoidance, and mitigation measures would be required to ensure the project's compliance with the ECCC HCP/NCCP.

Off-Site Improvement Areas

The ECCC HCP/NCCP does not consider developed land, such as the off-site utility improvement areas to represent suitable habitat for the species. Although several trees exist within the Del Antico Basin and the basin is primarily characterized by ruderal grassland, the trees within the Del Antico Basin are not large enough to support golden eagle and golden eagle would not be expected to nest or forage in such a heavily urbanized area. Furthermore, the CNDDB does not contain any recorded occurrences of the species in proximity to the Del Antico Basin. Nevertheless, the ECCC HCP/NCCP prohibits any construction activity within 0.5-mile of a golden eagle nest, and the foregoing prohibition would apply to off-site improvements.

Conclusion

Considering the potential for the proposed project to result in the loss of on-site foraging habitat and for project-related construction activity to occur within 0.5-mile of an active nest, the proposed project could result in adverse effects to the species, either directly or indirectly, and a ***significant*** impact could occur within the ECCC HCP/NCCP Permit Area.

Mitigation Measure(s)

The proposed project's participation in the ECCC HCP/NCCP would provide a mechanism to adequately mitigate impacts to special-status species within off-site improvement areas and within the portion of the project site included in the ECCC HCP/NCCP Permit Area. Moreover, the ECCC HCP/NCCP includes minimization, avoidance, and mitigation measures intended to reduce potential impacts to covered species. The following mitigation measures have been designed to fulfill the requirements of the ECCC HCP/NCCP, including requirements related to minimization, avoidance, and mitigation measures. Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

Areas of the Project Site Within the ECCC HCP/NCCP Permit Area and Off-Site Improvement Areas

4.2-3(a) Implement Mitigation Measure 4.2-1(a).

4.2-3(b) Preconstruction Survey

Prior to implementation of covered activities, a qualified biologist shall conduct a preconstruction survey to establish whether nests of golden eagles are occupied (see Section 6.3.1, Planning Surveys of the ECCC HCP/NCCP). If nests are occupied, the following minimization requirements and construction monitoring shall be required.

Avoidance and Minimization

Covered activities shall be prohibited within 0.5 mile of active nests. Nests can be built and active at almost any time of the year, although mating and egg incubation occurs late January through August, with peak activity in March through July. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be appropriate or that a larger buffer should be implemented, the Implementing Entity shall coordinate with CDFW/USFWS to determine the appropriate buffer size.

Construction Monitoring

Construction monitoring shall focus on ensuring that covered activities do not occur within the buffer zone established around an active nest. Although no known golden eagle nest sites occur within or near the Urban Limit Line, covered activities inside and outside of the Preserve System have the potential to disturb golden eagle nest sites. Construction monitoring shall ensure that direct effects to golden eagles are minimized.

4.2-4 Have a substantial adverse effect, either directly or through habitat modifications, on white-tailed kite, tricolored blackbird, California black rail, saltmarsh common yellowthroat, loggerhead shrike, Suisun song sparrow, song sparrow "Modesto" population, and foraging or nesting habitat for other special-status avian species. Based on the analysis below and with implementation of mitigation, the impact would be *less than significant*.

In addition to the species protected by the ECCC HCP/NCCP discussed in Impacts 4.2-1 through 4.2-3, the project site could represent habitat for several other special-status species of birds. Because the special-status bird species listed below are not specifically covered under the ECCC HCP/NCCP, the following discussion considers potential impacts to such species over the entire project site as well as in off-site improvement areas.

The white-tailed kite, tricolored blackbird, California black rail, saltmarsh common yellowthroat, and loggerhead shrike could use portions of the on-site habitats for foraging or nesting habitat; a few of these species may use the Del Antico Basin for foraging or nesting. In particular, trees could provide nesting habitat for white-tailed kite or loggerhead shrike, and Moore Biological Consultants noted that site surveys of the project site in 2017 documented loggerhead shrike nesting within the project site. Furthermore, tricolored blackbird, California black rail, saltmarsh common yellowthroat, Suisun song sparrow, and song sparrow “Modesto” population could use a combination of the permanent wetlands or seasonal wetlands within, or in proximity to, the project site for foraging or nesting habitat. It should be noted that while the subject property contains permanent wetland areas that are suitable habitat for species such as tricolored blackbird, California black rail, saltmarsh common yellowthroat, Suisun song sparrow, and song sparrow “Modesto” population, the permanent wetland areas included in the project site represent low quality habitat on the fringe of the expansive permanent wetlands northeast of the site. The likelihood that any of the foregoing species would use the small section of low-quality permanent wetland habitat that would be disturbed by implementation of the project is low.

In addition to the species specified above, other avian species protected under the MBTA and Fish and Game Code of California could use trees, grassland, wetland, or permanent wetland habitats in the site for foraging or nesting activity. Although the on-site grassland, trees, and wetland habitats could provide suitable habitat for avian species, all such habitats within the project site have been disturbed through previous development or remediation activity, or are in close proximity to such areas of disturbance. Past and on-going disturbance of the project site reduces the suitability of the site as habitat for special-status and other protected avian species.

Off-Site Improvements

Off-site utility improvement areas are primarily comprised of developed land. Due to the existence of roadways and the highly disturbed nature of the off-site utility improvement areas, areas that would be disturbed by proposed off-site utility improvements would not be anticipated to disturb many of the species discussed above. However, should tree nesting species inhabit any existing trees in the immediate vicinity of the off-site improvement area, construction activities related to project implementation could result in disturbance of special-status avian species.

The Del Antico Basin contains primarily ruderal grassland habitat with scattered trees. The grassland portions of the Del Antico Basin are routinely maintained through vegetation management, which reduces the likelihood of ground nesting birds using the Del Antico Basin. However, should tree nesting species, including white-tailed kite or other protected avian species, inhabit any of the existing trees within or adjacent to the basin or should ground nesting birds be present within the basin, proposed basin improvements could result in adverse effects to special-status or other protected avian species.

Conclusion

Implementation of the proposed project would involve removal of on-site trees, fill of on-site wetlands, construction of an outfall structure within the permanent wetlands on-site, and off-site improvements. Such activities would have the potential to result in impacts to the aforementioned special-status species and other protected avian species, either directly or indirectly. Consequently, the proposed project could result in a ***significant*** impact to white-tailed kite, tricolored blackbird, California black rail, saltmarsh common yellowthroat, loggerhead shrike, Suisun song sparrow, song sparrow "Modesto" population or other avian species protected under the MBTA and Fish and Game Code of California.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

Areas of the Project Site Within the ECCC HCP/NCCP Permit Area and Off-Site Improvement Areas

4.2-4(a) Prior to any ground disturbance related to covered activities that occur during the nesting season (March 15 to August 31), a qualified biologist shall conduct a preconstruction survey for white-tailed kite no more than one month prior to construction to establish whether white-tailed kite is nesting in trees within or visible from the site or the off-site water quality basin. In the event active nests are found, the applicant shall notify the Implementing Entity and consult with CDFW for further guidance.

Grasslands and trees in or near the site or the off-site water quality basin could be used by other species of nesting birds protected by the Migratory Bird Treaty Act. If possible, vegetation removal will occur outside of the general bird nesting season (February 1 through August 31). Alternately, a qualified biologist will conduct a preconstruction survey no more than two weeks prior to vegetation removal. In the event active nests are found, the applicant shall notify the Implementing Entity and consult with CDFW for further guidance

Areas of the Project Site Outside the ECCC HCP/NCCP Permit Area

4.2-4(b) If construction activities commence anytime during the nesting/breeding season of native bird species potentially nesting on or near the project site (typically February through August in the project region), a pre-construction survey for nesting birds shall be conducted by a qualified biologist within two weeks of the commencement of construction activities. The results of the survey shall be submitted to the City of Oakley Planning Division.

If active nests are found in areas that could be directly affected or are within 500 feet of construction and would be subject to prolonged construction-related noise, an initial no-disturbance buffer zone shall be created around active nests during the breeding season or until a qualified biologist determines that all young have fledged. The initial sizes of the buffer zones and types of construction activities restricted within them shall be a minimum of 500 feet for raptors, and a minimum of 50 feet for other species, and in consultation with CDFW may be reduced or enlarged by taking into account factors such as the following:

- *Noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity;*
- *Distance and amount of vegetation or other screening between the construction site and the nest; and*
- *Sensitivity of individual nesting species and behaviors of the nesting birds.*

4.2-5 Have a substantial adverse effect on riparian habitat or other sensitive natural community, or State or Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Due to an absence of rivers and streams in the project site, Moore Biological Consultants concluded that the project site does not contain riparian habitat. However, the project site contains four seasonal wetlands and a portion of one permanent wetland, all of which have been previously delineated and the delineations subsequently verified. The off-site utility improvement areas do not contain any wetland areas, and, consist solely of previously developed roadways or roadway rights-of-way. Additionally, the Del Antico Basin does not contain any potentially jurisdictional wetlands. Therefore, implementation of the proposed project would not result in impacts related to riparian habitat, or sensitive natural communities or wetland areas off-site. Potential impacts to aquatic resources within the project site are further discussed below.

The proposed project would involve grading and development activities associated with construction and operation of the proposed industrial structures, drive aisles, parking areas, and on-site infrastructure. On-site infrastructure would include construction of a proposed stormwater outfall structure, which would extend into the permanent wetlands within the project site. Such development activities would have the potential to involve the disturbance, removal, fill or hydrologic interruption of wetlands or other waters of the U.S. or state regulated by the USACE, RWQCB, and/or the CDFW. As shown in Table 4.2-5, the proposed project would have the potential to impact 0.983 acre of seasonal wetlands within the ECCC HCP/NCCP Permit Area, as well as 0.197 acres of seasonal wetland and 0.065 acre of permanent wetlands outside of the ECCC HCP/NCCP Permit Area.

It should be noted that 0.030 acre of impacts to the permanent wetlands would be temporary during the construction of the proposed storm drain outfall, while the remaining 0.035 acre would be permanently impacted due to development of the outfall structure. As discussed in further depth in Impact 4.2-6, impacts to wetlands could result in adverse effects to water quality and special-status fish species within the San Joaquin River and nearby San Joaquin-Sacramento River Delta. Wildlife using the San Joaquin River is considered a sensitive natural community; thus, implementation of the proposed project could result in substantial adverse effects to a sensitive natural community.

Table 4.2-5
Aquatic Resources Impacts and Avoidance within the Project Area

Resource Type	Existing (Acre)	Impacts (Acres)	Avoided (Acres)
Within ECCC HCP/NCCP Permit Area			
Seasonal Wetland (SW-D)	0.612	0.612	0.000
Seasonal Wetland (SW-E)	0.625	0.000	0.625
Seasonal Wetland (SW-F)	0.371	0.371	0.000
Subtotal	*1.608*	*0.983*	*0.625*
Outside of ECCC HCP/NCCP Permit Area			
Seasonal Wetland (SW-C)	0.197	0.197	0.000
Permanent Wetland (PW-A)	0.207	0.065	0.142
Subtotal	*0.404*	*0.262*	*0.142*
Total Aquatic Resources	**2.012**	**1.245**	**0.767**
Source: Moore Biological Consultants, July 2019.			

Impacts to wetlands within the ECCC HCP/NCCP Permit Area are subject to the conditions of the Regional General Permit 1 issued by the USACE Sacramento District for ECCC HCP/NCCP covered activities. In addition, the ECCC HCP/NCCP provides for compensatory wetland habitat within dedicated preserve areas. The payment of ECCC HCP/NCCP fees as a result of the project would be used, in combination with other fees, for restoration/creation of wetlands, which would represent compensatory wetlands for those impacted by the project. Impacts to wetlands outside of the ECCC HCP/NCCP Permit Area would be subject to all applicable regulations of the USACE, RWQCB, and/or the CDFW.

Based on the above, implementation of the proposed project could have a substantial adverse effect on sensitive natural communities and/or have a substantial adverse effect on State or Federally protected aquatic resources (including, but not limited to, marsh, vernal pool, coastal, etc.), through direct removal, filling, hydrological interruption, or other means. Thus, a ***significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

Areas of the Project Site Within the ECCC HCP/NCCP Permit Area

4.2-5(a) Prior to the issuance of grading or construction permits for each phase of development of the project, the applicant shall pay the applicable ECCC HCP/NCCP per-acre Wetland Mitigation Fee in compliance with Article 7, Habitat Conservation Plan/Natural Community Conservation Plan Implementing Program, of the Oakley Municipal Code. Payment of the Wetland Mitigation Fee would address the loss of wetland habitat within the portions of the project site covered by the ECCC HCP/NCCP. The fees would be used in part to restore or create compensatory wetlands.

Alternately, the project applicant may, in accordance with the terms of Oakley Municipal Code Article 7, create and restore wetlands in lieu of some or all of the mitigation fees. All applicable mitigation fees shall be paid, or an "in-lieu-of fee" agreement executed, prior to the issuance of a grading permit for the project.

The Oakley Planning Division and the Contra Costa County Conservancy will need to approve the final method of compliance with the ECCC HCP/NCCP provisions.

4.2-5(b) *The following measures from pages 6-33 through 6-35 of the ECCC HCP/NCCP shall be implemented avoid and minimize impacts of covered activities on wetlands:*

- *The project shall comply with the guidelines in Conservation Measure 1.10 of the ECCC HCP/NCCP to minimize the effects of urban development on downstream hydrology, streams, and wetlands.*
- *All wetlands to be avoided by covered activities shall be temporarily staked in the field by a qualified biologist.*
- *Personnel conducting ground-disturbing activities within or adjacent to wetlands will be trained by a qualified biologist in these avoidance and minimization measures and the permit obligations of project proponents working under the ECCC HCP/NCCP.*
- *Trash generated during project construction shall be promptly and properly removed from the site.*
- *Construction or maintenance vehicles shall not be refueled within 200 feet of wetlands unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.*
- *Appropriate erosion-control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) shall be used on site to reduce siltation and runoff of contaminants into the wetlands. Filter fences and mesh shall be of material that will not entrap reptiles and amphibians. Erosion control blankets shall be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians.*
- *Fiber rolls used for erosion control shall be certified as free of noxious weed seed.*
- *Seed mixtures applied for erosion control shall not contain invasive non-native species, and shall be composed of native species or sterile non-native species.*
- *Herbicides shall not be applied within or adjacent to on-site wetlands unless needed to control serious invasive plants. In this case, herbicides that have been approved for use by EPA in or adjacent to aquatic habitats may be used as long as label instructions are followed and applications avoid or minimize impacts on covered species and their habitats. Appropriate herbicides may be applied to the ruderal grassland within the*

buffer area during the dry season to control nonnative invasive species such as yellow star-thistle. Herbicide drift shall be minimized by applying the herbicide as close to the target area as possible.

Areas of the Project Site Outside the ECCC HCP/NCCP Permit Area

4.2-5(d) To the extent feasible, the project shall be designed to avoid and minimize adverse effects to waters of the U.S. or jurisdictional waters of the State of California within the project area. Prior to Improvement Plan approval for the project or any phase thereof, a Section 404 permit for fill of jurisdictional wetlands shall be acquired, and mitigation for impacts to jurisdictional waters that cannot be avoided shall conform with the USACE "no-net-loss" policy. Mitigation for impacts to both federal and State jurisdictional waters shall be addressed using these guidelines.

If a Section 404 permit is obtained, the applicant must also obtain a water quality certification from the RWQCB under Section 401 of the Clean Water Act (CWA). Written verification of the Section 404 permit and the Section 401 water quality certification shall be submitted to the Oakley Planning Division.

4.2-5(e) Prior to issuance of a building permit to construct the storm drain outfall, the applicant shall apply for a Section 1600 Lake or Streambed Alteration Agreement from CDFW. The information provided shall include a description of all of the activities associated with the proposed project, not just those closely associated with the drainages and/or riparian vegetation. Impacts shall be outlined in the application and are expected to be in substantial conformance with the impacts to biological resources outlined in this document. Impacts for each activity shall be broken down by temporary and permanent, and a description of the proposed mitigation for biological resource impacts shall be outlined per activity and then by temporary and permanent. Information regarding project-specific drainage and hydrology changes resulting from project implementation shall be provided as well as a description of storm water treatment methods. Minimization and avoidance measures shall be proposed as appropriate and may include:

- *Preconstruction surveys and reporting;*
- *Protective fencing around avoided biological resources;*
- *Worker environmental awareness training;*
- *Installation and maintenance of silt curtains and/or turbidity barriers;*
- *Water quality monitoring with the authority to stop work should water quality degradation occur; and/or*
- *Installation of other project-specific water quality best management practices.*

In addition, mitigation may include restoration or enhancement of resources on- or off-site, purchase habitat credits from an agency-

approved mitigation/conservation bank off-site, such as the Cosumnes Floodplain Mitigation Bank, working with a local land trust to preserve land, or any other method acceptable to CDFW. A written record of the Section 1600 Lake or Streambed Alteration Agreement, including all applicable minimization and avoidance measures, shall be submitted to the City of Oakley Planning Division.

4.2-5(f) *To reduce the potential for sedimentation in the permanent wetlands on-site, project construction requiring in-water work or work within areas identified as permanent wetlands within the project site shall only occur between August 1 and November 30. The work window may only be adjusted through consultation with the CDFW, NMFS, and/or USFWS. The language of this mitigation measure shall be included on final Improvement Plans submitted to the City for review and approval.*

Entire Project Site

4.2-5(g) *High visibility and silt fencing shall be erected at the edge of construction/maintenance footprint if work is anticipated to occur within 50 feet of potentially jurisdictional features and riparian areas which are proposed for avoidance. A biological monitor shall be present during the fence installation and during any initial grading or vegetation clearing activities within 50 feet of potentially jurisdictional features and riparian areas which are proposed for avoidance. The language of this mitigation measure shall be included on final Improvement Plans submitted to the City for review and approval.*

4.2-6 Have a substantial adverse effect, either directly or through habitat modifications, on special-status fish species. Based on the analysis below and with implementation of mitigation, the impact would be *less than significant*.

As noted in Wetland Delineation included as part of the PSR prepared for the proposed project, the subject property includes seasonal wetlands, permanent wetlands, and open water aquatic resources. Although open water habitats exist within the subject property, the project site does not contain any areas designated as open water, and implementation of the proposed project would not result in any direct physical changes to areas of the subject property designated as open water. In addition, the seasonal wetlands within the project site are hydrologically isolated and do not provide habitat for any fish species, and, as such, any impacts to seasonal wetlands within the project site would not have the potential to adversely affect special-status fish species. Although the proposed project does not include any direct changes to the open water aquatic resources within the project site, the proposed project would include construction of a stormwater outfall in the area identified as a permanent wetland within the project site. It should be noted that the areas of the subject property containing open water habitat and permanent wetland habitat are outside of the ECCC HCP/NCCP area. In addition, off-site improvements do not have the potential to result in impacts to special-status species.

FISHBIO analyzed the potential for special-status fish species to use the permanent wetlands and open water within the project site as habitat, and concluded that the presence of any special-status fish species within the subject property would be highly unlikely. In particular, only one Central Valley Steelhead has been captured during seine surveys conducted by USFWS near the project area since 2008. Only one Delta Smelt was caught in the region, near Sherman Island, in 2017, and this capture was the first fish captured since November 2005. Both the green sturgeon and Chinook salmon could use the San Joaquin River to the north of the project site for migration; however, neither species would be likely to use portions of the subject property for this purpose, and both species are strong swimmers that could easily avoid any disturbances occurring on-site.

Considering the absence of special-status fish habitat within the on-site permanent wetlands, the low likelihood of any special-status species being present within the subject property, and the ability of many of the special-status fish species to swim away from any potential sources of disturbance, construction of the proposed stormwater outfall structure within the on-site permanent wetland area would not have the potential to result in direct impacts to special-status fish species. However, the on-site permanent wetlands are hydrologically connected to the open water habitat within the subject property. The open water portions of the subject property are connected with the San Joaquin River and the larger San Joaquin-Sacramento Delta.

As discussed in Impact 4.2-5, the proposed project would involve fill of 0.035-acre of permanent wetland and temporary impacts to an additional 0.030-acre of permanent wetland during construction of the proposed stormwater outfall structure. Considering the hydrologic connectivity between the on-site permanent wetlands, open water within the subject property, and the San Joaquin River, should implementation of the proposed project result in impacts to water quality due to work within the permanent wetlands, such impacts could affect other connected aquatic resources and result in adverse effects to special-status fish species. For instance, ground disturbing activity within the permanent wetland areas of the project site could result in the release of silt or sediment into the water column, which would adversely affect water quality and special-status fish species in the vicinity of the project site. It should be noted that potential adverse effects on water quality resulting from the proposed project are discussed in further depth in Section 4.3, Hydrology and Water Quality, of this EIR.

Although the potential exists for work within the permanent wetland areas of the project site to result in impacts to special-status fish through the release of sediment during construction activity, as discussed in Impact 4.2-5, work within the permanent wetland areas of the site would be subject to permitting requirements through the USACE, USFWS, NMFS, and CDFW. Although the exact permitting requirements would be determined through further consultation between the project applicant and the permitting agencies, Mitigation Measure 4.2-5(e) presents the permit requirements that would likely be imposed by the permitting agency to ensure that construction of the proposed outfall would not result in impacts to water quality and special-status fish.

In addition to the permitting requirements, construction of the proposed outfall would be conducted in a manner designed to minimize the potential for impacts to occur.

For instance, construction within the permanent wetlands would be scheduled to take place during the late-summer or early fall time period, as required by Mitigation Measure 4.2-5(f) of this EIR. Construction during this time period would avoid the avian nesting season and, according to FISHBIO, would avoid the seasons during which special-status fish species are likely to be present within the portion of the San Joaquin River to the north of the project site. The proposed design for the outfall structure includes a containment structure over a low concrete weir. The weir would help to prevent inflow of Delta waters into the project drain system during high tide while simultaneously assuring that outflow from the structure would be spread out to flow into the adjacent wetland at low depths and non-erosive velocities. A small length of rock slope protection would be included in the downslope of the weir to provide additional protection against scour and thereby minimize additional turbidity inputs that may have otherwise resulted from erosion downslope of the weir.

Despite the inherent design features intended to reduce impacts to water quality and special-status species, implementation of the proposed project without application of measures sufficient to ensure the protection of water quality could result in adverse effects to special-status fish species. Therefore, the proposed project could result in a ***significant*** impact.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

Entire Project Site

4.2-6 Implement Mitigation Measures 4.2-5(e) through 4.2-5(g).

4.2-7 Substantially interfere with movement of native, resident, or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. Based on the analysis below the impact is *less than significant*.

As discussed in sub-section 4.2.2, the project site is surrounded by developed lands to the east, west, and south. Therefore, significant wildlife movement corridors do not exist within the land area adjacent to the project site or adjacent to the off-site improvement areas. The San Joaquin River to the north of the project site acts as a major movement corridor for wildlife species including fish, avian species, and aquatic mammals. The proposed project would not include any construction activity that could substantially diminish the ability of the San Joaquin River to act as a movement corridor. In addition, Mitigation Measure 4.2-5(e) would ensure that implementation of the proposed project would not result in any water quality impacts to the San Joaquin River that could inhibit the use of the river as a migratory corridor.

Surveys of the project site have recorded the use of the site for nesting activity of avian species covered under the ECCC HCP/NCCP, MBTA, and Fish and Game Code of California. However, such nesting activity has been limited to individual pairs, and due to the highly disturbed nature of the project site, the project site is not considered a significant wildlife nursery site. Furthermore, Mitigation Measure 4.2-

1(a) requires payment of impact fees for the loss of habitat within the ECCC HCP/NCCP Permit Area. Such fees would be used in part to purchase compensatory habitat areas, which would provide for the protection of similar breeding habitat. Considering the limited use of the project site for breeding by native wildlife, the highly disturbed nature of the site, and the requirement that the proposed project includes payment of ECCC HCP/NCCP fees, the proposed project would not impede the use of a wildlife nursery site.

The off-site improvement areas are within or adjacent to existing roadways, and have been previously developed and disturbed. Roadways are not considered wildlife movement corridors and are not suitable wildlife nursery sites, and construction work within roadways would not have the potential to impact movement corridors or wildlife nursery sites.

Considering the above, the proposed project would not interfere with the movement of native wildlife nor would the project impede the use of native wildlife nursery sites, and impacts to wildlife corridors and native wildlife nursery sites as a result of the implementation of the project site, would be ***less-than-significant***.

Mitigation Measure(s)
None required.

4.2-8 Conflict with any local policies or ordinances protecting biological resources, such as the City of Oakley's Heritage and Protected Tree standards. Based on the analysis below and with implementation of mitigation, the impact would be *less than significant.*

Trees, Bugs, and Dirt determined that the project site contains a total of 662 trees. Of the 662 trees located within the project site, 130 trees are considered heritage and/or protected trees due to the size and species of the trees. Implementation of the proposed project would require removal of some or all of the identified trees within the project site, including the 130 heritage and/or protected trees.

In addition to the removal of on-site trees, off-site improvements may require the removal of trees. For instance, several trees exist within the Del Antico Basin, including one coastal live oak. The existing trees within the Del Antico Basin have not been assessed to determine whether any such trees would be considered heritage and/or protected treed due to their size and species. Furthermore, plans for the improvement of Del Antico Basin have not yet been finalized, and the need for removal of the existing trees within Del Antico Basin is not known with certainty.

As noted in Section 9.1.1112 of the City's Municipal Code, heritage and protected trees may only be destroyed or a removed when a permit for such actions has been granted or such activities are found to be exempt per the stipulations of Section 9.1.1112. Permit applications must be submitted to the Oakley Community Development Department and must show any trees to be removed or protected. Should implementation of the proposed project include protection of any on-site trees, the project applicant would be required to adhere to the Tree Preservation and

Protection requirements within the City's Municipal Code, and the project applicant may be required to submit security deposits for the appraised values of any trees to be preserved.

For any trees proposed for removal, the project applicant may be required to submit proposed methods of compensation or replacement. In compliance with the City's Municipal Code, removed trees may be replaced through planting of compensatory trees. Additionally, the project applicant may elect to pay in-lieu fees or provide a combination of on-site replacement tree planting with in-lieu fee payment to the satisfaction of the Director of the Community Development or Planning Commission.

The proposed project would include submittal of a tree removal permit application to the City for the proposed on-site and off-site improvements as part of the overall project approval. However, without compliance with applicable standards included in Section 9.1.1112 of the City's Municipal Code, the proposed project could result in conflicts with the City of Oakley's regulations regarding Heritage and Protected Tree preservation, which would be considered a ***significant*** impact.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

Entire Project Site and Off-Site Improvement Areas

4.2-8 *Prior to project-related tree removal, the project applicant shall be required to comply with the standards included in Section 9.1.1112 of the City's Municipal Code by implementing one of the options provided in Section 9.1.1112(g)(11)(a), to the satisfaction of the Director of the Community Development Department or the Planning Commission, as applicable.*

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, "cumulative impacts" refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region. Other proposed and pending projects in the region under the cumulative context would include buildout of the City of Oakley General Plan, as well as development of the most recent planned land uses within the vicinity of the project area. Habitat loss resulting from the proposed project would combine with related effects resulting from cumulative development in the cumulative geographic setting. In addition, cumulative habitat loss could result in indirect adverse effects to the long-term viability of special-status species populations within the cumulative geographic setting, due to loss of their habitats.

4.2-9 Cumulative loss of biological resources in the City of Oakley. Based on the analysis below, the project's incremental contribution to this cumulative impact is *less than cumulatively considerable*.

As defined in Section 15355 of the State CEQA Guidelines, "cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects (CEQA Guidelines 15355). Accordingly, an assessment of cumulative impacts should consider impacts identified as significant, as well as impacts identified as less than significant for individual projects that may become significant in a collective sense when considering the co-occurrence of multiple projects.

The Oakley area, like other communities in the Bay Area, has experienced urban growth over the last several decades. The project site is a former chemical manufacturing facility that operated from 1956 to 1997, with manufacturing activities ceasing by 1998. Following cessation of industrial activities at the project site, the majority of the industrial structures were demolished in 1999, and the project site has been subject to various remediation activities since that time. Considering that the site had been previously developed and the highly disturbed nature of the site due to such development and on-going site remediation, the project site is of relatively low habitat value. Nevertheless, because a portion of the project site is within the ECCC HCP/NCCP Permit Area, the project would be required to pay development impact fees to mitigate for the loss of grassland habitat and wetland areas within portions of the project site. Payment of ECCC HCP/NCCP development fees by the proposed project, in combination with fee payment from other cumulative development in the ECCC HCP/NCCP Permit Area, would ensure that cumulative habitat loss would be mitigated through the protection of similar habitat elsewhere in the ECCC HCP/NCCP Permit Area.

Moreover, off-site improvement areas that would be disturbed with implementation of the proposed project are within the ECCC HCP/NCCP Permit Area and would be subject to the development fees discussed above. Considering the low habitat value of the off-site utility improvement areas as well as the urbanized nature of the area surrounding the Del Antico Basin, payment of development fees would ensure that cumulative habitat loss would be mitigated through the protection of more suitable habitat elsewhere in the ECCC HCP/NCCP Permit Area.

Although portions of the proposed project would involve development outside of the ECCC HCP/NCCP Permit Area, because the majority of the project site has been previously developed for industrial uses in the past, the project site is considered relatively low value habitat. Consequently, development of the portions of the project site outside of the ECCC HCP/NCCP Permit Area would not be considered to represent a substantial loss of habitat. Areas of the subject property to the north and northeast of the project site would remain undisturbed with implementation of the proposed project, which would ensure that the wetland, open water, and other habitat areas in these portions of the subject property would not be degraded due to implementation of the proposed project.

The City of Oakley determined that with implementation of all General Plan goals and policies related to biological resources, a less-than-significant impact would occur to biological resources with buildout of the City's General Plan. The proposed project includes a General Plan Amendment to accommodate the proposed industrial development within the project site; however, the proposed development would continue to be subject to the goals and policies within the City's General Plan. Furthermore, this EIR includes various mitigation measures to compensate for and protect biological resources within the project site.

Implementation of the project-specific mitigation, along with adherence to applicable General Plan goals and policies as well as participation in the ECCC HCP/NCCP would ensure that implementation of the proposed project would result in a ***less-than-cumulatively-considerable*** impact.

Mitigation Measure(s)
None required.

4.3. Hydrology and Water Quality

4.3. HYDROLOGY AND WATER QUALITY

4.3.1 INTRODUCTION

The Hydrology and Water Quality chapter of the EIR describes existing drainage and water resources for the project site and evaluates potential impacts of proposed project with respect to flooding, surface water resources, and groundwater resources. Information for the Hydrology and Water Quality chapter was primarily drawn from the *City of Oakley 2020 General Plan*[1] and associated EIR,[2] as well as the Stormwater Control Plan prepared for the proposed project.[3] It should be noted that impacts associated with water supply and capacity are addressed in Chapter 4.5, Utilities and Service Systems, of this EIR.

4.3.2 EXISTING ENVIRONMENTAL SETTING

The section below describes the existing hydrological features of the surrounding region and the project site, as well as the water quality of the existing resources in and around the project site.

Regional Hydrology

The project site is located within the City of Oakley on the eastern side of Contra Costa County and is bordered by the San Joaquin River Delta to the north. Water sources in the region include rivers, streams, sloughs, marshes, wetlands, channels, and harbors. The following is a discussion of the regional climate, waterways, drainage, and flooding.

Climate and Rainfall

The City experiences a generally favorable, moderate climate. Areas along the bay shore experience fog and marine air, creating mild winters and summers. The temperatures in the City range from an average 54 degrees in the winter to 91 degrees in the summer. Precipitation in the City occurs primarily in the winter months and averages 12 inches per year.

Waterways and Water Bodies

The principal waterways within the City of Oakley include the Contra Costa Canal, Marsh Creek, and East Antioch Creek. The Contra Costa Canal runs east to west through the eastern portion of the City. Marsh Creek runs south to north on the east side of the City and discharges into the Delta. East Antioch Creek borders the southwest City boundary and discharges into the Delta.

The predominant body of water adjacent to the City of Oakley is the San Joaquin River Delta. The waterway serves as an open space area, sensitive plant and wildlife habitat, and recreation opportunity. The Delta is located at the northernmost area of the City and is formed by the confluence of the Sacramento and San Joaquin rivers. The Delta delivers water for irrigation in the San Joaquin Valley and is a municipal water supply for much of California.

---

1 City of Oakley. *City of Oakley 2020 General Plan*. Adopted December 16, 2002.
2 City of Oakley. *General Plan Draft Environmental Impact Report*. September 2002.
3 Balance Hyrologics, Inc. and Carlson, Barbee & Gibson. *Stormwater Control Plan Oakley Logistics Center.* August 23, 2019.

The Dutch Slough area is an extension of the Delta that is located along the northern boundary of the City. The area includes a contiguous block of land that includes agricultural lands, ruderal lands, and Delta frontage, providing habitat, foraging and shelter opportunities for resident wildlife. Dutch Slough is located along the northern boundary of the City and is bisected by the Contra Costa Canal. The area is considered Delta Recreation and preserved by the City. The Slough runs east to west and drains into the Delta.

Drainage

The Contra Costa County Flood Control and Water Conservation District (CFCWCD) controls flood and stormwaters throughout the County, including in the City of Oakley. The City slopes gradually to the Delta with the highest points nearest the southern boundaries. Regional waters flow through Oakley using the Marsh Creek corridor and other Delta outfalls. Because Marsh Creek has limited capacity, local and regional detention basins have been created to control flow into Marsh Creek and to minimize flooding.

The CFCWCD has developed drainage plans to guide the development of new drainage systems and ensure compliance with the National Pollution Discharge Elimination System (NPDES) permit. The individual drainage areas have been sized to meet buildout expectations based on land use designations. Stormwater is collected and discharged to either Marsh Creek or pipelines leading to the Delta. Marsh Creek is owned and operated by CFCWCD. The regional drainage plan has been updated using current land use forecasts and flow predictive models. The basins can be dual use facilities and are designed so they do not incur standing water. Many basins have fencing so a gate can be closed if standing water is sensed in the basin.

Flooding

Substantial areas within the City are subject to flooding, especially areas along the Delta and northeast of the Contra Costa Canal. The most serious flood hazards existing in the City are related to the system of levees that protect the islands and adjacent main lands in the Delta. Flooding problems have been exacerbated by boat movement on the waterways, which creates waves that accelerate the natural process of levee erosion.

The City continues to implement flood prevention measures, including protection of development along the shoreline, floodproofing of buildings, and rights-of-way for levees. Flood protection is required in most parts of the City and several measures are taken to ensure reduced impacts in flood areas.

Dam Inundation

According to the General Plan EIR, the north and northeastern portions of the City are subject to potential dam inundation by the New Melones Lake, Folsom Lake, and San Luis Reservoir. The inundation areas are depicted in Figure 8-6 of the General Plan EIR. The New Melones Dam is located off of State Route (SR) 49, approximately 60 miles from the City, and would be the most damaging according to Figure 8-6.

Project Site and Area Drainage

The project site is located in the northern portion of the City and is bordered by the Delta to the north. It should be noted that the entire 375.7-acre subject property contains waterways connecting to the Delta; however, only 143.3 acres of the site would be developed and the waterways to the north would remain untouched. The site also contains the Central Slough in the middle of the site, which is currently used as overflow for runoff from the project site.

The topography of the site ranges from a low of about six feet at the northeast corner of the site to a high of about 20 feet in the southwest corner. The slope of the site generally flows from south to north with relatively uniform elevations across most of the site. Primary development would occur in the middle of the site which is relatively level.

The City of Oakley maintains and operates the public storm drain system in the vicinity of the project site. Historically, most stormwater from the impervious areas of the project site have either infiltrated into open spaces or been collected in a pipe system that discharged into the Delta. Currently, stormwater flows to three depressed areas along Bridgehead Road which store and infiltrate water flows. The southernmost depressed area is near the southwestern portion of the site. The other two are just south of the north property line. Central Slough also currently collects overland flows and conveys them to the Delta through a culvert outfitted with a tidal gate. All other stormwater flows from the site either infiltrate into open spaces or sheet drain to the Delta.

The site is part of unformed Drainage Area 29 and does not have any existing or planned public storm drain facilities within the project site. Drainage Area 29H stops just south of the site, before the BNSF Railroad corridor and contains a 66-inch pipe that traverses the project area directly east of the site and discharges to an outlet structure at the shoreline and into the Delta.

Local Flooding

The Federal Emergency Management Agency (FEMA) categorizes flood prone areas based on the frequency of occurrence. As shown in Figure 4.3-1, the project site is within Flood Insurance Rate Map (FIRM) 06013C0163G. According to the FIRM, most of the site is within Flood Hazard Zone X. Zone X is described by FEMA as an area of moderate to low flood risk, usually between the 100-year to 500-year flood levels. However, a portion of the site in the northwestern most corner is in Zone AE, which is considered an area at high risk for flooding and known as the 100-year floodplain. The map establishes a base elevation of nine feet. In order to develop within the Zone AE, the proposed project would be required to remove the designation through the CLOMR-F/LOMR-F process.

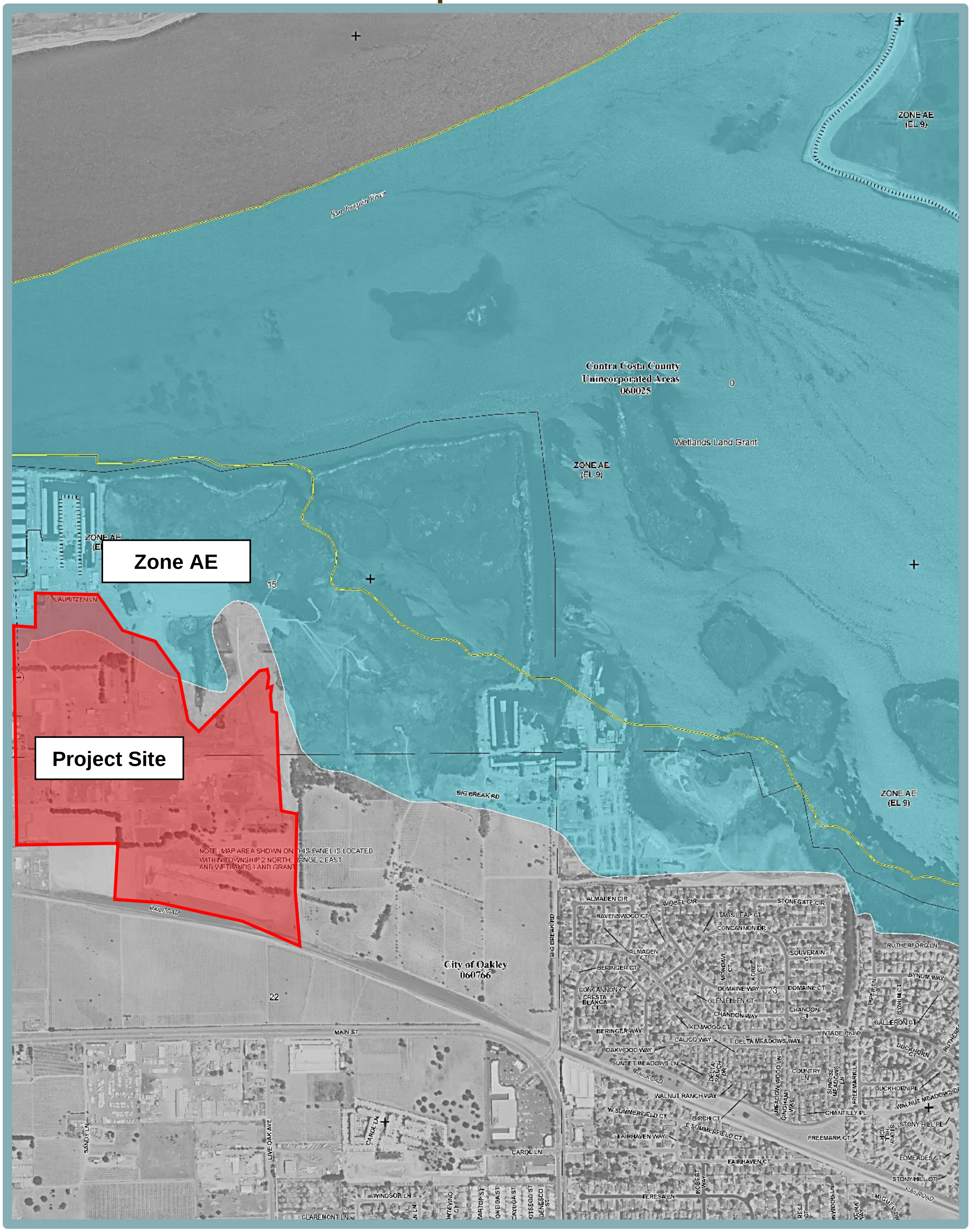
Groundwater

Water is provided to the project site by the Diablo Water District (DWD). DWD and associated wells overlie the northwestern portion of the Tracy Subbasin, which is 1 of 16 subbasins in the San Joaquin Valley Groundwater Basin. DWD has developed a groundwater supply system that provides additional supply reliability. The system currently consists of groundwater from two wells in Oakley, conveyed in a dedicated well supply pipeline to a blending facility located near the Randall-Bold WTP. At the blending facility, the groundwater is treated and blended with treated surface water within DWD's distribution system, prior to distribution to any customers. The amount of groundwater used in proportion to surface water is automatically controlled to maintain good water quality with a target hardness of 140 milligrams per liter (except in times of drought when the target hardness may be higher). When fully implemented, groundwater may comprise up to 20 percent of DWD's total supply. DWD has taken steps to protect and actively manage the groundwater basin.

Water Quality

Water is essential to recreation, the viability of agriculture, and the development of housing, commerce, and industry, as well as the maintenance of high-quality fish and wildlife habitats. Land uses and activities that the City must consider in protecting the quality of the City's water include construction activities, agricultural land uses, and urban runoff.

Figure 4.3-1
FEMA Map 06013C0163G



Source: FEMA, 2015.

Construction Activities

Construction activities generally have the potential to cause erosion and sedimentation associated with groundbreaking and clearing activities. Such effects could result in impacts to nearby water bodies. Unstable soil could be washed or wind-blown into nearby surface water. Due to the use of heavy equipment during construction activities, during rainfall events, petroleum products and other pollutants from construction equipment have the potential to enter nearby drainages.

Urban Runoff

Stormwater runoff from urban areas could contain a variety of pollutants that may reduce the quality of groundwater when introduced into groundwater aquifers or surface water when allowed to flow untreated to water bodies. Pollutants typically found in urban runoff include commercial cleaning supplies and landscape-related chemicals (insecticides, herbicides, fungicides and rodenticides), heavy metals (such as copper, zinc, and cadmium), oils and greases, and nutrients (nitrogen and phosphorus).

4.3.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of hydrology and water quality under the California Environmental Quality Act (CEQA) process.

Federal Regulations

The following section includes federal environmental goals and policies relevant to the CEQA review process pertaining to the hydrology and water quality aspects of the proposed project.

Federal Emergency Management Agency

The FEMA is responsible for determining flood elevations and floodplain boundaries based on U.S. Army Corps of Engineers (USACE) studies. FEMA is also responsible for distributing the FIRMS, which are used in the National Flood Insurance Program (NFIP). The FIRMs identify the locations of special flood hazard areas, including the 100-year floodplains.

FEMA allows non-residential development in the floodplain; however, construction activities are restricted within flood hazard areas, depending upon the potential for flooding within each area. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR). The CFR standards are implemented at the State level through construction codes and local ordinances; however, these regulations only apply to residential and non-residential structure improvements. Although roadway construction or modification is not explicitly addressed in the FEMA regulations, the California Department of Transportation (Caltrans) has also adopted criteria and standards for roadway drainage systems and projects situated within designated floodplains. Standards that apply to floodplain issues are based on federal regulations (Title 23, Part 650 of the CFR). At the State level, roadway design must comply with drainage standards included in Chapters 800-890 of the Caltrans Highway Design Manual. CFR Section 60.3(c)(10) restricts cumulative development from increasing the water surface elevation of the base flood by more than one foot within the floodplain.

Federal Clean Water Act

The NPDES permit system was established in the federal Clean Water Act (CWA) to regulate municipal and industrial discharges to surface waters of the U.S. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that EPA must consider in setting effluent limits for priority pollutants.

Nonpoint sources are diffuse and originate over a wide area rather than from a definable point. Nonpoint pollution often enters receiving water in the form of surface runoff, but is not conveyed by way of pipelines or discrete conveyances. As defined in the federal regulations, such nonpoint sources are generally exempt from federal NPDES permit program requirements. However, two types of nonpoint source discharges are controlled by the NPDES program – nonpoint source discharge caused by general construction activities, and the general quality of stormwater in municipal stormwater systems. The 1987 amendments to the CWA directed the federal Environmental Protection Agency (EPA) to implement the stormwater program in two phases. Phase I addressed discharges from large (population 250,000 or above) and medium (population 100,000 to 250,000) municipalities and certain industrial activities. Phase II addresses all other discharges defined by EPA that are not included in Phase I.

Section 402 of the CWA mandates that certain types of construction activities comply with the requirements of the NPDES stormwater program. The Phase II Rule, issued in 1999, requires that construction activities that disturb land equal to or greater than one acre require permitting under the NPDES program. In California, permitting occurs under the General Permit for Stormwater Discharges Associated with Construction Activity, issued to the State Water Resources Control Board (SWRCB), implemented and enforced by the nine Regional Water Quality Control Boards (RWQCBs).

As of July 1, 2010, all dischargers with projects that include clearing, grading or stockpiling activities expected to disturb one or more acres of soil are required to obtain compliance under the NPDES Construction General Permit Order 2009-0009-DWQ. The General Permit requires all dischargers, where construction activity disturbs one or more acres, to take the following measures:

1. Develop and implement a stormwater pollution prevention program (SWPPP) to include a site map(s) of existing and proposed building and roadway footprints, drainage patterns and stormwater collection and discharge points, and pre- and post- project topography;
2. Describe types and placement of best management practices (BMPs) in the SWPPP that will be used to protect stormwater quality;
3. Provide a visual and chemical (if non-visible pollutants are expected) monitoring program for implementation upon BMP failure; and
4. Provide a sediment monitoring plan if the area discharges directly to a water body listed on the 303(d) list for sediment.

To obtain coverage, a SWPPP must be submitted to the RWQCB electronically and a copy of the SWPPP must be submitted to the City of Oakley. When project construction is completed, the landowner must file a Notice of Termination (NOT).

Construction Site Runoff Management

In accordance with NPDES regulations, in order to minimize the potential effects of construction runoff on receiving water quality, the State requires that any construction activity affecting one acre or more must obtain a General Construction Activity Stormwater Permit. Permit applicants are required to prepare a SWPPP and implement BMPs to reduce construction effects on receiving water quality by implementing erosion and sediment control measures.

State Regulations

The following section includes the State regulations relevant to the CEQA review process pertaining to the hydrology and water quality aspects of the proposed project.

State Water Resources Control Board

The SWRCB and the RWQCBs are responsible for ensuring implementation and compliance with the provisions of the federal CWA and California's Porter-Cologne Water Quality Control Act. Contra Costa County includes areas within the Central Valley Regional Water Quality Control Board (CVRWQCB) (Region 5S) and the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) (Region 2) jurisdictional boundaries. The project site is situated within the jurisdictional boundaries of the CVRWQCB. The CVRWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within their jurisdiction.

The County Watershed Program is responsible for ensuring that the County complies with NPDES permits, which include the Municipal Regional Permit (MRP) (NPDES Permit No. CAS612008) and the East Contra Costa County Municipal Stormwater Permit (EC3MSP) (NPDES Permit No. CAS083313). The MRP was adopted by the SFBRWQCB on October 14, 2009, and applies to 76 Bay Area municipalities and discharges to the San Francisco Bay. The EC3MSP was adopted by the CVRWQCB on September 23, 2010, and applies to the cities of Antioch, Oakley, Brentwood, unincorporated Contra Costa County and the CFCWCD and discharges to the Delta. The EC3MSP largely mimics the MRP.

The MRP and EC3MSP contain a comprehensive plan to reduce the discharge of pollutants in stormwater to the maximum extent practicable in order to protect water quality. To accomplish such, a number of provisions are included in the permits, such as Provision C.3, New Development and Redevelopment. Provision C.3 requires new development and redevelopment projects that create and/or replace 10,000 square feet (sf) or more of impervious surface over the whole site to include appropriate source control, site design, and stormwater treatment measures to address stormwater runoff pollutant discharges and prevent increases in runoff flows primarily through the implementation of low impact development (LID) techniques. To aid in the design of appropriate stormwater system design consistent with the Provision C.3 requirements, the *Stormwater C.3 Guidebook* was developed.[4]

Local Regulations

The following section includes the local regulations relevant to the CEQA review process pertaining to the hydrology and water quality aspects of the proposed project.

Contra Costa Clean Water Program

All incorporated cities and the CFCWCD joined together to form the Contra Costa Clean Water Program. The Contra Costa Clean Water Program obtained a Joint Municipal NPDES Permit from the San Francisco Bay and Central Valley RWQCBs in September 1993 and January 1994, respectively. The permits, reissued every five years, contain a comprehensive plan to reduce the

[4] Contra Costa Clean Water Program and Dan Cloak Environmental Consulting. *Stormwater C.3 Guidebook, Stormwater Quality Requirements for Development Applications, 6th Edition*. February 15, 2012.

discharge of pollutants to the "maximum extent practicable". Some of the methods used to control discharges include: infiltration devices (A means for the water to enter the soil as with infiltration trenches, dry wells, and catch basins), sand filters, oil and grease traps, constructed wetlands, and wet ponds.

As discussed above, the proposed project is a C.3 regulated project and future development is required to include appropriate site design measures, source controls, and hydraulically-sized stormwater treatment and flow control measures. The goal of Provision C.3 is for the NPDES Permittees to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. The goal is to be accomplished primarily through the implementation of low impact development (LID) techniques.

CFCWCD

The CFCWCD provides a variety of services related to flood protection within Contra Costa County. Such services include flood control planning and maintenance, development review and infrastructure financing fees, development of flood control standards, data collection and hydraulic modeling, and technical review of developments and environmental documents. The CFCWCD is separated into formed drainage areas, and new developments within drainage areas are assessed drainage fees. The proposed project is located in Drainage Area 29, and is subject to the relevant CFCWCD fees for that drainage area.

City of Oakley General Plan

The following objectives and policies of the Oakley General Plan are applicable to the hydrology and water quality aspects of the proposed project.

Goal 4.8 Assure the provision of potable water availability in quantifies sufficient to serve existing and future residents.

- Policy 4.8.1 Coordinate future development with all water agencies to ensure facilities are available for proper water supply.
- Policy 4.8.3 Encourage the preservation of water resource throughout the City.
- Policy 4.8.5 Ensure that water service systems be required to meet regulatory standards for water delivery, water storage, and emergency water supplies.
- Policy 4.8.10 Identify and develop opportunities, in cooperation with water service agencies, for use of non-potable water, including ground water, reclaimed water, and untreated surface water, for other than domestic use.
- Policy 4.8.11 Identify, monitor, and regulate land uses and activities that could result in contamination of groundwater supplies to minimize the risk of such contamination

Goal 4.10 Protect persons and property from the damaging impacts of flooding.

- Policy 4.10.1 Work cooperatively with Contra Costa County Flood Control and Water Conservation District (CFCWCD) to ensure and enhance flood protection in the City of Oakley.

	Policy 4.10.2	Pursue and achieve compliance with all regional, State, and Federal regulations related to flood control, drainage, and water quality.
	Policy 4.10.3	Recognize the unique flooding constraints of the areas north and east of the Contra Costa Canal.
	Policy 4.10.4	Pursue responsible and adequate financing for implementation of the Drainage Plan.
	Policy 4.10.5	Improve and expand the functionality of Marsh Creek as a major drainage corridor.
	Policy 4.10.6	Develop new drainage facilities and/or improvements to existing facilities to provide additional recreational or environmental benefit, where possible.
	Policy 4.10.9	Detention basin design shall ensure that water entering the basin outflows completely within a specified time, thus minimizing standing water or long-term saturation within the basin.
Goal 8.2	Protect public safety and minimize the risk to life and property from flooding.	
	Policy 8.2.3	Buildings in urban development near the shoreline of the Delta and in flood-prone areas shall be protected from flood dangers, including consideration of rising sea levels.
	Policy 8.2.4	Habitable areas of structures near the shoreline of the Delta and in flood-prone areas shall be sited above the highest water level expected during the life of the project, or shall be protected for the expected life of the project by levees of an adequate design.

City of Oakley Municipal Code

The following sections of the Oakley Municipal Code are applicable to the hydrology and water quality aspects of the proposed project.

Section 6.11: Stormwater Management and Discharge Control

Because construction activity during land development has the potential to result in pollution of nearby waterways, Section 6.11 requires the implementation of stormwater pollution control measures during all construction phases.

Section 4.27: Waterways and Water Supply

Because the project site is located near a major waterway within the City, the proposed project would be required to adhere to all rules and regulations set forth in the Section controlling water quality and supply.

4.3.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology utilized to analyze and determine the proposed project’s potential impacts related to hydrology and water quality. A discussion of the project’s impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines and the City's General Plan, a significant impact would occur if the proposed project would result in any of the following:

- Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - Result in substantial erosion or siltation on- or off-site;
    - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
    - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or;
    - Impede or redirect flood flows;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation;
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

The proposed project's impacts associated with water supply and capacity are further addressed in Chapter 4.5 of this EIR, Utilities and Service Systems.

Method of Analysis

Site conditions and impacts analysis for this chapter are based primarily on the Preliminary Stormwater Control Plan prepared for the proposed project by CBG Civil Engineers. The Preliminary Stormwater Control Plan was prepared in compliance with the *Stormwater C.3 Guidebook* and includes sizing calculations for the proposed on-site integrated management practices (IMPs). In accordance with the *Stormwater C.3 Guidebook*, the Preliminary Stormwater Control Plan demonstrates the project's compliance with applicable requirements of Provision C.3 to minimize imperviousness, retain or detain stormwater, slow runoff rates, incorporate required source controls, treat stormwater prior to discharge from the site, control runoff rates and durations, and provide for operation and maintenance of treatment and flow-control facilities. The Preliminary Stormwater Control Plan includes analysis of the proposed on-site stormwater management system's adequacy for water quality treatment, flowrate, and treatment sizing.

Project Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in comparison with the standards of significance identified above.

4.3-1 Violate any federal, State, or County potable water quality standards, create or contribute runoff water which would include substantial additional sources of polluted water, or otherwise substantially degrade surface or ground water quality during construction. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Construction of the proposed project would include demolition of two existing buildings, construction of five new buildings, grading of approximately 166.42 acres, excavation for utilities, and other construction-related activities that could cause soil erosion at an accelerated rate during storm events. All such activities have the potential to affect water quality and contribute to localized violations of water quality standards if stormwater runoff from construction activities enters receiving waters.

Construction activities such as grading, excavation, and trenching for on- and off-site improvements would result in the disturbance of soils. The exposed soils have the potential to affect water quality in two ways: 1) suspended soil particles and sediments transported through runoff; or 2) sediments transported as dust that eventually reach local water bodies. Spills or leaks from heavy equipment and machinery, staging areas, or building sites also have the potential to enter runoff. Typical pollutants include, but are not limited to, petroleum and heavy metals from equipment and products such as paints, solvents, and cleaning agents, which could contain hazardous constituents. Sediment from erosion of graded or excavated surface materials, leaks or spills from equipment, or inadvertent releases of building products could result in water quality degradation if runoff containing the sediment or contaminants should enter receiving waters in sufficient quantities. Impacts from construction-related activities would generally be short-term and of limited duration.

Section 6.11 of the City's Municipal Code, Storm Water Management and Discharge Control requires projects that create or replace one acre or more of impervious surfaces, such as the proposed project, to comply with the City's NPDES permit. Consequently, the applicant would be required by the State to obtain a General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit), which pertains to pollution from grading and project construction. Compliance with the Permit requires the project applicant to file a Notice of Intent (NOI) with the SWRCB and prepare a SWPPP prior to construction. The SWPPP would incorporate BMPs in order to prevent, or reduce to the greatest feasible extent, adverse impacts to water quality from erosion and sedimentation.

Consistent with State guidelines and Section 6.11 of the Municipal Code, the proposed project would be required to implement BMPs, including erosion and sediment control BMPs and non-stormwater management and materials management BMPs. Erosion controls include practices to stabilize soil, to protect the soil in its existing location, and to prevent soil particles from migrating. Examples of erosion control BMPs include preserving existing vegetation, mulching, and hydroseeding. Sediment controls include practices to collect soil particles after they have migrated, but before the sediment leaves the site. Examples of sediment control BMPs include street sweeping, fiber rolls, silt fencing, gravel bags, sand bags, storm drain inlet protection, sediment traps, and detention basins. Wind erosion controls prevent soil particles from leaving the site in the air. Examples of wind erosion control BMPs include applying water or other dust suppressants to exposed soils on the site. Tracking controls prevent sediment from being tracked off-site via vehicles leaving the site to the extent practicable. Tracking controls could include a stabilized construction entrance, which would not only limit the access points to the construction site, but also function to partially remove sediment from vehicles prior to leaving the site.

Non-stormwater management and material management controls reduce non-sediment-related pollutants from potentially leaving the construction site to the extent practicable. The Construction General Permit prohibits the discharge of materials other than stormwater and authorized non-stormwater discharges (such as irrigation and pipe flushing and testing). Non-stormwater BMPs tend to be management practices with the purpose of preventing stormwater from coming into contact with potential pollutants. Examples of non-stormwater BMPs include preventing illicit discharges, and implementing good practices for vehicle and equipment maintenance, cleaning, and fueling operations, such as using drip pans under vehicles. Waste and materials management BMPs include implementing practices and procedures to prevent pollution from materials used on construction sites. Examples of materials management BMPs include the following:

- Good housekeeping activities such as storing of materials covered and elevated off the ground, in a central location;
- Securely locating portable toilets away from the storm drainage system and performing routine maintenance;
- Providing a central location for concrete washout and performing routine maintenance;
- Providing several dumpsters and trash cans throughout the construction site for litter/floatable management; and
- Covering and/or containing stockpiled materials and overall good housekeeping on the site.
-

While the final materials management BMPs to be used during construction of the proposed project are currently unknown, the project would likely include a combination of the BMP examples listed above. Final BMPs for the proposed project construction would be chosen in consultation with the applicable California Stormwater Quality Association Stormwater BMP Handbooks and implemented by the project contractor. Prior to development, the proposed project would be required to create a SWPPP to mitigate any potential runoff from the project site. However, should the SWPPP not be reviewed and approved, the proposed project could violate water quality standards and/or waste discharge requirements, and a ***significant*** impact could occur related to violation of any federal, State, or County potable water quality standards, create or contribute runoff, or otherwise substantially degrade surface or ground water quality during construction.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the impact to *less-than-significant.*

4.3-1 Prior to any grading activities, the applicant shall provide a Stormwater Pollution Prevention Plan (SWPPP) for the entire project site which shall include construction and post construction BMPs (including both physical and programs BMPs) to the satisfaction of the City Engineer. The SWPPP shall include the following:

- *Utilize on-site sediment control BMPs to retain sediment on the project site, such as: straw wattle; silt fences, storm drain inlet protection, erosion control blankets, and concrete washouts;*
- *Stabilized construction entrances and/or Wheel washing racks;*
- *Cover soil, equipment and supplies that could contribute pollution prior to rainfall events or monitoring runoff;*
- *Perform monitoring of discharges to the stormwater system; and*
- *Provide permanent cover to stabilize the disturbed surfaces after construction has been completed, as the project is a phased development.*

4.3-2 Violate any federal, State, or County potable water quality standards, create or contribute runoff water which would include substantial additional sources of polluted water, or otherwise substantially degrade surface or ground water quality during operations. Based on the analysis below, the impact is *less than significant*.

The proposed project would include demolition of the two existing structures on the project site and construction of five new buildings and associated improvements. As such, the project site would be covered in mostly impervious surfaces. During operations, the proposed project would generate multiple vehicle and truck trips to and from the project site. Vehicles and other urban activities release contaminants onto the impervious surfaces. Anticipated runoff contaminants associated with the proposed project include sediments, pesticides, oil and grease, nutrients, metals, bacteria, and trash.

Source Control Measures

As discussed above, on-site activities that could potentially produce stormwater pollutants include pest control, landscape maintenance, vehicle traffic and associated leaks and spills, and pollution associated with warehouse materials. However, the Preliminary Stormwater Control Plan has identified permanent and operational source control BMPs which would be applied with development of the proposed project.

Among the potential BMPs would be inspection of storm drain markers, minimal use of pesticides and fertilizers, adequate number of receptacles to prevent inappropriate manners of refuse storage, well-maintained containers, and employee training on attention to spills and leaks of pollutants.

Proposed Storm Drain System

As discussed above, because the proposed project would create more than 10,000 sf of new impervious surfaces, the project would be required to comply with the Provision C.3 requirements, including preparation of a site-specific Stormwater Control Plan (see Figure 4.3-2). The Stormwater Control Plan must show that the proposed project would not result in any new or increased impacts that would impair the beneficial uses of downstream waters.

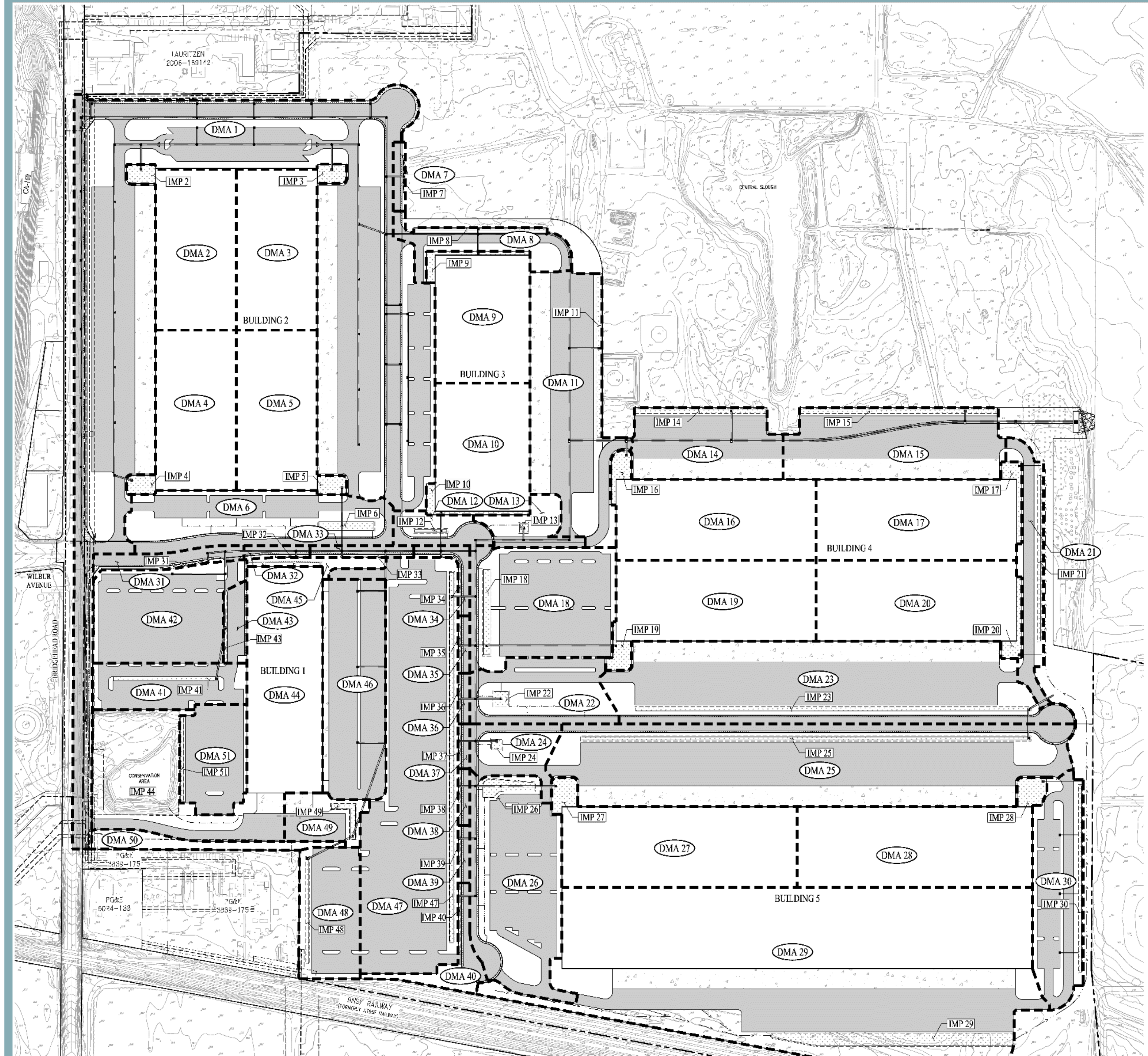
According to the Preliminary Stormwater Control Plan prepared for the proposed project, the project site would be divided into 51 drainage management areas (DMAs). Of the total DMAs, 33 would be designed to include bioretention facilities and 12 would be designed to include flow-through planters. All integrated management practice (IMP) treatment areas would be sized using the County IMP sizing calculator. Additionally, DMA 44 would be an infiltration basin in an existing pond. The existing pond qualifies as an IMP based on the following characteristics: the depth to groundwater is greater than 10 feet, the underlying soil is Hydrologic Soil Group A, and the infiltration rate sufficiently achieves a 72-hour drawdown time. DMAs 45 and 50 would be designed as self-treating and self-retaining areas. According to the C.3 requirements, runoff from the self-treating area must not enter an IMP or other DMA, nor should the total impervious surfaces exceed five percent of the self-treating area. Based on the SWCP, the total impervious area in the self-treatment DMAs would not exceed four percent of the total pervious area, and thus, would be in compliance with C.3 requirements. The final three DMAs would direct stormwater to an offsite basin discussed below.

The on-site DMA sizes would range from 4,560 sf to 684,420 sf. The bioretention facilities would be designed to meet C.3 requirements and would generally be 12 inches deep with a minimum of 18 inches of biosoil mix over 12 inches of Class 2 permeable drain rock. The flow-through planters would also meet C.3 requirements and would be developed with class 2 drain rock underlain by an impermeable liner.

Treated water from the IMPs would then flow to a drainage outfall to be constructed on the berm to the east of the project site and would drain directly to the tidally influenced wetland abutting the site. The low-impact outfall will include a terminal riser structure, with pipes coming into an outlet box from which runoff will overflow into the larger concrete containment structure.

Runoff would drain from the containment structure over a low concrete weir with a preliminary design crest length of 60 feet and rest elevation at 6.5 feet. The weir would help to prevent inflow of Delta waters into the project drainage system during high tide. A small length of rock slope protection would be included in the downslope of the weir to provide additional protection against scour and thereby minimize additional turbidity inputs that may have resulted from erosion.

Figure 4.3-2
Preliminary Stormwater Control Plan



LEGEND

DRAINAGE MANAGEMENT AREA (DMA) BOUNDARY

DMA 1 — DRAINAGE MANAGEMENT AREA (DMA) DESIGNATION

IMP 1 — INTEGRATED MANAGEMENT PRACTICE (IMP) DESIGNATION

LOW IMPACT DEVELOPMENT (LID) TREATMENT AREA (BIORETENTION OR FLOW-THROUGH PLANTER)

NOTES:

1. THE PROJECT IS DESIGNED TO COMPLY WITH THE REQUIREMENTS OUTLINED IN THE CONTRA COSTA CLEAN WATER PROGRAM'S (CCCWP) STORMWATER C.3 GUIDEBOOK, 7TH EDITION.
2. THE PROJECT IS EXEMPT FROM HYDROMODIFICATION REQUIREMENTS DUE TO TIDAL INFLUENCE.
3. LID TREATMENT SHALL BE SIZED USING THE CCCWP IMP SIZING CALCULATOR.
4. THE SITE SOIL IS CLASSIFIED AS HYDROLOGIC SOIL GROUP A PER THE USDA WEB SOIL SURVEY.
5. OFFSITE COMPLIANCE: AS DISCUSSED WITH CITY STAFF, THIS PROJECT WILL RECEIVE LID TREATMENT CREDIT FOR THE RETROFIT OF DEL ANTICO BASIN. THE RETROFIT WILL INSTALL 1 ACRE OF BIOTREATMENT AT THE BOTTOM OF THE EXISTING BASIN, EQUIVALENT TO TREATING 25 ACRES OF IMPERVIOUS AREA. THE 25-ACRE CREDIT WILL BE APPLIED TO OAKLEY LOGISTICS CENTER FOR AREAS NOT TREATED ONSITE.
6. DMA'S 1, 42 AND 46 WILL UTILIZE A PORTION OF THE 25-ACRE OFFSITE COMPLIANCE CREDIT FROM THE RETROFIT OF DEL ANTICO BASIN.

BIORETENTION AND FLOW-THROUGH PLANTER SIZING

DMA NO.	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	TREATMENT AREA REQUIRED, 4% METHOD (SF)	TREATMENT TYPE	TREATMENT AREA PROVIDED (SF)	TOTAL DMA AREA (SF)
2	110,250	0	4,410	FLOW-THROUGH PLANTER	4,440	114,690
3	110,250	0	4,410	FLOW-THROUGH PLANTER	4,440	114,690
4	109,780	0	4,391	FLOW-THROUGH PLANTER	4,440	114,220
5	109,780	0	4,391	FLOW-THROUGH PLANTER	4,440	114,220
6	65,060	52,690	2,813	BIORETENTION	4,000	121,750
7	4,990	1,780	206	BIORETENTION	230	7,000
8	22,280	19,870	971	BIORETENTION	1,150	43,300
9	103,460	0	4,138	FLOW-THROUGH PLANTER	4,630	108,090
10	103,460	0	4,138	FLOW-THROUGH PLANTER	4,630	108,090
11	135,610	22,670	5,515	BIORETENTION	5,660	163,940
12	13,420	11,200	581	BIORETENTION	660	25,280
13	8,300	18,560	406	BIORETENTION	630	27,490
14	78,250	5,460	3,151	BIORETENTION	3,780	87,490
15	114,420	8,470	4,610	BIORETENTION	5,700	128,590
16	137,180	0	5,487	FLOW-THROUGH PLANTER	5,500	142,680
17	137,360	0	5,494	FLOW-THROUGH PLANTER	5,510	142,870
18	107,450	26,750	4,405	BIORETENTION	4,980	139,180
19	137,190	0	5,487	FLOW-THROUGH PLANTER	5,500	142,690
20	137,360	0	5,494	FLOW-THROUGH PLANTER	5,510	142,870
21	26,400	19,250	1,133	BIORETENTION	2,890	48,540
22	34,350	37,510	1,524	BIORETENTION	1,760	73,670
23	237,760	40,990	9,574	BIORETENTION	10,320	289,070
24	18,590	19,700	822	BIORETENTION	900	39,190
25	285,620	44,990	11,604	BIORETENTION	11,740	342,350
26	103,060	47,490	4,312	BIORETENTION	4,790	155,340
27	161,090	0	6,443	FLOW-THROUGH PLANTER	6,590	167,680
28	161,060	0	6,442	FLOW-THROUGH PLANTER	6,570	167,630
29	520,750	141,470	21,396	BIORETENTION	22,200	684,420
30	54,980	33,260	2,332	BIORETENTION	3,250	91,490
31	16,860	3,160	687	BIORETENTION	780	20,800
32	5,010	1,710	207	BIORETENTION	210	6,930
33	7,540	2,710	312	BIORETENTION	320	10,570
34	8,810	2,570	362	BIORETENTION	380	11,760
35	4,160	1,490	172	BIORETENTION	180	5,830
36	3,680	1,310	152	BIORETENTION	160	5,150
37	3,260	1,150	135	BIORETENTION	150	4,560
38	4,120	1,470	170	BIORETENTION	180	5,770
39	4,160	1,490	172	BIORETENTION	180	5,830
40	10,370	13,600	469	BIORETENTION	470	24,440
41	46,230	8,630	1,883	BIORETENTION	3,340	58,200
43	14,740	0	589	BIORETENTION	786	15,530
47	281,100	0	11,244	BIORETENTION	12,890	293,990
48	52,130	13,330	2,128	BIORETENTION	2,160	67,620
49	19,220	9,280	805	BIORETENTION	2,220	30,720
51	53,250	2,430	2,139	BIORETENTION	2,470	58,150
TOTAL	3,864,150	616,440	157,816	–	173,718	4,674,310

INFILTRATION SIZING

DMA NO.	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	TREATMENT AREA AND VOLUME REQUIRED (SF / CF)	TREATMENT AREA AND VOLUME PROVIDED (SF / CF)	TOTAL DMA AREA (SF)
44	173,223	17,800	3,500 / 11,900	18,580 / 70,400	191,020

SELF-TREATING AND SELF-RETAINING AREAS

DMA NO.	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	TREATMENT TYPE	IMPERVIOUS : PERVIOUS RATIO REQUIRED	IMPERVIOUS : PERIOUS RATIO PROVIDED	TOTAL DMA AREA (SF)
45	1,460	10,500	SELF-RETAINING	2:1	4,440	11,960
50	0	24,700	SELF-TREATING	N/A	N/A	24,700
TOTAL	1,460	35,200	–	–	4,440	36,660

OFFSITE COMPLIANCE DMAS

DMA NO.	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	TREATMENT AREA REQUIRED, 4% METHOD (SF)	TREATMENT TYPE	TREATMENT AREA PROVIDED (SF)	TOTAL DMA AREA (SF)
1	629,770	145,070	25,771	OFFSITE BIORETENTION	N/A	774,840
42	97,620	12,100	3,853	OFFSITE BIORETENTION	N/A	109,720
46	116,740	0	4,870	OFFSITE BIORETENTION	N/A	116,740
TOTAL	844,130	157,170	34,394	–	43,560	1,001,300

SUBDIVISION 9513
OAKLEY LOGISTICS CENTER
PRELIMINARY STORMWATER CONTROL PLAN

Due to site physical constraints, on-site stormwater treatment cannot be provided for 100 percent of the impervious drainage areas within the project site. Rather, on-site treatment can only be provided for approximately 83 percent of the impervious drainage areas within the project site. Provision C.3.e.i.1 of the Municipal Regional Storm Water Permit-Order No. R2-2015-0049 allowed LID treatment at an off-site location. Thus, off-site stormwater treatment will be located at the existing 2.9-acre Del Antico Detention Basin. The proposed off-site stormwater treatment improvements would provide regional benefits of an equivalent quantity of both stormwater runoff and pollutant loading and achieve a net environmental benefit for the City.

The proposed improvements would include excavation of approximately one-acre of the basin and installation of an 18-inch layer of engineered biosoil over a 12-inch layer of baserock within the excavated area. The added biosoil and baserock would effectively convert the bottom of the basin into a bioretention area. Spoils generated from excavating the basin bottom would be spread on the side banks; thus, soil export would not be required. The basin would not include an underdrain because the existing outlet structure cannot be adjusted, nor can the storage capacity of the basin be reduced.

Conclusion

Based on the Preliminary Stormwater Control Plan, each treatment area would meet Provision C.3 requirements through adequate sizing and treatment measures and all potential sources of pollution would be prevented or minimized through implementation of BMPs, including on-site IMPs and the off-site Del Antico Basin. Therefore, the proposed project would not violate any federal, State, or local water quality standards, create or contribute runoff which would include sources of polluted water, or otherwise substantially degrade surface or groundwater quality during operations, and with implementation of standard permit conditions, the project would not result in significant hydrology and water quality impacts, so a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.3-3 Substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Based on the analysis below, the impact is *less than significant*.

A discussion of water supply is provided in Chapter 4.5, Utilities and Service Systems, of this EIR. As noted therein, water is provided to the project site by the DWD. According to the DWD Final 2015 Urban Water Management Plan (UWMP), water demand and connection projections for DWD are based on buildout land uses in current adopted general plans. Over the period from 2015 to 2040, DWD's demand is estimated to increase from 1,492 million gallons (MG) per year to 5,349 MG per year. DWD estimates that residential water usage comprises about 82 percent of the total use and non-residential usage comprises about 18 percent. DWD has developed a groundwater supply system that provides additional supply reliability. When fully implemented, groundwater may comprise up to 20 percent of DWD's total supply. As indicated in the Urban Water Management Plan, DWD has adequate supply sources to meet future needs under normal year, single year and multi-year drought conditions.[5]

Although the project includes a General Plan Amendment to remove the Business Park and Utility Energy land use designations, the General Plan has anticipated development of the former DuPont property and envisions the area as a primary employment center. Thus, water use associated with the entire site would be similar to what has already been anticipated by the General Plan and UWMP. Additionally, the site has been developed and lain with impervious surfaces for several years. Thus, the site has not been a source of considerable groundwater recharge, and development of the proposed project would not alter the current groundwater recharge capabilities.

Therefore, the proposed project would result in a ***less-than-significant*** impact related to substantially depleting groundwater supplies or interference with groundwater recharge.

Mitigation Measure(s)
None required.

4.3-4 Substantially alter the existing drainage pattern of the site or area, or increase the rate or amount of surface runoff. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Currently, the project site is covered in mostly impervious surfaces. However, development of the proposed project would result in new impervious surfaces, and thus, an incremental reduction in the amount of natural soil surfaces available for runoff and infiltration. The reduction in infiltration area for stormwater would alter the existing drainage pattern of the site, and result in an increase in the amount of runoff from the site during storm events.

In recognition of the potential alteration to site drainage patterns, the General Plan includes multiple policies regarding drainage during future development of the project site. Policy 4.10.2 requires projects achieve compliance with all regional, State, and Federal regulations related to flood control, drainage, and water quality. Thus, adherence to the C.3 requirements would ensure that the proposed project would be in compliance with both the City's General Plan and State standards. Per Policy 4.10.9, detention basins would be designed to ensure that water entering the basin flows out completely within a specified time.

Most water that falls on the project site flows to three depressed areas that store and infiltrate stormwater flows at the northern and southern boundaries of the site. Central Slough currently collects overland flows and conveys them to the Delta through a culvert. All other stormwater flows from the site either infiltrate into opens spaces or sheet drain to the Delta. As such, the addition of bioretention basins would improve

5 Diablo Water District. *Diablo Water District Final 2015 Urban Water Management Plan.* June 2016.

the current method of runoff by filtering, mediating, and monitoring quality and flow rate of runoff from the project site.

Furthermore, the proposed project would adhere to all C.3 regulations which require that the drainage system of the site would be designed such that the peak storm drainage flow leaving the site after development does not exceed the existing undeveloped storm drainage flow.

Peak Flow

C.3 Guidelines require that post-development runoff flows from the site do not increase as compared to pre-development flows. To ensure that runoff flows do not increase, future development within the site would be required to include source control, site design, and stormwater treatment measures to control post-development runoff.

While the proposed project is not subject to peak flow control because the receiving body of water would not be negatively affected by an increase in flows, the proposed stormwater outfall has the potential to be negatively impacted by high tides during Delta flood events. Thus, the Preliminary Stormwater Control Plan conducted an assessment of the anticipated flow rates in relation to the tidal elevations to model the peak flows against the tidal cycle. Input parameters for the model were compiled from site topography, preliminary project plans, soils survey information, and additional recommendations from the City. The peak flow output results are shown in Table 4.3-1 below.

Table 4.3-1
Hydrologic Modeling System Output Summary

Storm Event	DMA	Peak Discharge (cfs)	Inflow Volume (ac-ft)	Peak Tailwater (ft, NAVD)
10-year, 3-hour	A	65.6	4.8	-
	B	42.8	2.8	-
	Total	**106.9**	**7.6**	**7.2**
10-year, 24-hour	A	68.3	10.5	-
	B	43.8	6.5	-
	Total	**101.1**	**17.0**	**7.2**
100-year, 24-hour	A	103.3	18.9	-
	B	65.9	11.3	-
	Total	**152.9**	**30.3**	**7.4**

Source: Balance Hyrdologics, 2019.

The outfall structure would be designed to discharge flows into the southern portion of the adjacent wetlands. All runoff would have previously been treated to standards set forth in the Municipal Regional Stormwater Permit. The low-impact outfall structure would include a terminal riser structure, with dual 36-inch pipes coming into an outlet box from which runoff would overflow into a larger concrete containment structure. Runoff would leave the containment structure over a low concrete weir with a preliminary design crest length of 60 feet. The preliminary design sets the weir crest elevation at 6.5 feet, compared to the mean higher high-water levels of 5.95 feet. Use of the weir structure would prevent inflow of Delta waters into the project storm drain system during normal high tides, while assuring that outflow would be spread out so that water flows into the adjacent wetland at low depths and non-erosive velocities. An additional feature in the low-impact outfall would be a small dewatering pump which would be located in the riser structure and would serve to fully dewater the pipe system between storm events. Because runoff exiting the storm drain system would need to flow over the outfall weir, the water surface elevation in the containment structure upstream of the weir would be the effective tailwater elevation for the overall storm drain system.

Based on calculations in the Preliminary Stormwater Control Plan, the currently proposed outfall structure would be designed to be an adequate elevation to prevent inflow from the Delta. While the development of the proposed project would alter the drainage pattern of the site, the project would not experience inflow from the Delta and would be consistent with C.3 Guidelines. However, because the Preliminary Stormwater Control Plan does not include pre-project compared to post-project flows, the proposed project could conflict with C.3 requirements if the calculations are not included in the Final Stormwater Control Plan. Thus, a ***significant*** impact could occur related to substantially altering the existing drainage pattern of the site or area, or increase the rate or amount of surface runoff.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.3-4 As part of the Improvement Plan submittal process, the preliminary Stormwater Control Plan provided during environmental review shall be submitted in final format for the review and approval of the City Engineer or Public Works and Engineering Department. The final Stormwater Control Plan will be reviewed in concert with the Improvement Plans to confirm conformity between the two. The report shall be prepared by a Registered Civil Engineer and shall, at a minimum, include: A written text addressing existing conditions, the effects of the proposed improvements, all appropriate calculations, watershed maps, changes in flows and patterns, and proposed on- and off-site improvements to accommodate flows from this project. The report shall identify water quality protection features and methods to be used during construction, as well as long-term post-construction water quality measures. The final Stormwater Control Plan shall be prepared in conformance with the requirements of the C.3 Guidebook that are in effect at the time of Improvement Plan submittal.

4.3-5 Substantially alter the existing drainage pattern of the site or area in such a manner as to impede or redirect flood flows. Based on the analysis below and with implementation of mitigation, the impact is *less than significant.*

As discussed above, the majority of the site is within Zone X, which is outside of a 100-year flood hazard area. However, portions of the site are within Zone AE, which is an area subject to inundation by the one-percent-annual-chance flood event. The area designated as Zone AE is limited to a small northwest portion of the site. A portion of Building 2 is proposed to be constructed in Zone AE. As such, placement of the structure could redirect or impede flood flows. However, the project applicant would be required to demonstrate appropriate solutions and adequate protection in order to be approved for development within the 100-year floodplain. Additionally, a Conditional Letter of Map Revision must be submitted to FEMA prior to initiation of construction.

Development of the proposed project would include water detention facilities which would regulate and improve the current water flow on the project site. The detention basin would include an outfall to the marsh area and would be equipped with a flap gate to prevent inflows from the Delta during high tide events, thus reducing risk of flooding on the project site.

All dams pose the potential risk of failure, most likely from seismically-induced ground shaking or another seismic event, which threatens the area below the dam with inundation of water spilling from the dam. As illustrated in Figure 8-6 of the General Plan, the project site is subject to potential dam inundation by the New Melones Lake, Folsom Lake, or San Luis Reservoir. While the likelihood of dam failure is low, the General Plan has set forth polices which would limit the risk of dam failure, including proper engineering and approval by the City to construct within the dam inundation zone. Thus, the risk of dam failure on the project site has been anticipated and evaluated by the General Plan.

While the proposed project would not likely be at risk of dam inundation and would include development of detention basins in order to improve the flow of water on the project site, the portion of Building 3 placed in the flood hazard zone could alter the existing drainage pattern of the site in such a manner as to impede or redirect flood flows and a ***significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.3-5 *As part of the Improvement Plan submittal process, the project applicant shall obtain a Conditional Letter of Map Revision Based on Fill from FEMA for the placement of a development within the FEMA-identified Flood Hazard Zone AE. A copy of the Conditional Letter of Map Revision Based on Fill from FEMA shall be submitted to the Public Works and Engineering Department prior to issuance of certificates of occupancy.*

4.3-6 In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation. Based on the analysis below, the impact is *less than significant.*

As noted previously, the northwesternmost portion of the project site is located in a FEMA-identified flood hazard zone. A portion of Building 3 is proposed to be developed within the flood hazard zone. However, as discussed above, the proposed project would adhere to the applicable General Plan policies related to flood hazards, receive approval from the City, and submit a Conditional Letter of Map Revision from FEMA in order to develop within the flood hazard zone.

Tsunamis are defined as sea waves created by undersea fault movement, whereas a seiche is a long-wavelength, large-scale wave action set up in a closed body of water such as a lake or reservoir. The project site is located proximity 45 miles from the nearest coastline and would not be potentially affected by flooding risks associated with tsunamis. Seiches do not pose a risk to the proposed project, as the project site is not located adjacent to a large closed body of water.

Considering that the proposed project would undergo review and approval for development within the flood hazard zone and would not be at risk for inundation by tsunamis or seiches, the proposed project would not have the potential to risk release of pollutants due to inundation. Consequently, the proposed project would result in a ***less-than-significant*** impact related to the release of pollutants due to inundation.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, "cumulative impacts" refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

4.3-7 Cumulative impacts related to water quality. Based on the analysis below, the project's incremental contribution to this significant cumulative impact is *less than cumulatively considerable*.

Construction activities have the potential to affect water quality and contribute to localized violations of water quality standards if stormwater runoff from construction activities enters receiving waters. Additional runoff from construction sites could carry sediment from erosion of graded or excavated surface materials, leaks or spills from equipment, or inadvertent releases of building products, which could result in water quality degradation if runoff containing such sediment or contaminants should enter receiving waters in sufficient quantities. Thus, construction activities associated with the proposed project, in combination with construction activities associated with other reasonably foreseeable projects in the City, could result in cumulative impacts related to water quality.

Similar to the proposed project, cumulative development within the City of Oakley would be subject to Provision C.3 stormwater requirements, including source control and treatment control features, as well as the State General Construction Permit. Specifically, regulated projects are required to divide the project area into DMAs and implement and direct water to appropriately-sized SDMs and Baseline Hydromodification Measures to each DMA. Source control measures must be designed for pollutant-generating activities or sources consistent with recommendations from the CASQA Stormwater BMP Handbook for New Development and Redevelopment, or equivalent manual, and must be shown on Improvement Plans.

Based on the conceptual stormwater design, the proposed project would properly treat stormwater runoff prior to discharge from the site. Thus, urban pollutants entering and potentially polluting the local drainage system would not be expected to occur as a result of the project. A final drainage report would be required with submittal of the Improvement Plans for City review and approval to substantiate the preliminary report's LID and non-LID sizing calculations. The project would be subject to NPDES Construction General Permit requirements, including implementation of BMPs and preparation of a site-specific SWPPP. Therefore, the project's incremental contribution to the significant cumulative impact would be ***less than cumulatively considerable***.

Mitigation Measure(s)

None required.

4.4 Transportation and Circulation

4.4. Transportation and Circulation

4.4.1 INTRODUCTION

The Transportation and Circulation section of the EIR analyzes the potential impacts of the proposed project on the surrounding transportation system, including roadways, bicycle, pedestrian, and transit facilities and services under Existing, Existing Plus Project, Baseline (No Project), Baseline Plus Project, Cumulative, and Cumulative Plus Project conditions. The information contained within this section of the EIR is primarily based on the Transportation Impact Analysis prepared for the proposed project by Abrams Associates Traffic Engineers, Inc. (see Appendix G).[1] Information from the City of Oakley General Plan[2] and the General Plan EIR[3] is also referenced and the City of Oakley Updated Traffic Impact Fee Report.

4.4.2 EXISTING ENVIRONMENTAL SETTING

The sections below describe the physical and operational characteristics of the existing transportation system within the project vicinity, including the surrounding roadway network and existing transit, bicycle, and pedestrian facilities.

Existing Roadway Network

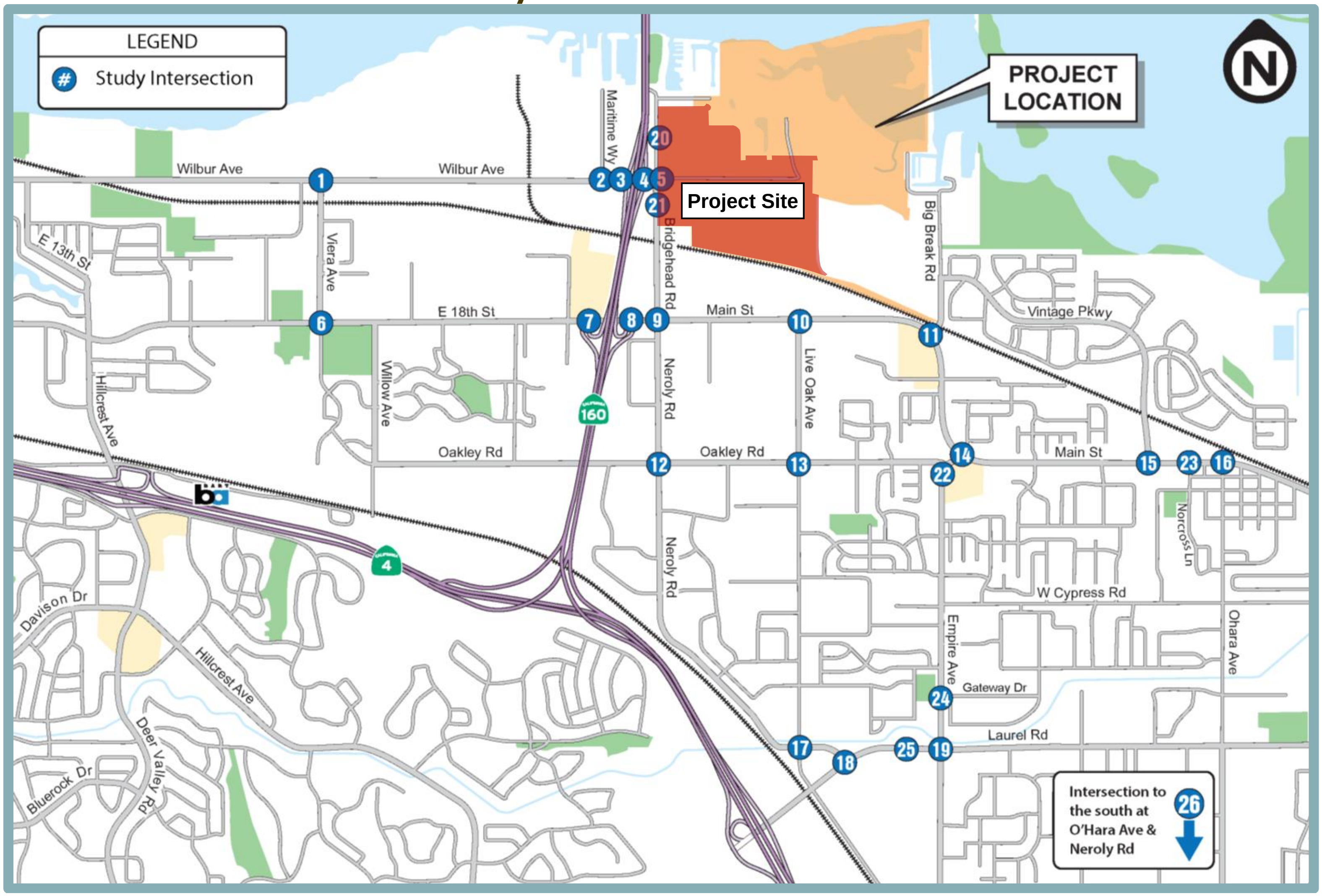
Figure 4.4-1 provides an overview of the roadway network in the project area. Specific roadway facilities are described below, including roadway facilities identified as Routes of Regional Significance in the Contra Costa Transportation Authority (CCTA) East County Action Plan:

- SR 4: State Route (SR) 4 is the primary east-west corridor in Contra Costa County. The roadway connects Interstate 80 (I-80) in the City of Hercules, to the west, with the cities of Oakley and Brentwood, to the east, and terminates at SR 89 in South Lake Tahoe. SR 4 has been widened to eight lanes, four in each direction, including High Occupancy Vehicle (HOV) lanes, from SR 242 to Contra Loma Boulevard.
- SR 160: SR 160 connects SR 4 and Contra Costa County with the Sacramento River Delta and the City of Rio Vista. SR 160 continues to follow the Sacramento River up to the Freeport area of Sacramento County.
- Wilbur Avenue: Wilbur Avenue is an east-west roadway that is designated by the CCTA as a route of regional significance. The roadway extends west from Bridgehead Road to terminate at A Street in the City of Antioch. Within the study area, Wilbur Avenue has two to four travel lanes with left turn pockets.
- Main Street: Main Street is a primary east-west arterial in the City of Oakley. The roadway extends east from Bridgehead Road to through downtown and then continues south into Brentwood until Delta Road, where Main Street changes names to Brentwood Boulevard.

---

1 Abrams Associates Traffic Engineering, Inc. *Transportation Impact Analysis, Oakley Logistics Center, City of Oakley.* September 19, 2019.
2 City of Oakley. *2020 General Plan.* February 2, 2016.
3 City of Oakley. *Oakley 2020 General Plan Environmental Impact Report.* 2002.

Figure 4.4-1
Study Intersection Locations



Source: Abrams Associates, 2019.

- E. 18th Street: E. 18th Street is an east-west two- to four-lane roadway in Antioch and that runs parallel to the SR 4 corridor. East of the Bridgehead Road the street name changes to Main Street. E. 18th Street is designated a Route of Regional Significance in the 2008 East County Action Plan.
- Laurel Road: Laurel Road is an east-west two-lane residential collector street with residential and vacant land on both sides. Please note that Laurel Road is eventually planned to be extended to Sellers Avenue.
- Oakley Road: Oakley Road is a two-lane east-west roadway that connects Oakley to Antioch. Oakley Road begins at Viera Avenue in Antioch, extending past SR 160 to terminate at Empire Avenue.

Study Intersections

The following study intersections were evaluated in the Transportation Impact Analysis:

1. Viera Avenue and Wilbur Avenue;
2. Maritime Way and Wilbur Avenue;
3. SR 160 SB Ramps and Wilbur Avenue;
4. SR 160 NB Ramps and Wilbur Avenue;
5. Bridgehead Road and Wilbur Avenue;
6. Viera Avenue and E. 18th Street;
7. SR 160 SB Ramps and E. 18th Street;
8. SR 160 NB Ramps and Main Street;
9. Neroly Road/Bridgehead Road and Main Street;
10. Live Oak Avenue and Main Street;
11. Big Break Road and Main Street;
12. Oakley Road and Neroly Road;
13. Oakley Road and Live Oak Avenue;
14. Empire Avenue and Main Street;
15. Vintage Parkway and Main Street;
16. O'Hara Avenue and Main Street;
17. Neroly Road and Live Oak Avenue;
18. Laurel Road and Live Oak Avenue;
19. Laurel Road and Empire Avenue;
20. Bridgehead Road and Northern Project Driveway;
21. Bridgehead Road and Southern Project Driveway;
22. Oakley Road and Empire Avenue;
23. Norcross Lane and Main Street;
24. Gateway Drive and Empire Avenue;
25. Approved Arco Driveway and Laurel Road; and
26. O'Hara Avenue and Neroly Road.

Intersections 20 and 21 would be constructed as part of the proposed project; thus intersection operations are not reported for existing conditions.

Common Traffic Analysis Terms

The Transportation Impact Analysis analyzes roadway operating conditions using intersection level of service (LOS) as a primary measure of operational performance. LOS is an expression, in the form of a scale, of the relationship between the capacity of an intersection (or roadway segment) to accommodate the volume of traffic moving through the facility at any given time. The level of service scale describes traffic flow with six ratings ranging from A to F, with "A" indicating relatively free flow of traffic and "F" indicating stop-and-go traffic characterized by traffic jams. As the amount of traffic moving through a given intersection or roadway segment increases, the traffic flow conditions that motorists experience rapidly deteriorate as the capacity of the intersection or roadway segment is reached. Under such conditions, general instability in the traffic flow exists, which means that relatively small incidents (e.g., momentary engine stall) can cause considerable fluctuations in speeds and delays that lead to traffic congestion. This near-capacity situation is labeled LOS E. Beyond LOS E, the intersection or roadway segment capacity has been exceeded, and arriving traffic will exceed the ability of the intersection to accommodate such traffic.

For signalized intersections, the 2010 Highway Capacity Manual (HCM) methodology determines the capacity of each lane group approaching the intersection. The LOS is then based on average control delay (in seconds per vehicle) for the various movements within the intersection. Table 4.4-1 summarizes the relationship between LOS, average control delay, and the volume to capacity ratio (V/C) at signalized intersections.

Table 4.4-1
Signalized Intersection LOS Criteria

LOS	Description of Operations	Average Delay	V/C
A	Insignificant Delays: No approach phase is fully used and no vehicle waits longer than one red indication.	≤ 10	≤ 60
B	Minimal Delays: An occasional approach phase is fully used. Drivers begin to feel restricted.	> 10 to 20	> 0.61 to 0.70
C	Acceptable Delays: Major approach phase may become fully used. Most drivers feel somewhat restricted.	> 20 to 35	> 0.71 to 0.80
D	Tolerable Delays: Drivers may wait through no more than one red indication. Queues may develop but dissipate rapidly without excessive delays.	> 35 to 55	> 0.81 to 0.90
E	Significant Delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long vehicle queues from upstream.	> 55 to 80	> 0.91 to 1.00
F	Excessive Delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80	> 1.00

Note: Average control delay is presented in seconds per vehicle.

Source: Abrams Associates, 2019.

For unsignalized (all-way stop controlled and two-way stop controlled) intersections, the average control delay and LOS operating conditions are calculated by approach (e.g., northbound) and movement (e.g., northbound left-turn) for such movements that are subject to delay. In general, the operating conditions for unsignalized intersections are presented for the worst approach. Table 4.4-2 summarizes the relationship between LOS and average control delay at unsignalized intersections.

Table 4.4-2
Unsignalized Intersection LOS Criteria

LOS	Description of Operations	Average Delay
A	No delay for stop-controlled approaches.	≤ 10
B	Operations with minor delays.	> 10 to 15
C	Operations with moderate delays.	> 15 to 25
D	Operations with some delays.	> 25 to 35
E	Operations with high delays and long queues.	> 35 to 50
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50

Note: Average control delay is presented in seconds per vehicle.

Source: Abrams Associates, 2019.

Vehicle Miles Travelled (VMT) is an alternative to LOS for determination of transportation impacts. VMT is a metric of the total miles travel by vehicles in a defined area over a defined period of time and is often used to estimate the environmental impacts of driving. projects that effect VMT include projects that promote a mode shift from personal auto vehicle to transit, biking, walking, or vanpool, and projects that restrict urban sprawl and promote infill development.[4] The City of Oakley has not adopted a VMT analysis procedure at this time.

Central and East County Routes of Regional Significance

The CCTA and the Regional Transportation Planning Committees following the CCTA have set various standards on specific roadways, called Multi-Modal Transportation Service Objectives (MTSOs). The MTSOs are specific to each region and regulate Routes of Regional Significance, which are major roadway and freeway corridors that serve regional traffic. The Action Plans adopted by the CCTA under the countywide Measure J program identify a number of Routes of Regional Significance within the project area. SR 4, SR 160, Wilbur Avenue, E. 18th Street, and Main Street are all identified as Routes of Regional Significance in the East County Action Plan.

For freeway segments, the East County Action Plan for Routes of Regional Significance has established the delay index as the MTSO for SR 4 through the study area. The delay index is the ratio of travel time on a facility divided by the travel times that occur during non-congested free-flow periods. Should the delay index exceed 2.5 during either the AM or PM peak period, freeway operations would be considered deficient. A delay index of 2.5 would equate to peak hour travel taking 2.5 times as long as off-peak travel or an average travel speed below 26 miles per hour assuming a non-congested free-flow speed of 65 miles per hour.

Existing Traffic Conditions

In order to determine existing operations at study intersections, intersection turning movement counts were conducted by Abrams Associates during the morning and evening peak periods. The hours identified as the "peak" hours are generally between 7:30 AM and 8:30 AM and 4:30 PM and 5:30 PM for the transportation facilities described, based on the intersection turning movement counts collected by Abrams Associates.

[4] California Air Resources Board. *Methods to Assess Co-Benefits of California Climate Investments, Vehicle Miles Travelled.* August 30, 2017.

Study Intersection Operations – Existing Conditions

The existing intersection geometry at each of the project study intersections is shown in Figure 4.4-2 through Figure 4.4-4. Traffic counts at the study intersections were conducted in November of 2018 at times when local schools were in session. Table 4.4-3 summarizes the associated LOS computation results for the existing weekday AM and PM peak hour conditions. As shown in Table 4.4-3, all of the project study intersections currently have acceptable conditions (LOS D or better) during the weekday AM and PM peak hours with the exception of Intersection #24 (Gateway Drive at Empire Avenue), which would exceed the LOS D threshold established in the City's General Plan (see "Significance Criteria" discussion below). The City is currently constructing the signal for this intersection through the City's Capital Improvement Program.

Pedestrian and Bicycle Facilities

Pedestrian and Bicycle facilities in the project study area are currently limited, with only small segments of discontinuous sidewalks provided in the immediate vicinity of the project. Marked crosswalks are not available in the immediate project vicinity. Figure 4.4-5 presents the existing and planned bicycle facilities in the project area.

Bicycle paths, lanes, and routes are typical examples of bicycle transportation facilities, which are defined by Caltrans as being in one of the three classes:

- Class I – Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.
- Class II – Provides a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.
- Class III – Provides a route designated by signs or permanent markings and shared with pedestrians and motorists.

The CCTA's Countywide Bicycle and Pedestrian Plan includes a wide variety of goals and policies supportive of bicycle and pedestrian infrastructure planning and identifies future pedestrian and bicycle facilities throughout the County. The Countywide Bicycle and Pedestrian Plan identifies a future bicycle route extending east to west through the northern portion of the project site. [5]

Transit Systems

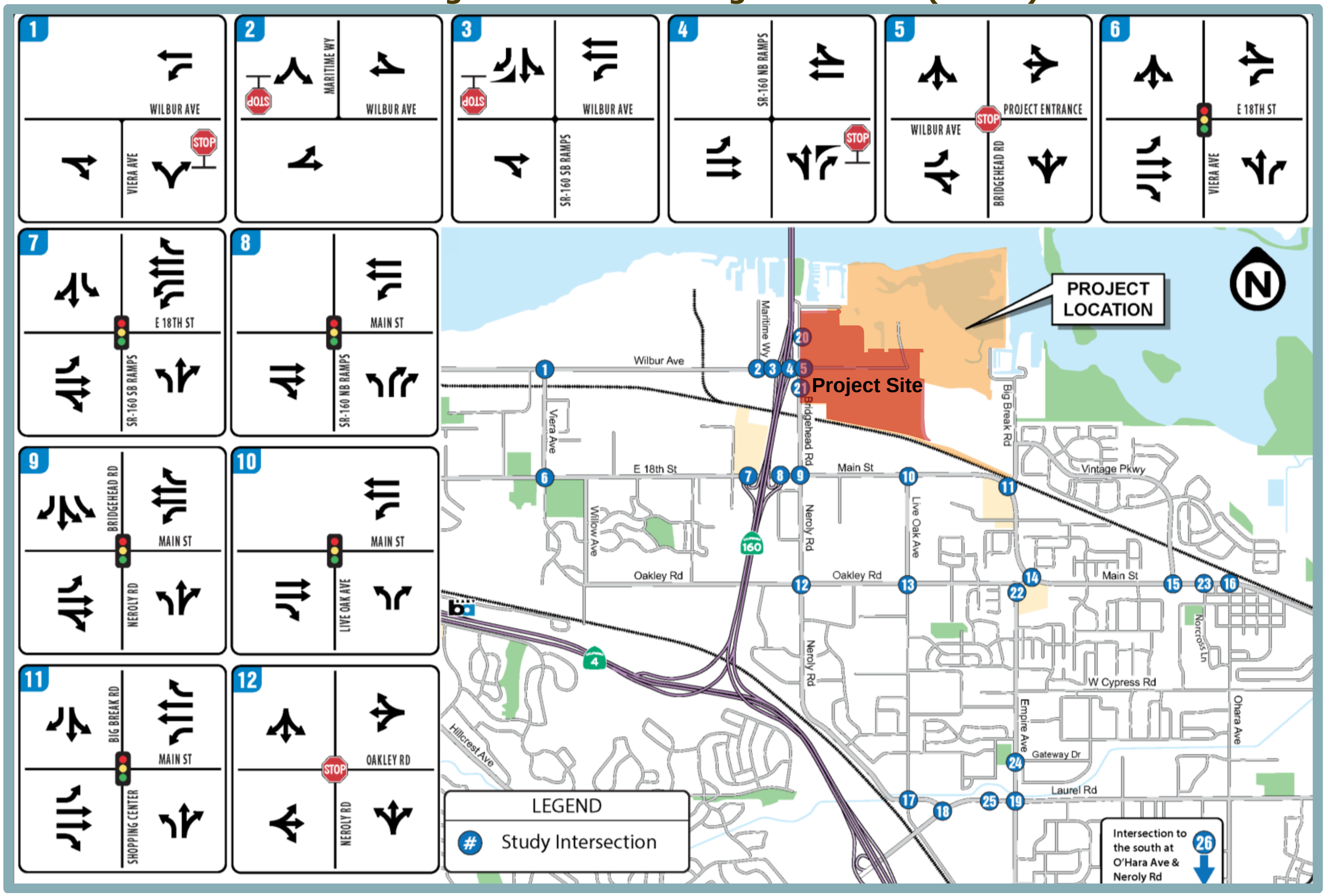
Figure 4.4-6 presents the transit service available in the project area. Two major public transit operators provide service within or adjacent to the study area: Bay Area Rapid Transit (BART) and the Eastern Contra Costa Transit Authority (Tri Delta Transit).

BART is a rapid mass transit system which provides regional transportation connections to much of the Bay Area. Service provided by BART runs from the North Bay Area in Richmond to the South Bay Area in Fremont. In the east-west direction, BART runs from Oakley to the San Francisco Airport and Milbrae with several connections in Oakland. The Bay Point BART station, which is closest to the project site, serves Oakley and other surrounding cities and has trains that run from 4:00 AM to 12:00 PM daily, with a weekday frequency of 15 minutes.

---

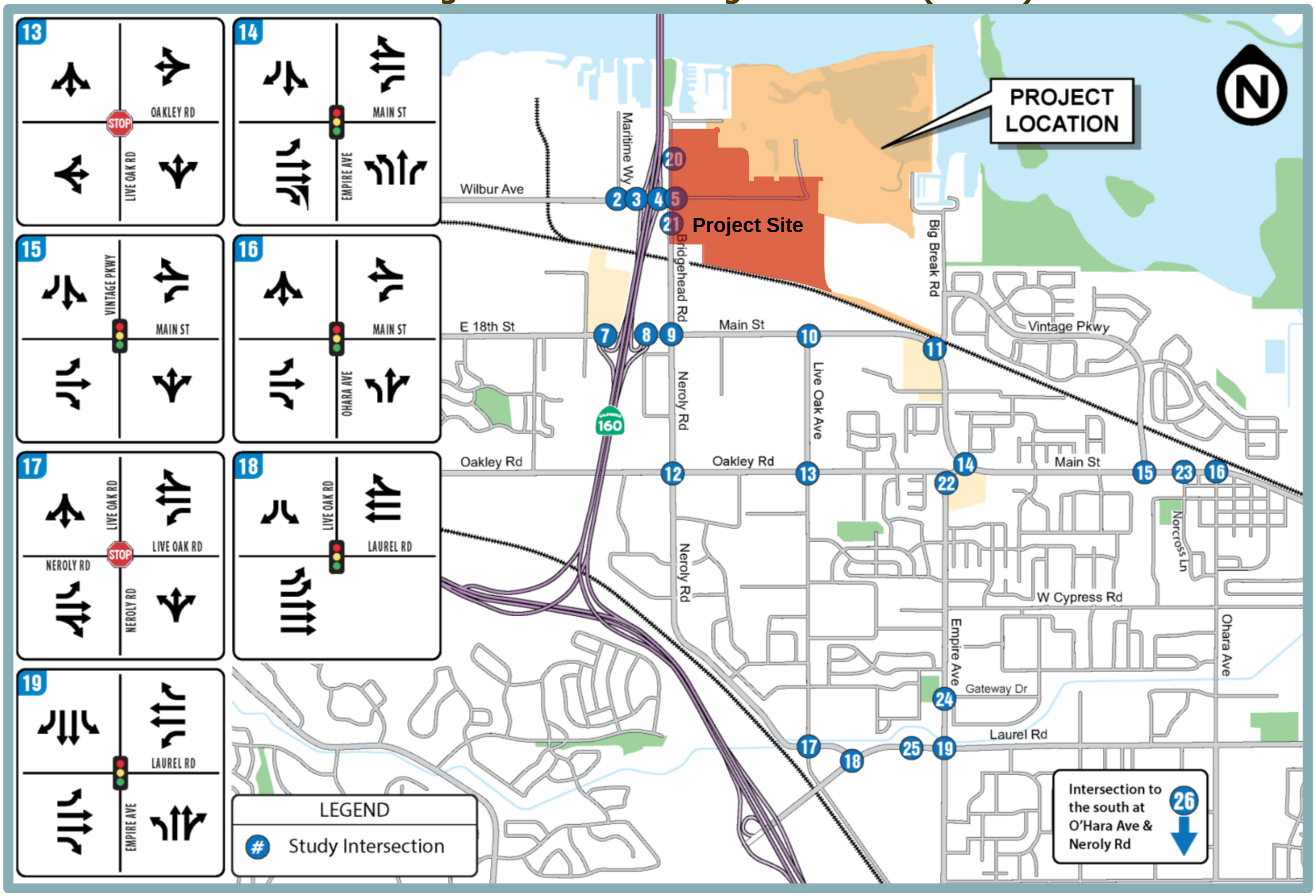
5 Contra Costa Transportation Authority. *Contra Costa Countywide Bicycle and Pedestrian Plan* [Figure 6]. July 2018.

Figure 4.4-2
Lane Configurations – Existing Conditions (1 of 3)



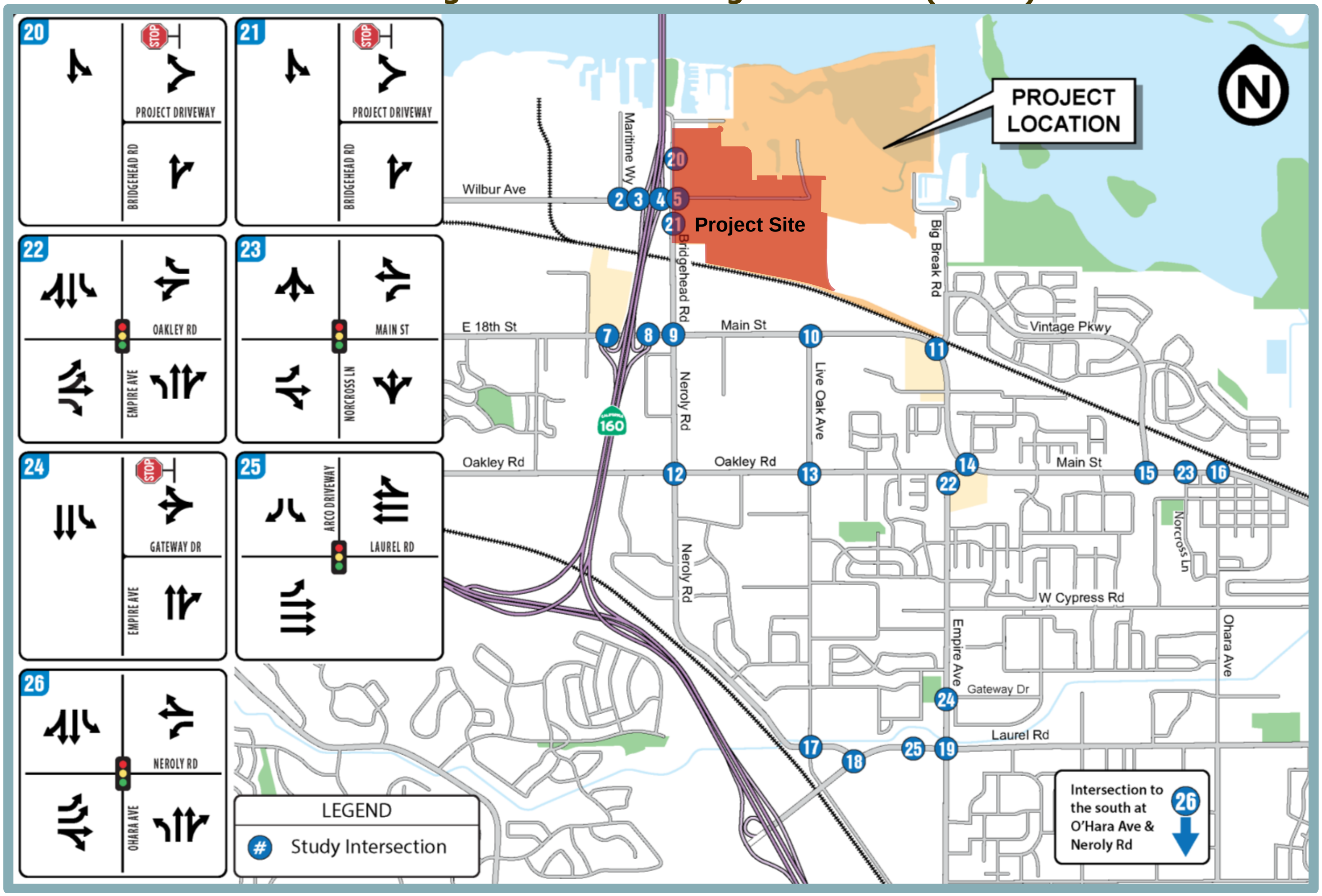
Source: Abrams Associates, 2019.

Figure 4.4-3
Lane Configurations – Existing Conditions (2 of 3)



Source: Abrams Associates, 2019.

Figure 4.4-4
Lane Configurations – Existing Conditions (3 of 3)



Source: Abrams Associates, 2019.

Table 4.4-3
Peak Hour Intersection Operations – Existing Conditions

Intersection	Traffic Control	Peak Hour	Existing Conditions	
			Delay	LOS
1. Viera Avenue/Wilbur Avenue	Side Street Stop	AM	12.6	B
		PM	12.1	B
2. Maritime Way/Wilbur Avenue	Side Street Stop	AM	10.0	B
		PM	10.9	B
3. SR 160 SB Ramps/Wilbur Avenue	Side Street Stop	AM	10.1	B
		PM	11.0	B
4. SR 160 NB Ramps/Wilbur Avenue	Side Street Stop	AM	11.2	B
		PM	11.9	B
5. Bridgehead Road/Wilbur Avenue	All Way Stop	AM	8.9	A
		PM	8.7	A
6. Viera Avenue/E. 18th Street	Signalized	AM	13.2	B
		PM	12.8	B
7. SR 160 SB Ramps/E. 18th Street	Signalized	AM	14.6	B
		PM	14.9	B
8. SR 160 NB Ramps/Main Street	Signalized	AM	10.2	B
		PM	12.2	B
9. Neroly Road/Bridgehead Road/Main Street	Signalized	AM	20.3	C
		PM	18.5	B
10. Live Oak Avenue/Main Street	Signalized	AM	8.2	A
		PM	5.3	A
11. Big Break Road/Main Street	Signalized	AM	20.8	C
		PM	18.7	B
12. Oakley Road/Neroly Road	All Way Stop	AM	9.2	A
		PM	9.3	A
13. Oakley Road/Live Oak Avenue	All Way Stop	AM	10.8	B
		PM	8.6	A
14. Empire Avenue/Main Street	Signalized	AM	18.2	B
		PM	19.2	B
15. Vintage Parkway/Main Street	Signalized	AM	26.0	C
		PM	21.2	C
16. O'Hara Avenue/Main Street	Signalized	AM	6.9	A
		PM	6.9	A
17. Neroly Road/Live Oak Avenue	All Way Stop	AM	12.0	B
		PM	10.0	A
18. Laurel Road/Live Oak Avenue	Signalized	AM	11.6	B
		PM	7.9	A
19. Laurel Road/Empire Avenue	Signalized	AM	33.2	C
		PM	30.5	C
20. Bridgehead Road/Northern Project Driveway	Side Street Stop	AM	N/A	N/A
		PM	N/A	N/A
21. Bridgehead Road/Southern Project Driveway	Side Street Stop	AM	N/A	N/A
		PM	N/A	N/A

(Continued on next page)

Table 4.4-3
Peak Hour Intersection Operations – Existing Conditions

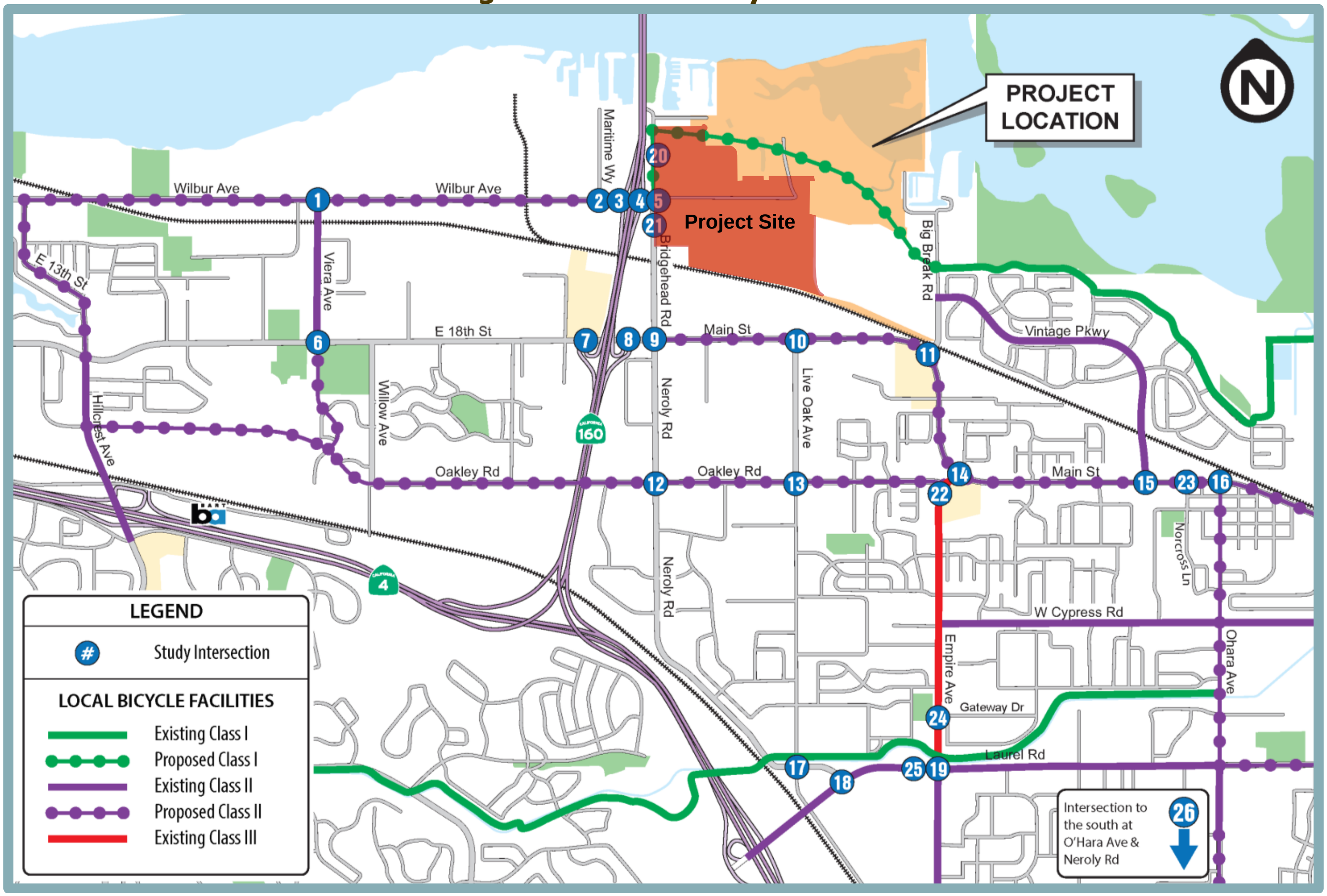
Intersection	Traffic Control	Peak Hour	Existing Conditions	
			Delay	LOS
22. Oakley Road/Empire Avenue	Signalized	AM	13.9	B
		PM	16.1	B
23. Norcross Lane/Main Street	Signalized	AM	11.4	B
		PM	11.5	B
24. Gateway Drive/Empire Avenue	Side Street Stop	AM	21.3	C
		PM	***39.8***	***E***
25. Approved Arco Driveway/Laurel Road	Signalized	AM	N/A	N/A
		PM	N/A	N/A
26. O'Hara Avenue/Neroly Road.	Signalized	AM	16.6	B
		PM	17.6	B

Notes:

- Delay is presented in seconds per vehicle.
- ***Bold and italicized*** text indicates applicable LOS threshold exceeded.

Source: Abrams Associates, 2019.

Figure 4.4-5
Existing and Planned Bicycle Facilities



Source: Abrams Associates, 2019.

Figure 4.4-6
Existing Transit Service and Facilities

Source: Abrams Associates, 2019.

An E-BART extension to Hillcrest Avenue in Antioch connects with BART at the Bay Point BART station. In addition, an E-BART Station is located at Railroad Avenue.

Tri Delta Transit serves the East County area, including the cities of Brentwood, Oakley, Bay Point, and unincorporated areas of East County. Tri Delta Transit operates 14 local bus routes from Monday to Friday, including three express services, and four local bus routes during weekends and Holidays. The Tri Delta Transit routes that runs closest to the project site are Routes 300, 383, 391, and 393, which have stops at Bridgehead Road and Main Street, located approximately 1,800 feet from the southern entrance to the project site.

4.4.3 REGULATORY CONTEXT

The following is a description of the regulatory context under which transportation issues are managed at the State and local levels. Federal regulations related to transportation and circulation are not applicable to the proposed project.

State Regulations

The following are the State environmental laws and policies relevant to transportation.

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for planning, designing, constructing, operating, and maintaining all State-owned roadways in Contra Costa County. Federal highway standards are implemented in California by Caltrans. Any improvements or modifications to the State highway system within the City of Oakley need to be approved by Caltrans. The City of Oakley does not have the ability to unilaterally make improvements to the State highway system. Caltrans' *Guide for the Preparation of Traffic Impact Studies* (December 2002) provides guidance on the evaluation of traffic impacts to State highway facilities. The document outlines when a traffic impact study is needed and what should be included in the scope of the study.

Senate Bill 743

Senate Bill (SB) 743 (Stats. 2013, ch. 386) (SB 743) requires the Governor's Office of Planning and Research (OPR) to establish new metrics for determining the significance of transportation impacts of projects within transit priority areas (TPAs) and allows OPR to extend use of the metric beyond TPAs. In response, OPR selected VMT as the preferred transportation impact metric and applied their discretion to require its use statewide. In addition, SB 743 establishes that aesthetic and parking impacts of a residential, mixed-use residential, or employment center projects on an infill site within a TPA shall not be considered significant impacts on the environment. Furthermore, SB 743 deemphasizes the use of vehicle LOS and similar measures related to delay shall as the sole basis for determining the significance of transportation impacts.

Local Regulations and Policies

The following are applicable local regulations and policies relevant to transportation.

Contra Costa Countywide Comprehensive Transportation Plan

The CCCTA is a public agency formed by the Contra Costa voters to manage the County's transportation sales tax program and to do countywide transportation planning. The 2017 Countywide Comprehensive Transportation Plan, adopted September 20, 2017, is the CCTA's most recent, broadest policy and planning document. The Plan identifies the criteria for analyzing transportation impacts and sets forth plans for future roadway improvements in the County. In addition, the Plan relies on collaboration with and between partners, both on the countywide and regional levels. Each of the County's five Regional Transportation Planning Committees created an Action Plan, which identifies a complete list of actions to be completed as a result of the Action Plan.

Central and East County Action Plans

As part of the Action Plan process, each Regional Transportation Planning Committee identified projects and programs in the form of actions to be included in the Action Plan for the Routes of Regional Significance. Each Action Plan states the vision, goals, and policies; designates Routes of Regional Significance; sets objectives for such routes; and presents specific actions to achieve established objectives. The actions are listed on both a route-by-route and a regional scale, and aim to support the transportation objectives as specified by each Regional Transportation Planning Committee. The latest *East County Action Plan for Routes of Regional Significance* was adopted September 2017.

City of Oakley General Plan

The following goals and policies related to transportation and circulation from the City of Oakley General Plan are applicable to the proposed project.

Goal 3.1 Provide an efficient and balanced transportation system.

- Policy 3.1.1 Strive to maintain Level of Service D as the minimum acceptable service standard for intersections during peak periods (except those facilities identified as Routes of Regional Significance).
- Policy 3.1.2 For those facilities identified as Routes of Regional Significance, maintain the minimum acceptable service standards specified in the East County Action Plan Final 2000 Update, or future Action Plan updates as adopted.
- Policy 3.1.4 Consistent with the California Vehicle Code, direct trucks to appropriate truck routes.
- Policy 3.1.5 Encourage a multi-modal circulation system that supports non-automobile travel.
- Policy 3.1.6 Address future roadway needs through both new road construction and management of existing and planned roadway capacity.
- Policy 3.1.7 Create and maintain fee and other programs adequate to assure sufficient financing and land to maintain and achieve prescribed Levels of Service.
- Policy 3.1.8 Mitigate conflicts between new roadway improvements and existing rural roadways when the identified conflicts threaten public health, safety and welfare.

Goal 3.2 Promote and encourage walking and bicycling.

Policy 3.2.1	Provide maximum opportunities for bicycle and pedestrian circulation on existing and new roadway facilities.
Policy 3.2.2	Enhance opportunities for bicycle and pedestrian activity in new public and private development projects.
Policy 3.2.3	Create a bicycle and pedestrian system that provides connections throughout Oakley and with neighboring areas, and serves both recreational and commuter users.
Policy 3.2.4	Design new roadway facilities to accommodate bicycle and pedestrian traffic. Include Class I, II, or III bicycle facilities as appropriate. Through the Design Review process, provide sidewalks on all roads, except in cases where very low pedestrian volumes and/or safety considerations preclude sidewalks.

Goal 3.3 Provide adequate, convenient, and affordable public transportation.

Policy 3.3.1	Design new roadways and facilities to accommodate public transit.
Policy 3.3.2	Ensure that new public and private development supports public transit.
Policy 3.3.3	Encourage transit providers to improve transit routes, frequency, and level of service to adequately serve the mobility needs of Oakley residents, including those dependent on public transit.

Goal 3.5 Monitor, improve, and enhance traffic safety and reduce the potential for traffic accidents.

Policy 3.5.2	Design a roadway system that maximizes safety for all users.
Policy 3.5.3	Maintain roadway facilities to maximize safety.

Goal 3.7 Coordinate land use and transportation planning to maximize use of limited transportation resources.

Policy 3.7.1	To the extent feasible, protect existing and future land uses from the noise, visual, and other impacts of major roadway construction projects.
Policy 3.7.2	Ensure that the density and mixture of future land uses (both public and private) encourage transit usage, walking and bicycling.
Policy 3.7.3	Provide sufficient parking, while considering the effect of parking supply on the use of alternate modes.
Policy 3.7.4	Mitigate development impacts and ensure that new development pays its own way.
Policy 3.7.5	New development should not result in inconsistent street frontage improvements along streets adjacent to and serving the project. 3.7.6 Mitigate potential circulation conflicts between new roadways and existing rural roadways adjacent to new development.

Policy 3.7.7	Encourage site planning that promotes all modes of transportation, and that minimizes vehicular trips between different land uses.
Policy 3.7.8	Pursue a mix of both new housing and additional jobs in Oakley, as part of the overall strategy to balance jobs and housing in East County.
Policy 3.7.9	Support the Metropolitan Transportation Commission's Safe Routes to Schools program.
Policy 3.7.10	Support and pursue Safe Routes to Schools projects to enhance pedestrian safety within Oakley.

4.4.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology utilized to analyze and determine the proposed project's potential impacts related to transportation and circulation. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, the proposed project would be considered to result in a significant adverse impact on the environment in relation to transportation and circulation if the project would result in any of the following:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access.

Issues Not Discussed Further

Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Per Section 15064.3, analysis of VMT attributable to a project is the most appropriate measure of transportation impacts. While changes to driving conditions that increase intersection delay are an important consideration for traffic operations and management, the method of analysis does not fully describe environmental effects associated with fuel consumption, emissions, and public health. Section 15064.3(3) changes the focus of transportation impact analysis in CEQA from measuring impact to drivers to measuring the impact of driving. It should be noted that at this time, the provisions of Section 15064.3 apply only prospectively; determination of impacts based on VMT is not required Statewide until July 1, 2020.

The proposed project would be required by the City to prepare a Transportation Demand Management (TDM) Plan demonstrating a reduction in the number of peak hour drive-alone commute vehicle trips. Implementation of the TDM Plan would have the effect reducing the project's overall VMT; however, the degree of such reductions cannot be determined at this time. Given that the provisions of Section 15064.3 are not yet mandatory, the proposed project have a less-than-significant impact related to the following:

- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

The Initial Study prepared for the proposed project (see Appendix C) determined that development of the proposed project would result in a less-than-significant impact related to the following:

- Result in inadequate emergency access.

For the reasons cited in the Initial Study, the potential impacts associated with emergency access are not analyzed further in this EIR. Furthermore, it should be noted that parking is not a CEQA issue and is not analyzed, nor required to be analyzed, in this EIR. However, parking is an important planning consideration that will be evaluated as part of the merits of the proposed project.

City of Oakley/CCTA Thresholds

The goal of the City of Oakley is to maintain LOS D operations during the peak hours, according to the General Plan. The City does not have plans, ordinances, or policies establishing measures of effectiveness for the performance of other parts of its circulation system. In addition to intersections subject to the City's circulation system standards, this analysis includes study intersections under the jurisdiction of Contra Costa County and Caltrans. For the Caltrans freeway facilities, the CCTA acting as the designated Congestion Management Agency (CMA) representing the jurisdictions of Contra Costa County. As the acting CMA, the CCTA establishes the traffic LOS standards for all state highway facilities in Contra Costa County, which supersede the general Caltrans operational standard for all state highways. The City's and the CCTA's measures of effectiveness for intersections, roadway segments, and SR 4 are summarized below.

Signalized Intersections

Project-related operational impacts on the signalized study intersections in the City of Oakley are considered significant if project-related traffic causes the LOS rating to deteriorate from LOS D to LOS E or F, from LOS E to LOS F, or if the volume-to-capacity (V/C) ratio at an intersection already operating at an unacceptable level would increase by 0.01 or more.

Unsignalized Intersections

Project-related operational impacts on unsignalized intersections are considered significant if project generated traffic causes the worst-case movement (or average of all movements for all-way stop-controlled intersections and roundabouts) to deteriorate from LOS D or better to LOS E or F.

Roadway Segments

Project-related operational impacts on roadway segments are considered significant if project generated traffic causes the LOS rating to deteriorate from LOS D to LOS E or F, from LOS E to LOS F, or if the V/C ratio at an intersection operating at an unacceptable level would increase by 0.01 or more.

SR 4 Freeway

As discussed previously, the CCTA's East County Action Plan for Routes of Regional Significance establishes the delay index as the MTSO for SR 4 through the project area. The MTSO delay index and average speed is measured over the length of SR 4 from Willow Pass Grade to SR 160. Project-related operational impacts on SR 4 are considered significant if the project would cause a new exceedance of the 2.5-second delay index MTSO established by the CCTA in the

East County Action Plan, or would add any volume of traffic to an SR 4 segment that is already anticipated to exceed the 2.5-second delay index without the project.

Method of Analysis

The analysis methodology provided in the Transportation Impact Analysis prepared for the proposed project by Abrams Associates is discussed below.

Analysis Scenarios

The following analysis scenarios are included in this EIR:

- **Existing Conditions –** Existing peak hour volumes and existing intersection configurations**.**
- **Existing Plus Project –** Existing traffic volumes plus trips from the proposed project.
- **Baseline (No Project) Conditions –** The Baseline scenario is based on the existing traffic volumes plus growth in background traffic (for three years), plus the traffic from all reasonably foreseeable developments that could substantially affect the volumes at the project study intersections.
- **Baseline Plus Project Conditions –**Baseline traffic volumes plus the trips from the proposed project.
- **Cumulative Conditions –** Year 2040 cumulative volumes based on planned and approved projects included in the Countywide Travel Demand Model.
- **Cumulative Plus Project Conditions –** Year 2040 cumulative volumes based on the Countywide Travel Demand Model plus the trips from the proposed project.

Intersection Traffic Volumes

As part of the Transportation Impact Analysis, the existing operational conditions at the 26 study intersections were evaluated according to the requirements set forth by the CCTA using the methodology set forth in the Final Technical Procedures Update (dated July 19, 2006). Analysis of traffic operations was conducted using the 2010 HCM LOS methodology with Synchro software.

Project Trip Generation

The proposed project would include construction of five new buildings totaling 1,985,304 square feet (sf) of building space, including 15,526 sf of storage space. As part of the Transportation Impact Analysis, the project's vehicle trip generation was estimated using the trip generation rates for a High-Cube Fulfillment Center Warehouse (ITE Land Use Code 155) and Warehousing (ITE Land Use Code 150) from the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 10th Edition. The total trip generation reflects all vehicle trips that would be counted at the project driveways, both inbound and outbound. Because the project does not include retail or mixed use components, Abrams Associates did not apply any adjustments to account for pass-by or internal trips. It should be noted that the 15,526 sf of storage space would not result in any vehicle trip generation and, thus, was not included in the trip generation calculations prepared by Abrams Associates. Use of the storage space would be restricted by the City through a Condition of Approval.

For purposes of determining the reasonable worst-case impacts of traffic on the surrounding street network from a proposed project, the trips generated by this proposed development are estimated for the peak commute hours of 7:30 AM and 8:30 AM and 4:30 PM and 5:30 PM, which represent the peak of "adjacent street traffic". The resulting trip generation estimates are summarized in Table 4.4-4 below. As shown in the table, the project would generate approximately 4,292 average daily trips (ADT), with 391 trips occurring during the AM peak hour and 533 trips occurring during the PM peak hour. Approximately nine percent of the vehicle trips associated with proposed distribution center building (Building 1), or a total of 99 trips, would be associated with heavy-duty trucks.

Table 4.4-4
Project Vehicle Trip Generation

Land Use	Size	ADT	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
High Cube Fulfillment Center Trip Rates	*per sf*	*8.18*	*0.45*	*0.14*	*0.59*	*0.38*	*0.99*	*1.37*
Distribution Center Trip Generation	134,474 sf	1,100	60	19	79	51	133	184
Warehousing Trip Rates	*per sf*	*1.74*	*0.13*	*0.04*	*0.17*	*0.05*	*0.14*	*0.19*
Warehouse Trip Generation	1,835,304 sf	3,193	239	73	312	92	257	349
Total Project Trip Generation	**1,985,304**	**4,292**	**299**	**92**	**391**	**143**	**390**	**533**

Source: Abrams Associates, 2019.

Project Trip Distribution

The trip distribution assumptions for the proposed project were based on the project's proximity to freeway interchanges, the existing directional split at nearby intersections, and the overall land use patterns in the area as determined from the Countywide Travel Demand Model. The project plans to direct employees and trucks to use the Wilbur Avenue interchange in an effort to avoid/minimize congestion on E. 18th Street at the interchange with SR 160, and also on surface street in surrounding cities. Table 4.4-5 shows the percentage of project traffic assigned to various study roadways.

Table 4.4-5
Project Trip Distribution

Origin/Destination	Peak Hour Trip Distribution Percentages
To the west on SR 4	27%
To the west on E. 18th Street	4%
To the west on Wilbur Avenue	5%
To the north on SR 160	7%
To the north on Big Break Road	2%
To the north on Vintage Parkway	1%
To the east on Main Street	6%
To the south on O'Hara Avenue	3%
To the east on the Laurel Road	5%
To the south on Empire Road	1%
To the south on Live Oak Avenue	6%
To the south on State Route 4	17%
To the west on Oakley Road	1%
Local Retail/Restaurant/Service Station Trips	15%

Source: Abrams Associates, 2019.

Baseline Condition Traffic Volumes

The Baseline conditions include the existing traffic volumes and lane configurations plus traffic from reasonably foreseeable projects in the area and general baseline growth in traffic. For this analysis, the baseline volumes were developed based on the assumption that the project completion date would be 2021, with an average traffic growth of 1 percent per year. The trips added by near-term development during this time was based on the forecast trip generation for a list of 25 approved projects identified by the City. Such projects are anticipated to be completed in the next five years and could potentially affect the traffic volumes at the project study intersections.

SR 4 Freeway

The delay index measures travel congestion and is expressed as the ratio of the time required to travel between two points during the peak hour (the congested travel time) and the time required during un-congested off-peak times. A delay index of 2.0 means that congested travel time is twice as long as during an off-peak travel time. The following shows the formula for calculating delay indices:

Delay Index = Free Flow Travel Time/Measured Peak Hour Travel Time

The denominator of the delay index formula, the measured peak hour travel time, was determined from speed runs conducted along SR 4 during the AM and PM peak hours in the spring of 2015 as part of the CCTA's CMP 2017 Monitoring Report. The numerator of the delay index formula, the free flow travel time is defined as the time it takes to traverse a roadway segment at the speed limit, including the average uncongested delay experienced at traffic signals.

It should be noted that the achievement of the MTSO delay index and average speed is measured over the length of SR 4 from Willow Pass Grade to Balfour Road.

Project-Specific Impacts and Mitigation Measures

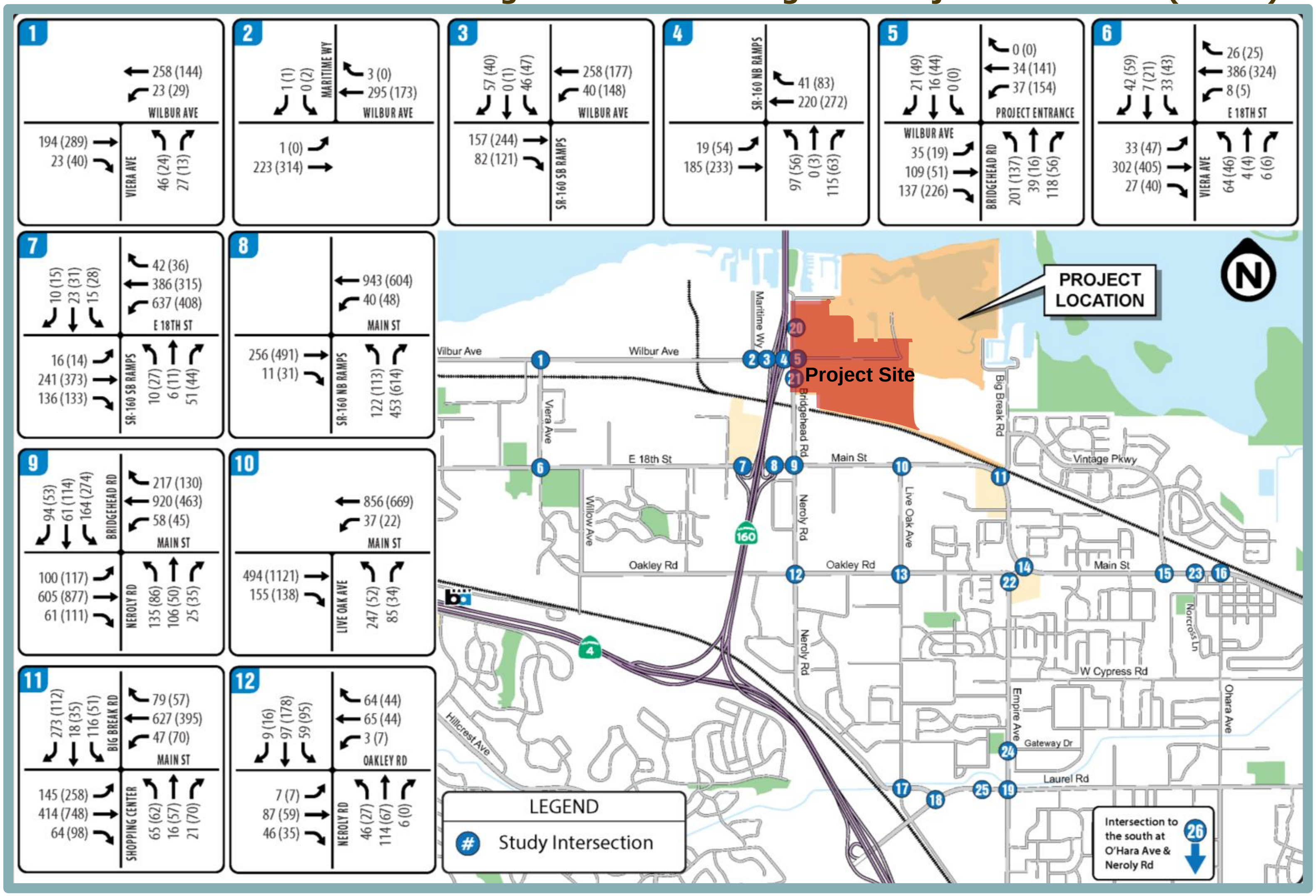
The following discussion of impacts is based on implementation of the proposed project in comparison with the standards of significance identified above.

4.4-1 Impacts to study intersections under Existing Plus Project conditions. Based on the analysis below, the impact is *less than significant*.

Under the Existing Plus Project conditions, the estimated traffic associated with the proposed project was added to existing traffic volumes at the study intersections. The resulting traffic volumes for each of the study intersections for the Existing Plus Project conditions are shown in Figure 4.4-7 through Figure 4.4-9.

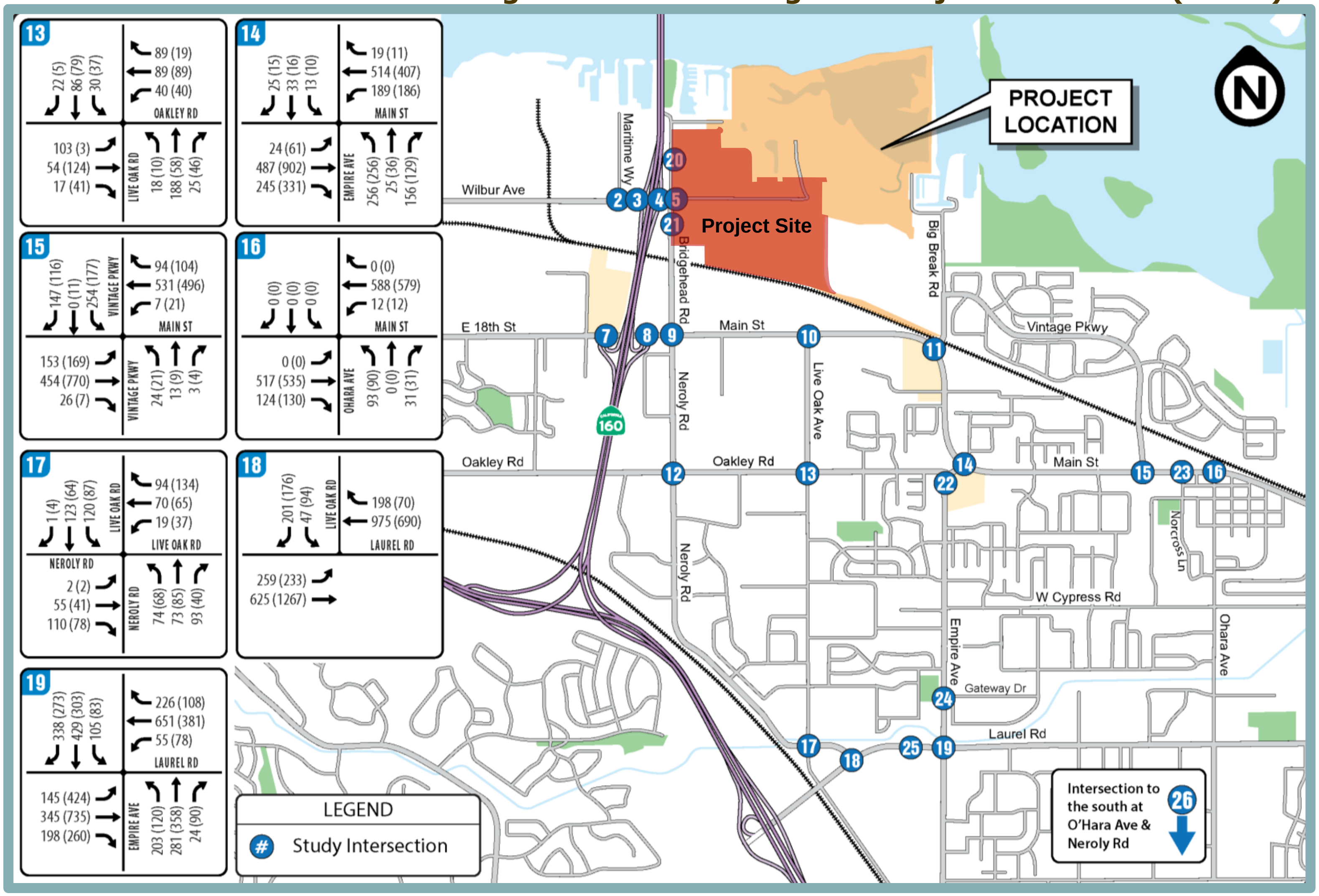
As shown in Table 4.4-6, all of the signalized study intersections would have acceptable conditions (LOS D or better) during the weekday AM and PM peak hours with the exception of Intersection #24 (Gateway Drive at Empire Avenue), which would operate at LOS E during the PM peak hour with and without project traffic. However, the proposed project would not add any traffic to the critical side street movements and would not increase the volume to capacity ratio by more than 0.01.

Figure 4.4-7
Traffic Volumes and Lane Configurations – Existing Plus Project Conditions (1 of 3)



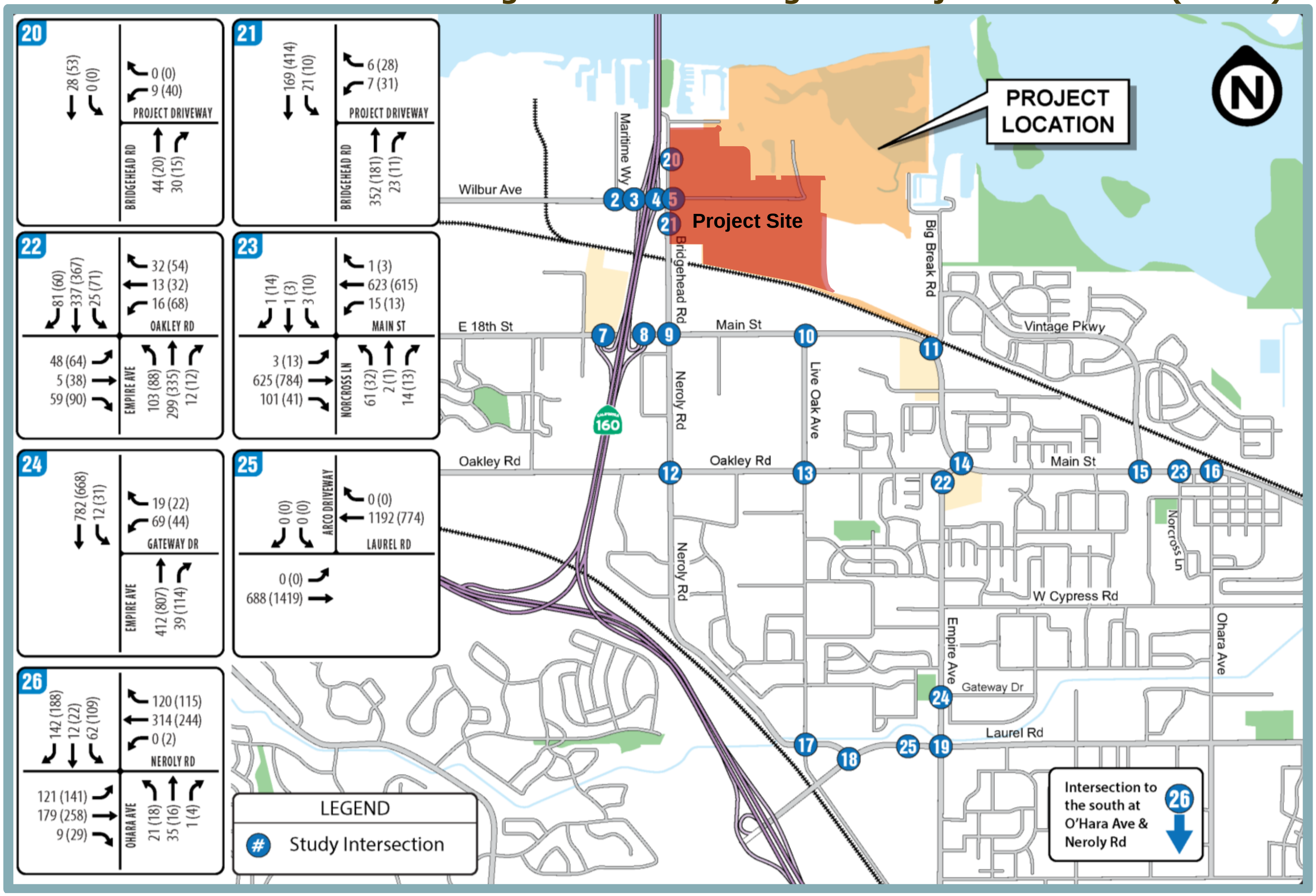
Source: Abrams Associates, 2019.

Figure 4.4-8
Traffic Volumes and Lane Configurations – Existing Plus Project Conditions (2 of 3)



Source: Abrams Associates, 2019.

Figure 4.4-9
Traffic Volumes and Lane Configurations – Existing Plus Project Conditions (3 of 3)



Source: Abrams Associates, 2019.

Table 4.4-6 Intersection LOS – Existing Plus Project Conditions						
Intersection	Traffic Control	Peak Hour	Existing Conditions		Existing Plus Project	
			Delay	LOS	Delay	LOS
1. Viera Avenue/Wilbur Avenue	Side Street Stop	AM	12.7	B	12.8	B
		PM	12.1	B	12.5	B
2. Maritime Way/Wilbur Avenue	Side Street Stop	AM	10.0	B	10.1	B
		PM	11.0	B	11.4	B
3. SR 160 SB Ramps/Wilbur Avenue	Side Street Stop	AM	10.2	B	11.4	B
		PM	11.2	B	16.5	C
4. SR 160 NB Ramps/Wilbur Avenue	Side Street Stop	AM	11.5	B	11.2	B
		PM	12.1	B	12.1	B
5. Bridgehead Road/Wilbur Avenue	All Way Stop	AM	9.6	A	15.0	B
		PM	8.9	A	13.9	B
6. Viera Avenue/E. 18th Street	Signalized	AM	14.6	B	15.3	B
		PM	12.8	B	13.3	B
7. SR 160 SB Ramps/E. 18th Street	Signalized	AM	14.8	B	14.8	B
		PM	14.9	B	15.0	B
8. SR 160 NB Ramps/Main Street	Signalized	AM	11.4	B	11.6	B
		PM	14.0	B	14.1	B
9. Neroly Road/Bridgehead Road/Main Street*	Signalized	AM	24.8	C	27.5	C
		PM	24.3	C	28.3	C
10. Live Oak Avenue/Main Street	Signalized	AM	10.8	B	11.4	B
		PM	7.9	A	8.2	A
11. Big Break Road/Main Street	Signalized	AM	22.0	C	22.5	C
		PM	20.4	C	21.0	C
12. Oakley Road/Neroly Road	All Way Stop	AM	10.1	B	10.6	B
		PM	9.3	A	9.9	A
13. Oakley Road/Live Oak Avenue	All Way Stop	AM	23.4	C	32.0	D
		PM	8.6	A	8.9	A
14. Empire Avenue/Main Street	Signalized	AM	21.1	C	20.2	C
		PM	20.2	C	20.4	C
15. Vintage Parkway/Main Street	Signalized	AM	34.2	C	36.5	D
		PM	21.6	C	22.4	C
16. O'Hara Avenue/Main Street	Signalized	AM	7.6	A	7.8	A
		PM	7.6	A	7.7	A
17. Neroly Road/Live Oak Avenue	All Way Stop	AM	12.5	B	13.4	B
		PM	10.1	B	10.8	B
18. Laurel Road/Live Oak Avenue	Signalized	AM	13.8	B	14.6	B
		PM	10.5	B	11.1	B
19. Laurel Road/Empire Avenue	Signalized	AM	35.7	D	36.1	D
		PM	35.3	D	35.5	D
20. Bridgehead Road/Northern Project Driveway	Side Street Stop	AM	N/A	N/A	9.1	A
		PM	N/A	N/A	9.2	A
21. Bridgehead Road/Southern Project Driveway	Side Street Stop	AM	N/A	N/A	12.3	B
		PM	N/A	N/A	12.6	B

(Continued on next page)

Table 4.4-6
Intersection LOS – Existing Plus Project Conditions

Intersection	Traffic Control	Peak Hour	Existing Conditions		Existing Plus Project	
			Delay	LOS	Delay	LOS
22. Oakley Road/Empire Avenue	Signalized	AM	14.7	B	14.7	B
		PM	17.5	B	17.5	B
23. Norcross Lane/Main Street	Signalized	AM	11.0	B	11.0	B
		PM	11.2	B	11.2	B
24. Gateway Drive/Empire Avenue*	Side Street Stop	AM	21.3	C	21.5	C
		PM	***39.8***	***E***	***40.1***	***E***
25. Approved Arco Driveway/Laurel Road	Signalized	AM	N/A	N/A	N/A	N/A
		PM	N/A	N/A	N/A	N/A
26. O'Hara Avenue/Neroly Road.	Signalized	AM	18.3	B	18.5	B
		PM	18.9	B	18.9	B

Notes:
- Delay is presented in seconds per vehicle.
- ***Bold and italicized*** text indicates applicable LOS threshold exceeded.
- (*) indicates queuing capacity exceeded.

Source: Abrams Associates, 2019.

Therefore, the project's contribution to traffic at the Gateway Drive/Empire Avenue intersection would not be considered a significant impact. It should be noted that the City is currently constructing a signal at the Gateway Drive/Empire Avenue intersection, which would improve the LOS at the intersection.

Based on the above, impacts to study intersections under Existing Plus Project conditions would be ***less than significant***.

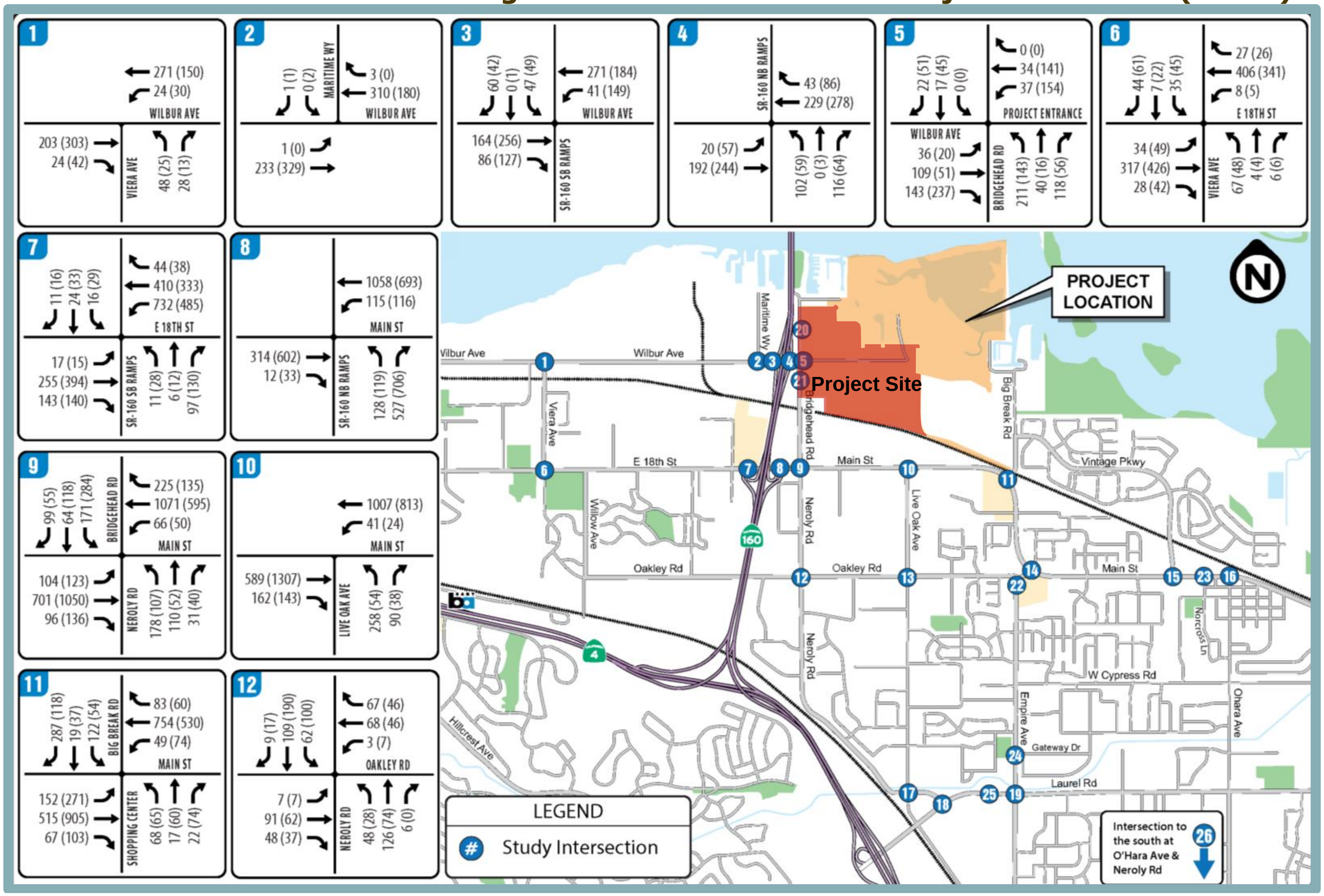
Mitigation Measure(s)

None Required.

4.4-2 Impacts to study intersections under Baseline Plus Project conditions. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

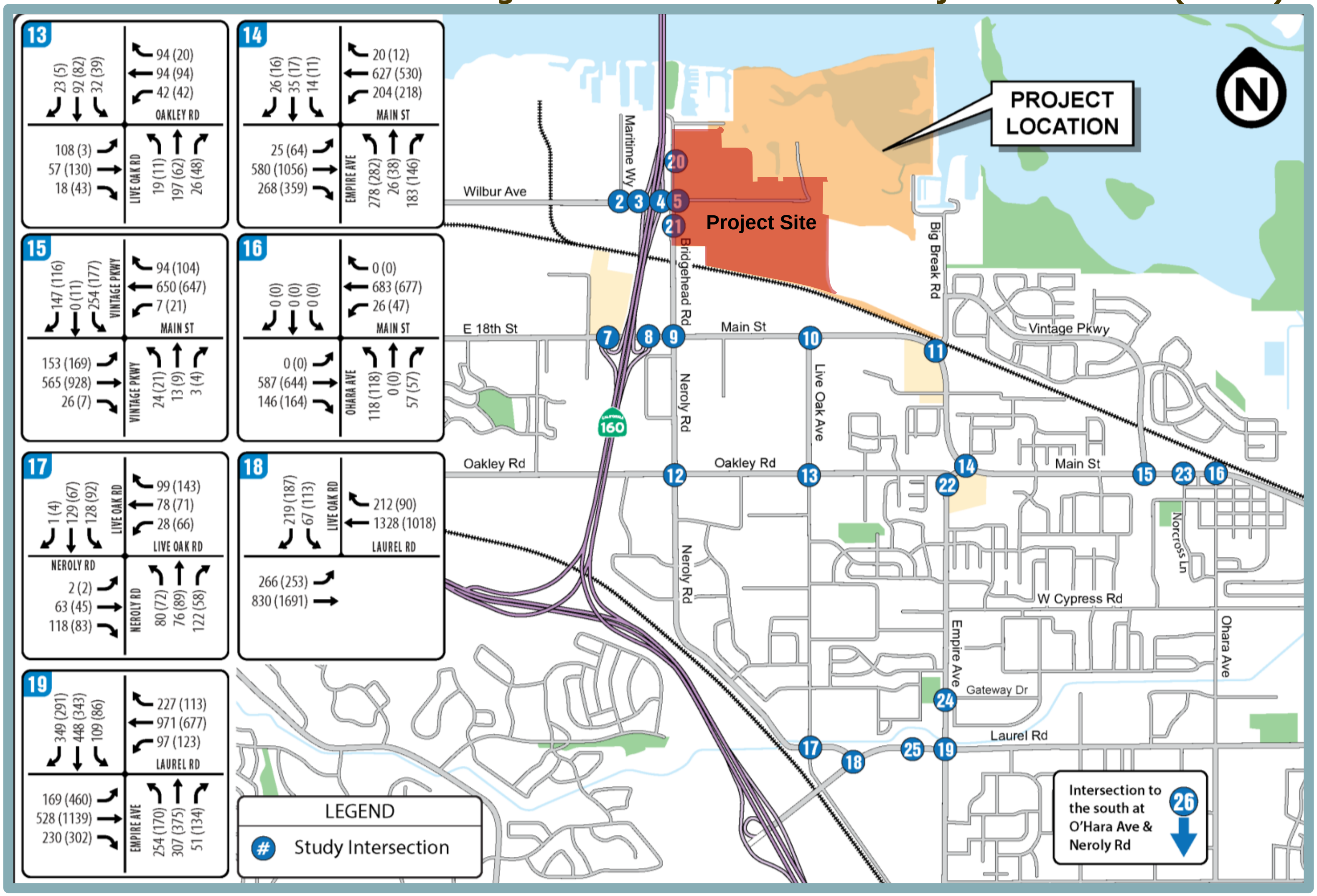
The Baseline Plus Project conditions were developed by adding project trip generation to the Baseline traffic volumes. The resulting traffic volumes for each of the study intersections for the Baseline Plus Project conditions are shown in Figure 4.4-10 through Figure 4.4-12. Table 4.4-7 summarizes the LOS results for the Baseline and Baseline Plus Project weekday AM and PM peak hour conditions.

Figure 4.4-10
Traffic Volumes and Lane Configurations – Baseline Plus Project Conditions (1 of 3)



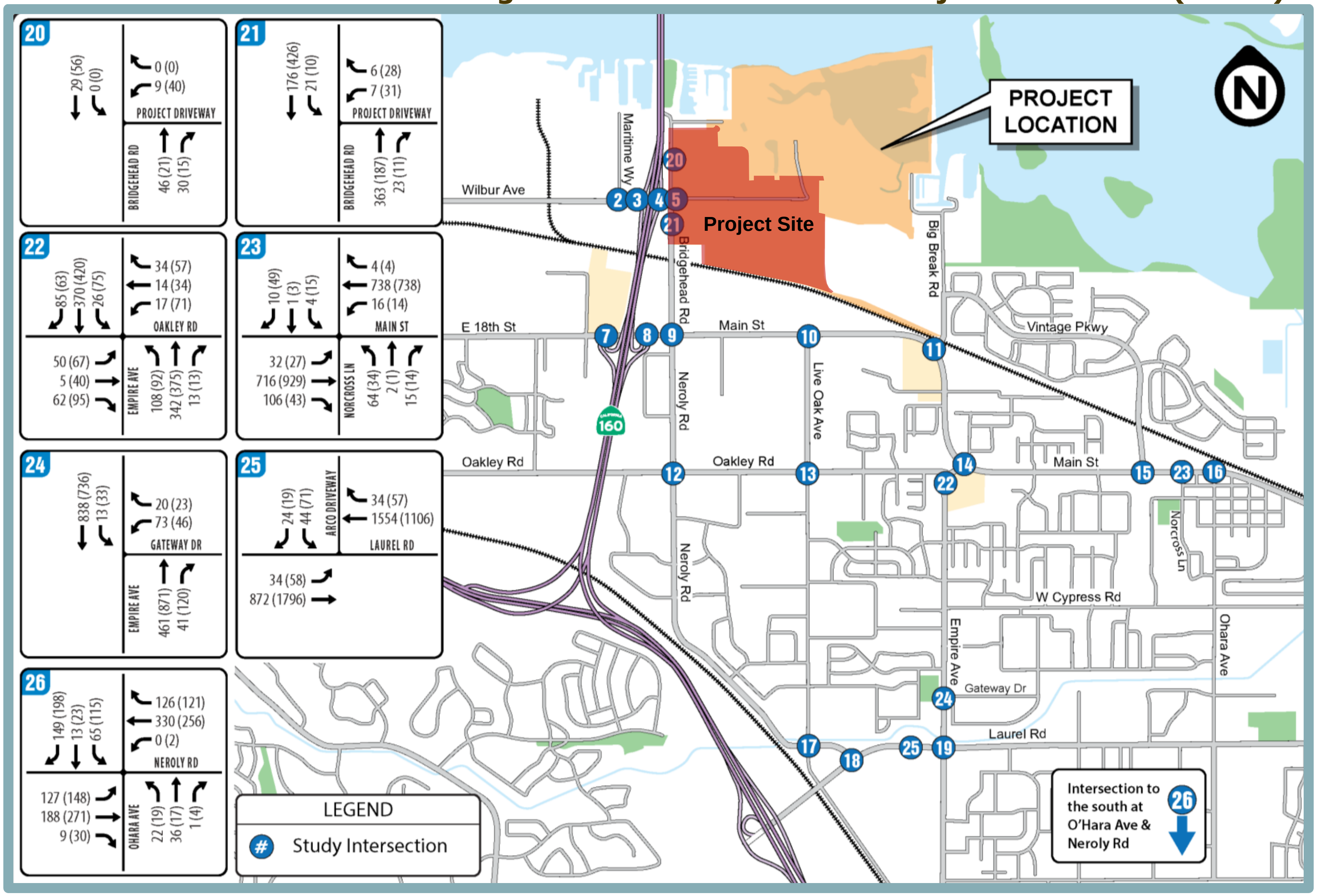
Source: Abrams Associates, 2019.

Figure 4.4-11
Traffic Volumes and Lane Configurations – Baseline Plus Project Conditions (2 of 3)



Source: Abrams Associates, 2019.

Figure 4.4-12
Traffic Volumes and Lane Configurations – Baseline Plus Project Conditions (3 of 3)



Source: Abrams Associates, 2019.

Table 4.4-7
Intersection LOS – Baseline Plus Project Conditions

Intersection	Traffic Control	Peak Hour	Baseline Conditions		Baseline Plus Project	
			Delay	LOS	Delay	LOS
1. Viera Avenue/Wilbur Avenue	Side Street Stop	AM	13.1	B	13.2	B
		PM	12.4	B	12.8	B
2. Maritime Way/Wilbur Avenue	Side Street Stop	AM	10.2	B	10.2	B
		PM	11.1	B	11.6	B
3. SR 160 SB Ramps/Wilbur Avenue	Side Street Stop	AM	10.3	B	11.6	B
		PM	11.4	B	17.1	C
4. SR 160 NB Ramps/Wilbur Avenue	Side Street Stop	AM	11.8	B	11.5	B
		PM	12.4	B	12.4	B
5. Bridgehead Road/Wilbur Avenue	All Way Stop	AM	9.9	A	15.8	C
		PM	9.1	A	14.5	B
6. Viera Avenue/E. 18th Street	Signalized	AM	15.1	B	15.9	B
		PM	13.0	B	13.5	B
7. SR 160 SB Ramps/E. 18th Street	Signalized	AM	17.1	B	17.1	B
		PM	17.9	B	18.0	B
8. SR 160 NB Ramps/Main Street	Signalized	AM	14.8	B	15.1	B
		PM	20.7	C	21.0	C
9. Neroly Road/Bridgehead Road/Main Street	Signalized	AM	34.4	C	37.8	D
		PM	32.5	C	40.3	D
10. Live Oak Avenue/Main Street	Signalized	AM	11.4	B	12.1	B
		PM	8.1	A	8.4	A
11. Big Break Road/Main Street	Signalized	AM	23.8	C	24.6	C
		PM	22.6	C	23.2	C
12. Oakley Road/Neroly Road	All Way Stop	AM	10.6	B	11.1	B
		PM	9.6	A	10.3	B
13. Oakley Road/Live Oak Avenue*	All Way Stop	AM	31.4	D	***48.8***	***E***
		PM	8.8	A	9.0	A
14. Empire Avenue/Main Street	Signalized	AM	22.5	C	22.6	C
		PM	23.5	C	24.0	C
15. Vintage Parkway/Main Street	Signalized	AM	45.3	D	48.8	D
		PM	29.5	C	31.4	C
16. O'Hara Avenue/Main Street	Signalized	AM	8.9	A	9.0	A
		PM	9.7	A	9.9	A
17. Neroly Road/Live Oak Avenue	All Way Stop	AM	14.1	B	15.5	C
		PM	10.8	B	11.6	B
18. Laurel Road/Live Oak Avenue	Signalized	AM	15.6	B	16.6	B
		PM	11.3	B	12.5	B
19. Laurel Road/Empire Avenue*	Signalized	AM	50.7	D	51.4	D
		PM	***59.7***	***E***	***60.7***	***E***
20. Bridgehead Road/Northern Project Driveway	Side Street Stop	AM	N/A	N/A	9.1	A
		PM	N/A	N/A	9.2	A
21. Bridgehead Road/Southern Project Driveway	Side Street Stop	AM	N/A	N/A	12.5	B
		PM	N/A	N/A	12.8	B

(Continued on next page)

Table 4.4-7
Intersection LOS – Baseline Plus Project Conditions

Intersection	Traffic Control	Peak Hour	Baseline Conditions Delay	Baseline Conditions LOS	Baseline Plus Project Delay	Baseline Plus Project LOS
22. Oakley Road/Empire Avenue	Signalized	AM	14.8	B	14.8	B
		PM	18.0	B	18.0	B
23. Norcross Lane/Main Street	Signalized	AM	13.8	B	14.1	B
		PM	16.3	B	17.3	B
24. Gateway Drive/Empire Avenue*	Side Street Stop	AM	25.1	D	25.3	D
		PM	***> 50.0***	***F***	***> 50.0***	***F***
25. Approved Arco Driveway/Laurel Road	Signalized	AM	5.1	A	5.1	A
		PM	5.0	A	5.0	A
26. O'Hara Avenue/Neroly Road.	Signalized	AM	18.7	B	18.9	B
		PM	19.3	B	19.4	B

Notes:
- Delay is presented in seconds per vehicle.
- ***Bold and italicized*** text indicates applicable LOS threshold exceeded.
- ***Highlight*** indicates potentially significant impact.
- (*) indicates queuing capacity exceeded.

Source: Abrams Associates, 2019.

As shown in Table 4.4-7, all of the signalized study intersections would operate with acceptable conditions (LOS D or better) under the Baseline Plus Project scenario during the weekday AM and PM peak hours, with the exception of the following intersections:

13. Oakley Road/Live Oak Avenue (LOS E, AM peak hour);
19. Laurel Avenue/Empire Avenue (LOS E, PM peak hour); and
24. Gateway Drive/Empire Avenue (LOS F, PM peak hour).

Oakley Road/Live Oak Avenue (Intersection #13)

The Oakley Road/Live Oak Avenue intersection would operate at an unacceptable LOS E during the AM peak hour without the addition of project traffic. Under Baseline Plus Project conditions, the addition of project traffic would cause AM peak hour operations at the intersection to degrade to LOS F and would increase the V/C ratio by more than 0.01. Therefore, a significant impact would occur.

Laurel Avenue/Empire Avenue (Intersection #19)

The Laurel Avenue/Empire Avenue intersection would operate at LOS E during the PM peak hour with and without the project. The addition of project traffic would cause the V/C ratio at the intersection to increase by 0.006 during the AM peak hour and 0.007 during the AM peak hour, which is below the City's 0.01 V/C increase threshold. Thus, a less-than-significant impact would occur.

Gateway Drive/Empire Avenue (Intersection #24)

The Gateway Drive/Empire Avenue intersection would operate at LOS F during the PM peak hour with and without the project. The addition of project traffic would cause

V/C ratio at the intersection to increase by 0.003 during the AM and PM peak hours, which is below the City's 0.01 V/C increase threshold. Thus, a less-than-significant impact would occur.

Conclusion

Under Baseline Plus Project conditions, the proposed project would not substantially worsen operations at the Laurel Avenue/Empire Avenue intersection or the Gateway Drive/Empire Avenue intersection. However, the project would conflict with the City's established thresholds at the intersection of Oakley Road/Live Oak Avenue. Therefore, the proposed project could result in a ***significant*** impact. It should be noted that the City has already approved a project that, once implemented, would modify the signal at the Laurel Avenue/Empire Avenue intersection by adding eastbound and westbound double left-turn lanes, thereby improving the LOS at the intersection. In addition, a new traffic signal is currently under construction at the Gateway Drive/Empire Avenue intersection.

Mitigation Measure(s)

With implementation of the following mitigation measure, intersection operations would be improved to an acceptable LOS under Baseline Plus Project conditions. The required improvement is included in the City's 2017 Traffic Impact Fee Update (Item #38). Thus, the impact would be reduced to a *less-than-significant* level.

4.4-2 *Oakley Road/Live Oak Avenue – Prior to issuance of the first building permit, the project applicant shall pay a fair-share contribution to the City of Oakley to fund widening of the westbound Oakley Road approach to the Oakley Road/Live Oak Avenue intersection to allow for a separate right turn lane, to the satisfaction of the City Engineer. The improvement is included in the City's 2017 Traffic Impact Fee Update (Item #38).*

4.4-3 Impacts to study roadway segments under Existing Plus Project and Baseline Plus Project conditions. Based on the analysis below, the impact is *less than significant*.

As part of the Transportation Impact Analysis, a detailed analysis of the roadway segment traffic operations was conducted for Wilbur Avenue and Bridgehead Road adjacent to the project site. The analysis indicated that both roadways would continue to have acceptable conditions with the current lane configuration (one lane in each direction) during the weekday AM and PM peak commute hours (LOS D or better) under Existing Plus Project and Baseline Plus Project conditions (see Table 4.4-8) . Complete roadway segment analysis tables for all study scenarios are included in the appendix to the Transportation Impact Analysis (see Appendix G to this EIR).

Table 4.4-8
Study Roadway Segments – Baseline Plus Project Conditions

Segment	Direction	Peak Hour	Baseline Conditions		Baseline Plus Project	
			Speed (mph)	LOS	Speed (mph)	LOS
Bridgehead Road between Main Street and Wilbur Avenue	Northbound	AM	25.4	B	23.1	C
		PM	25.3	B	23.0	C
	Southbound	AM	16.3	D	16.2	D
		PM	16.8	D	16.4	D

Source: Abrams Associates, 2019.

Therefore, under both Existing Plus Project and Baseline Plus Project conditions, a ***less-than-significant*** impact would occur with regard to study roadway segments.

Mitigation Measure(s)
None required.

4.4-4 Impacts to freeway operations under Existing Plus Project conditions. Based on the analysis below, the impact is *less than significant*.

Project-generated traffic on the segments of SR 4 located within the vicinity of the project was evaluated under Existing Plus Project conditions. The resulting delay index for the freeway segments is shown in Table 4.4-9 below. As shown in the table, the project would not substantially increase the delay index along eastbound or westbound segments relative to Existing conditions, and traffic would not exceed the 2.5-second delay index MTSO established by the CCTA in the East County Action Plan. Thus, a ***less-than-significant*** impact would occur.

Table 4.4-9
Freeway Operations – Existing Plus Project Conditions

Peak Hour	Direction	MTSO	Existing	Existing Plus Project
AM	Eastbound	2.5	1.1	1.2
	Westbound	2.5	2.5	2.5
PM	Eastbound	2.5	1.4	1.4
	Westbound	2.5	1.3	1.3

Source: Abrams Associates, 2019.

Mitigation Measure(s)
None required.

4.4-5 Impacts to pedestrian, bicycle, and transit facilities. Based on the analysis below, the impact is *less than significant*.

The following sections provide an analysis of potential impacts to pedestrian and bicycle facilities, as well as transit facilities and services.

Pedestrian and Bicycle Facilities

The City does not provide LOS standards for pedestrian or bicycle facilities. Nevertheless, use of existing facilities associated with development of the project would not be expected to overcrowd those facilities or decrease their performance or safety. The project would add some pedestrians and bicyclists in the area; however, the volumes added would not be expected to significantly impact any existing bicycle facilities. In relation to the existing conditions, the proposed project would not cause substantial changes to the pedestrian or bicycle traffic in the area and would not significantly impact or require changes to the design of any existing bicycle or pedestrian facilities. However, consistent with the City and County General Plans, the project would contribute to additional pedestrian and bicycle improvement measures in the vicinity of the project. In addition, the project would include adequate internal pedestrian facilities that connect the project site to the surrounding pedestrian network.

Transit Facilities and Services

The project would not result in degradation of the LOS, cause or a significant increase in delay, on any roadway segments currently being utilized by bus transit in the area. Thus, significant impacts to bus transit are expected. The proposed project not be expected to significantly impact the operating capacity of E-BART or any existing bus routes. In addition, the proposed project could potentially help support existing bus services with additional transit ridership and would not conflict with any transit plans or goals of the BART, the County, or Tri Delta Transit.

Although the proposed project does have the potential to increase patronage on BART and bus lines in the area, the additional ridership would be added primarily in the non-peak directions and, thus, would not substantially affect the capacity of the existing transit services.

Conclusion

Based on the above, the proposed project would not result in substantial adverse effects to pedestrian, bicycle, or transit facilities in the project area. In addition, the project would not conflict with any adopted plans governing operations of such facilities. Therefore, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.4-6 Impacts related to construction vehicle traffic. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Construction of the proposed project, including demolition, site preparation, and construction, and delivery activities, would generate contractor employee trips and a variety of other construction-related vehicle trips. As part of the Transportation Impact Analysis, the increase in traffic as a result of demolition and construction activities associated with the proposed project was quantified assuming a worst-case single-phase construction period. If the project is built in phases over time, the effects of each phase will be the same or less. The last phase may require added worker parking measures, depending on the circumstances, vacant land may not be available for parking.

The following sections provide a summary of potential issues related to related to heavy equipment use, employee commuting, and material import/export.

Heavy Equipment

Approximately ten pieces of heavy equipment are estimated to require transport on and off the site each month throughout the demolition and construction of the proposed project. In addition, the ten loads of heavy equipment being hauled to and from the site each month would be short-term and temporary. Nonetheless, given the potential for heavy-duty construction equipment to result in conflicts with traffic patterns on roadways within the site vicinity, a significant impact could occur.

Employees

The weekday work is expected to begin at approximately 7:00 AM and end at approximately 4:00 PM. The construction worker arrival peak would occur between 6:30 AM and 7:30 AM, and the departure peak would occur between 4:00 PM and 5:00 PM. Such peak hours are slightly before the city-wide commute peaks. It should be noted that the number of trips generated during construction would not only be temporary, but would also be substantially less than the proposed project at buildout. However, based on past construction of similar projects, construction workers could require parking for up to 200 vehicles during the peak construction period. Additionally, deliveries, visits, and other activities may generate peak non-worker parking demand of 20 to 25 trucks and automobiles per day. Therefore, up to 225 vehicle parking spaces may be required during the peak construction period for the construction employees. If sufficient on-site parking areas are not provided during construction of the proposed project, employee/worker parking could interfere with the surrounding roadway network, and a significant impact could occur.

Construction Material Import/Export

The project would require removal of existing debris as well as the importation of construction material, including raw materials for the building pads, the buildings, the parking areas, and landscaping. During the maximum peak construction period, the project could generate approximately 150 truck trips per day. Given that such haul truck traffic has the potential to conflict with traffic patterns along the surrounding roadways, a significant impact could occur.

Conclusion

Based on the above, the demolition and construction activities associated with the proposed project or its individual phases could potentially lead to noticeable congestion in the vicinity of the site or the perception of decreased traffic safety. Therefore, project traffic related to construction activities could result in a ***significant*** impact.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.4-6 *Prior to issuance of demolition or grading permits, the project applicant shall prepare and submit a Traffic Control Plan to the City for review and approval. The Traffic Control Plan shall include, but not be limited to, the following items, to the satisfaction of the City Engineer.*

- *Truck drivers shall be notified of and required to use the most direct route between the site and SR 4, as determined by the City Engineering Department;*
- *All site ingress and egress shall occur only at the main driveways to the project site and construction activities may require installation of temporary (or ultimate) traffic signals as determined by the City Engineer;*
- *Specifically-designated travel routes for large vehicles shall be monitored and controlled by flaggers for large construction vehicle ingress and egress;*
- *Warning signs indicating frequent truck entry and exit shall be posted on Wilbur Avenue;*
- *Any debris and mud on nearby streets caused by trucks shall be monitored daily and may require instituting a street cleaning program;*
- *Construction employee parking shall be provided on the project site to eliminate conflicts with nearby areas. Construction of the project shall be staggered so that employee parking demand is met primarily by using on-site parking; and*
- *If importation and exportation of material becomes a traffic nuisance, the City Engineer shall limit the hours the activities can take place.*

4.4-7 Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

The following sections provide a discussion of potential hazards related to vehicle queuing and site access/circulation

Vehicle Queuing

As traffic volumes increase vehicle queues typically will also increase at most intersections. In both the Existing Plus Project and Baseline Plus Project condition, the project traffic would contribute to the average vehicle queues (based on the 95th percentile vehicle queue) potentially extending beyond the available storage for the following movements:

9. Neroly Road/Bridgehead Road/Main Street
   - Eastbound Main Street left turn; and
   - Southbound Bridgehead Road left turn.
14. Empire Avenue/Main Street
   - Westbound Main Street left turn;
   - Northbound Empire Avenue left turn.
22. Oakley Road/Empire Avenue
   - Westbound Oakley Town Center left turn.

Such movements are forecast to continue exceeding the available storage regardless of whether or not the proposed project is implemented. Nonetheless, given that the project could exacerbate existing queuing issues, thereby resulting in more frequent lane blockages, a significant impact related to traffic safety could occur under Existing Plus Project and Baseline Plus Project conditions.

Site Access and Circulation

The main entrance to the project site would be located on the eastern side of the intersection of Wilbur Avenue and Bridgehead Road. Two secondary access points would also be provided on Bridgehead Road. One access would be located to the north of the Wilbur Avenue entrance and the other would be located to the south. As part of the Transportation Impact Analysis, the proposed site design was reviewed for site access and circulation issues. A detailed truck turning analysis was conducted for the project based on Surface Transportation Assistance Act (STAA) standard six-axle truck. Based on the results of the analysis, Abrams Associates determined that the proposed site design would not result in any traffic safety issues or cause unusual traffic congestion or delay within the site.

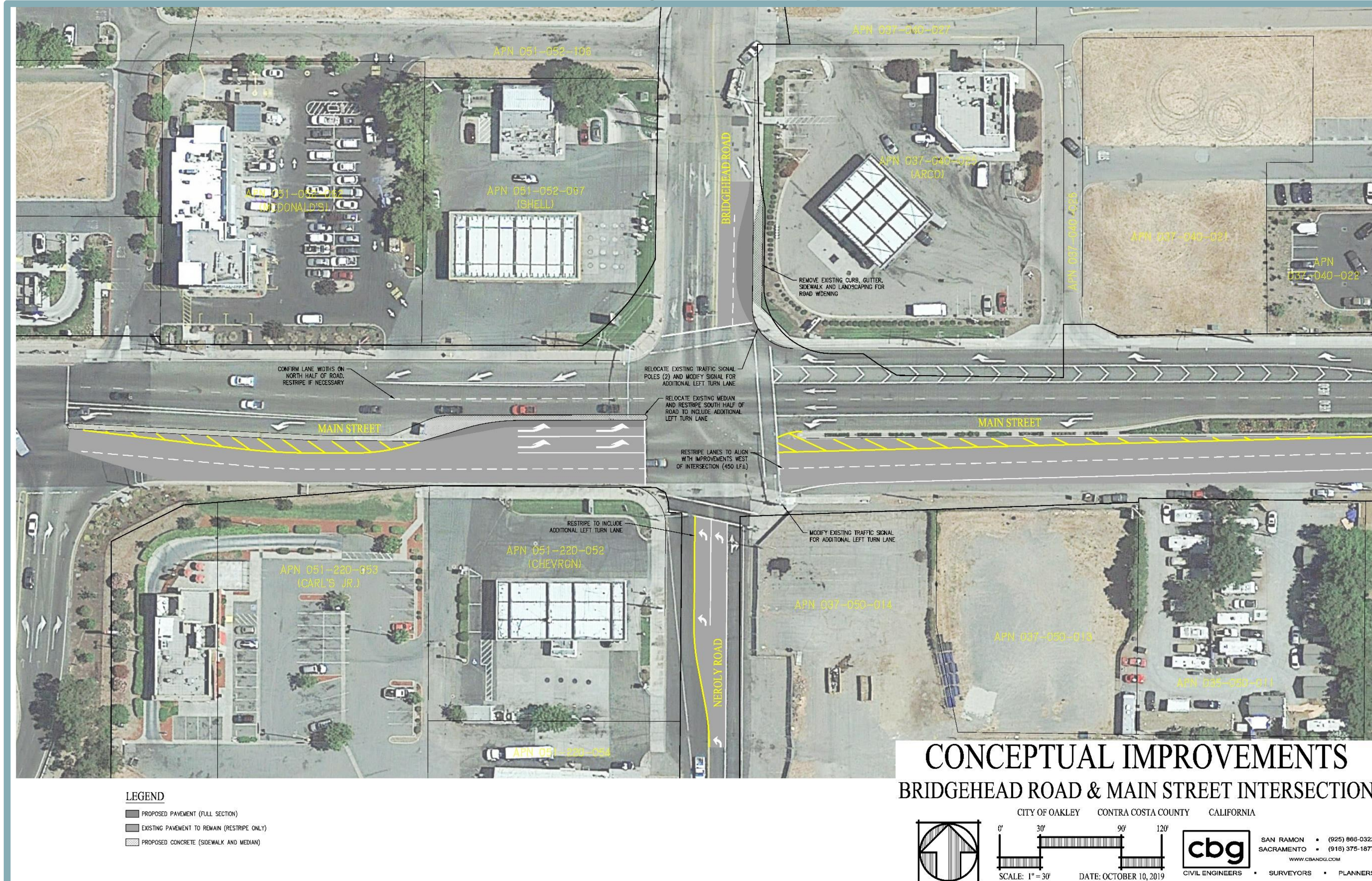
Conclusion

Based on the above, under Existing Plus Project and Baseline Plus Project conditions, the proposed project would not result in any substantial hazards related to site access/circulation. However, under both conditions, the project could exacerbate existing queuing issues at the Neroly Road/Bridgehead Road/Main Street, Empire Avenue/Main Street, and Oakley Road/Empire Avenue intersections, thereby resulting in increased hazards for vehicles travelling through the intersections. Therefore, the proposed project would result in a ***significant*** impact related to creation of hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Mitigation Measure(s)

With implementation of the following mitigation measures, vehicle queuing would be reduced to acceptable conditions under Baseline Plus Project conditions. It should be noted that Mitigation Measure 4.6-7(b) would address queuing issues at both the Main Street/Empire Avenue and Oakley Road/Empire Avenue intersections. It should be noted that the City's Traffic Impact Fee will be updated to include the required improvements to the Main Street/Empire Avenue intersection, shown in Figure 4.4-13 below.

Figure 4.4-13
Main Street at Bridgehead Road Improvements



Payment of a fair share contribution to the improvements, as required by Mitigation Measure 4.4-7(b), would be required after completion of the Traffic Impact Fee update. Thus, with implementation of the following mitigation measures, the impact would be reduced to a *less-than-significant* level.

4.4-7(a) *Main Street at Bridgehead Road/Neroly Road – Prior to issuance of the first building permit or as determined by the City Engineer, the project applicant shall construct the following improvements at the Main Street/Bridgehead Road/Neroly Road intersection, to the satisfaction of the City Engineer: 1) installation of a dual eastbound left turn lane and a dual northbound left-turn lane; and 2) implementation of signal coordination with the adjacent traffic signal at the SR 160 eastbound ramps. The aforementioned improvements are included in the City's 2017 Traffic Impact Fee Update (Item #47).*

4.4-7(b) *Main Street at Empire Avenue – Prior to issuance of the first building permit or as determined by the City Engineer, the project applicant shall pay a fair share contribution to the City of Oakley to fund the installation of a dual westbound left-turn lane at the Main Street/Empire Avenue intersection, to the satisfaction of the City Engineer.*

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, "cumulative impacts" refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

As discussed in the Transportation Impact Analysis, between Existing Plus Project and Cumulative Plus Project conditions, travel characteristics associated with the proposed project would not materially alter the project's effect on surrounding transportation system operating conditions or performance related to bicycle facilities, pedestrian facilities, transit facilities and services, and emergency vehicle access. In addition, construction activities associated with the project would be complete prior to the cumulative analysis year. Therefore, the proposed project would not result in a considerable contribution to cumulative impacts on the topics listed above beyond the impacts discussed above. Such topics are not discussed further in this EIR.

4.4-8 Impacts to study intersections under Cumulative Plus Project conditions. Based on the analysis below and with implementation of mitigation, the impact is *less than cumulatively considerable*.

For the Cumulative No Project conditions, the intersection traffic volumes were based on the existing turning movements plus incremental growth in background traffic (one percent per year) based on the County's traffic model. The Cumulative Plus Project conditions were developed by adding project trip generation to the Cumulative No Project traffic volumes. The resulting traffic volumes for each of the study intersections for the Cumulative Plus Project conditions are shown in Figure 4.4-14 through Figure 4.4-16. Table 4.4-10 summarizes the LOS results for the Cumulative No Project and Cumulative Plus Project weekday AM and PM peak hour conditions.

As shown in Table 4.4-10, all of the signalized study intersections would operate with acceptable conditions (LOS D or better) under the Cumulative Plus Project scenario during the weekday AM and PM peak hours, with the exception of the following intersections:

5. Bridgehead Road/Wilbur Avenue (LOS E, PM peak hour);
11. Big Break Road/Main Street (LOS F, AM peak hour; LOS E, PM peak hour);
13. Oakley Road/Live Oak Avenue (LOS F, AM peak hour); and
24. Gateway Drive/Empire Avenue (LOS E, AM peak hour; LOSF, PM peak hour).

Bridgehead Road/Wilbur Avenue (Intersection #5)

The addition of project traffic would cause operations at the Bridgehead Road/Wilbur Avenue intersection to deteriorate from an acceptable LOS D to an unacceptable LOS E during the PM peak hour. Thus, a significant impact would occur.

Big Break Road/Main Street (Intersection #11)

The Big Break Road/Main Street intersection would operate at LOS F and LOS E during the AM and PM peak hours, respectively, with and without the project. The addition of project traffic would increase the V/C ratio by more than 0.01 during both peak hours. Thus, a significant impact would occur.

Oakley Road/Live Oak Avenue (Intersection #13)

The Oakley Road/Live Oak Avenue intersection would operate at an unacceptable LOS E during the AM peak hour without the addition of project traffic. Under Cumulative Plus Project conditions, the addition of project traffic would cause AM peak hour operations at the intersection to degrade to LOS F and would increase the V/C ratio by more than 0.01. Therefore, a significant impact would occur.

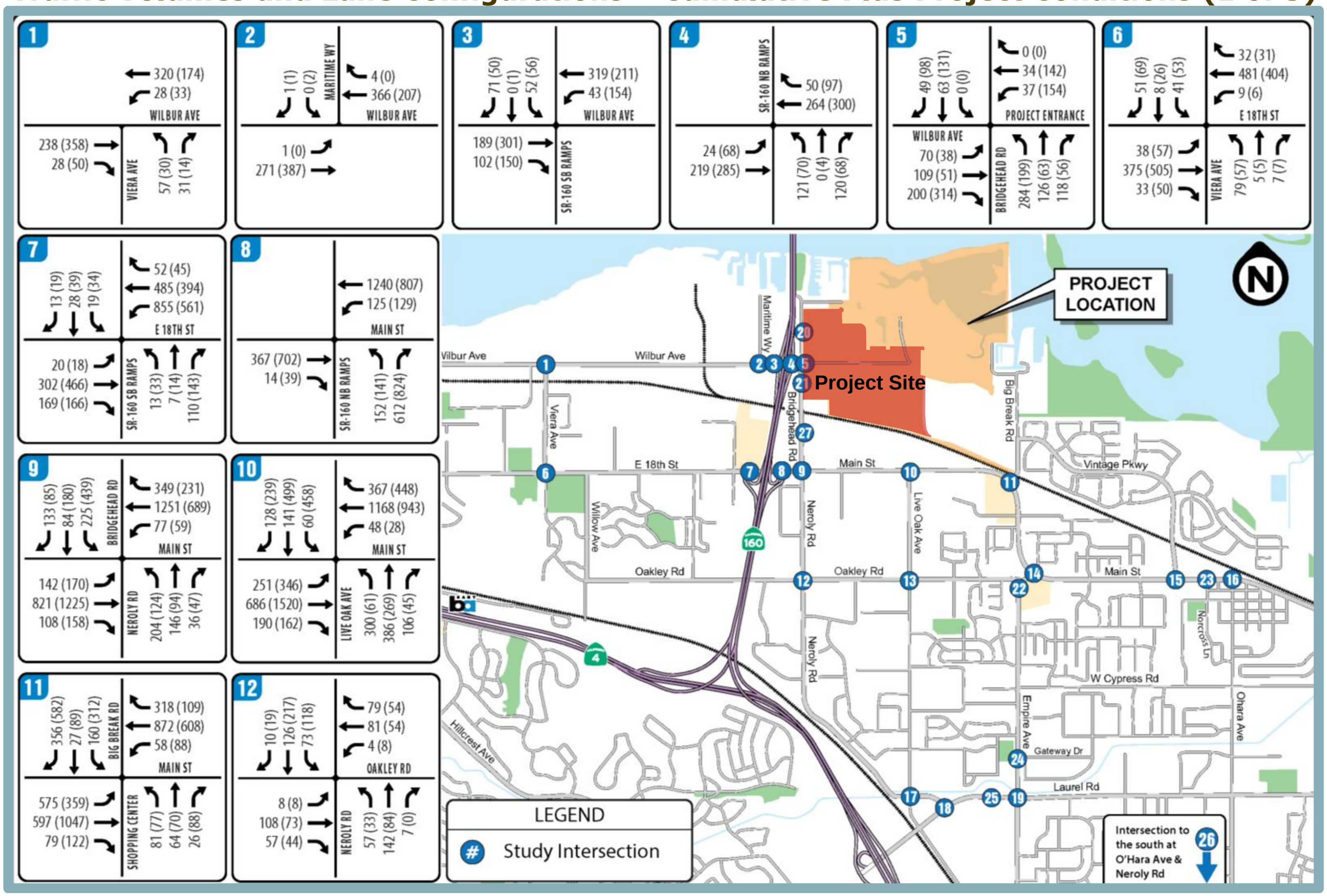
Gateway Drive/Empire Avenue (Intersection #24)

The Gateway Drive/Empire Avenue intersection would operate at LOS E during the AM peak hour and LOS F during the PM peak hour with and without the project. The addition of project traffic would cause V/C ratio at the intersection to increase by 0.002 during the AM and PM peak hours, which is below the City's 0.01 V/C increase threshold. Thus, a less-than-significant impact would occur.

Conclusion

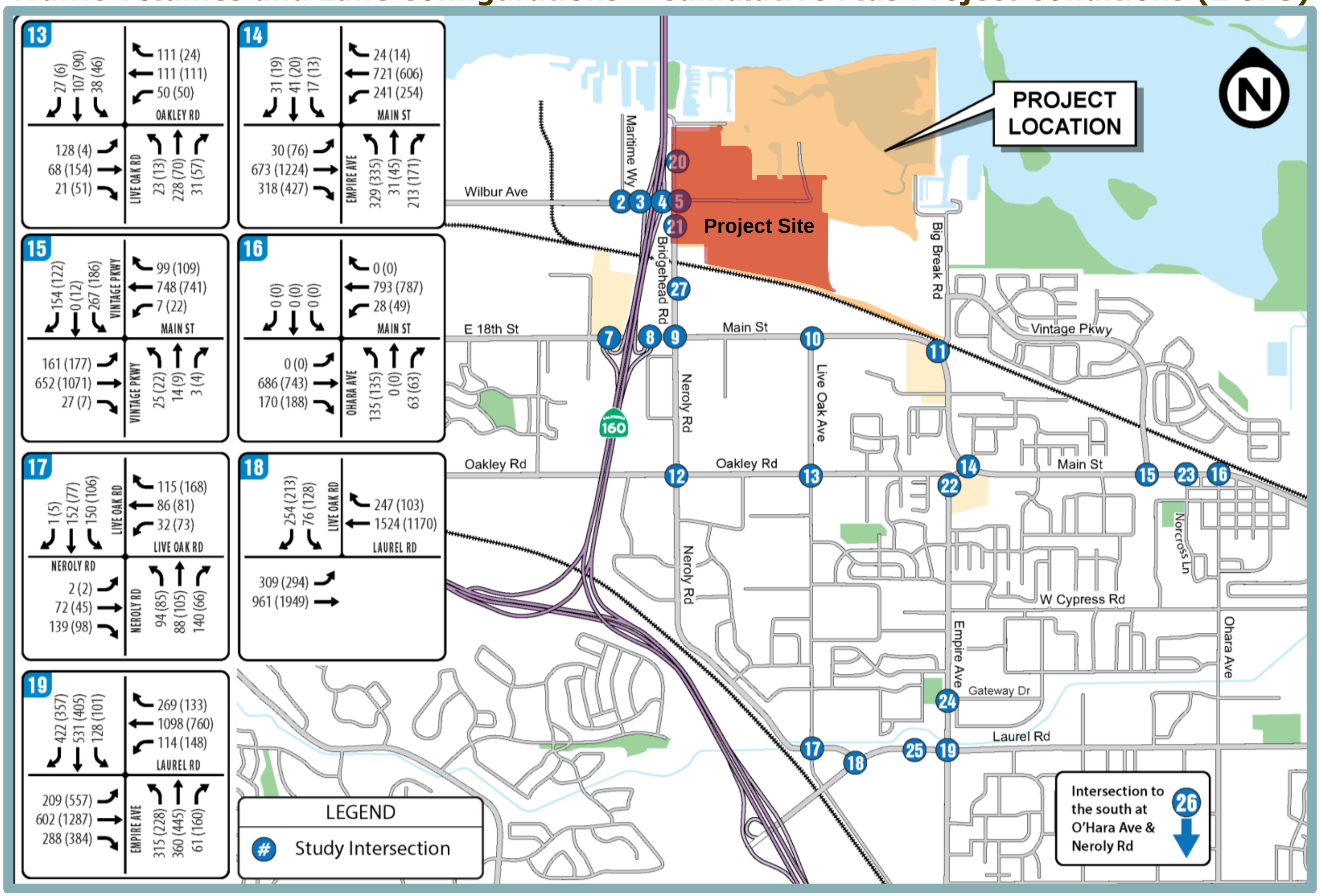
Under Cumulative Plus Project conditions, the proposed project would not substantially worsen operations at the Gateway Drive/Empire Avenue intersection. However, the project would conflict with the City's established thresholds at the intersections of Bridgehead Road/Wilbur Avenue, Big Break Road/Main Street, and Oakley Road/Live Oak Avenue. Therefore, the proposed project's incremental contribution to cumulative impacts at the three intersections could be ***cumulatively considerable***.

Figure 4.4-14
Traffic Volumes and Lane Configurations – Cumulative Plus Project Conditions (1 of 3)



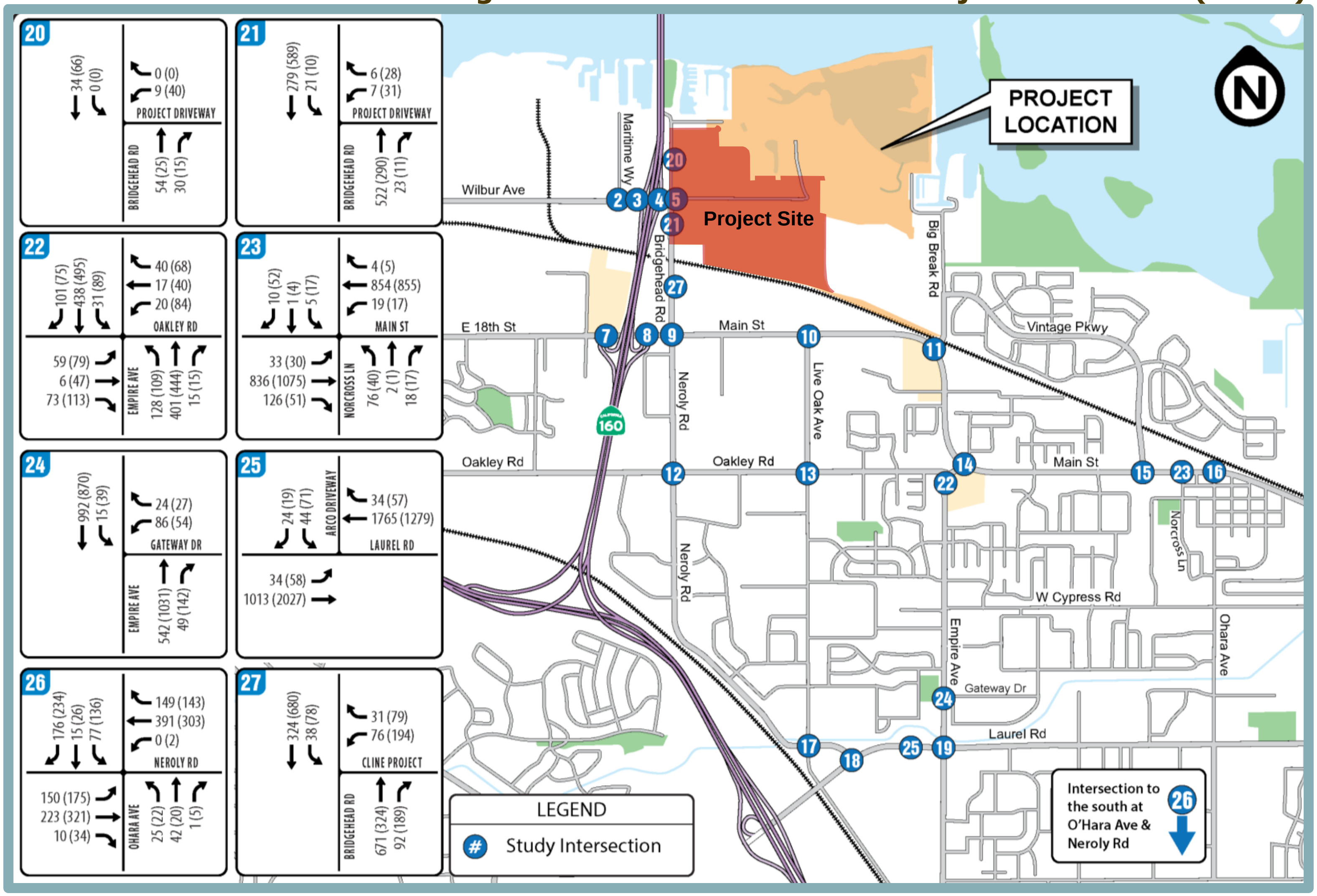
Source: Abrams Associates, 2019.

Figure 4.4-15
Traffic Volumes and Lane Configurations – Cumulative Plus Project Conditions (2 of 3)



Source: Abrams Associates, 2019.

Figure 4.4-16
Traffic Volumes and Lane Configurations – Cumulative Plus Project Conditions (3 of 3)



Source: Abrams Associates, 2019.

Table 4.4-10
Intersection LOS – Cumulative Plus Project Conditions

Intersection	Traffic Control	Peak Hour	Cumulative No Project		Cumulative Plus Project	
			Delay	LOS	Delay	LOS
1. Viera Avenue/Wilbur Avenue	Side Street Stop	AM	14.8	B	15.0	C
		PM	13.6	B	14.2	B
2. Maritime Way/Wilbur Avenue	Side Street Stop	AM	10.6	B	10.6	B
		PM	11.9	B	12.4	B
3. SR 160 SB Ramps/Wilbur Avenue	Side Street Stop	AM	10.7	B	12.3	B
		PM	12.2	B	20.2	C
4. SR 160 NB Ramps/Wilbur Avenue	Side Street Stop	AM	12.6	B	12.6	B
		PM	13.5	B	13.9	B
5. Bridgehead Road/Wilbur Avenue*	All Way Stop	AM	12.8	B	32.8	D
		PM	11.9	B	***40.1***	***E***
6. Viera Avenue/E. 18th Street	Signalized	AM	17.6	B	18.5	B
		PM	14.0	B	14.5	B
7. SR 160 SB Ramps/E. 18th Street	Signalized	AM	19.9	B	19.9	B
		PM	20.2	C	20.4	C
8. SR 160 NB Ramps/Main Street	Signalized	AM	15.4	B	15.7	B
		PM	23.2	C	23.4	C
9. Neroly Road/Bridgehead Road/Main Street*	Signalized	AM	27.6	C	32.0	C
		PM	30.5	C	35.8	D
10. Live Oak Avenue/Main Street	Signalized	AM	48.4	D	52.1	D
		PM	54.2	D	54.4	D
11. Big Break Road/Main Street	Signalized	AM	***> 80.0***	***F***	***> 80.0***	***F***
		PM	***60.9***	***E***	***62.9***	***E***
12. Oakley Road/Neroly Road*	All Way Stop	AM	12.2	B	13.0	B
		PM	10.6	B	11.7	B
13. Oakley Road/Live Oak Avenue	All Way Stop	AM	***35.9***	***E***	***> 50.0***	***F***
		PM	9.4	A	9.7	A
14. Empire Avenue/Main Street*	Signalized	AM	29.1	C	29.2	C
		PM	30.8	C	31.6	C
15. Vintage Parkway/Main Street	Signalized	AM	48.7	D	52.0	D
		PM	45.9	D	50.2	D
16. O'Hara Avenue/Main Street	Signalized	AM	10.3	B	10.7	B
		PM	11.8	B	12.5	B
17. Neroly Road/Live Oak Avenue	All Way Stop	AM	19.3	C	21.9	C
		PM	12.2	B	13.2	B
18. Laurel Road/Live Oak Avenue	Signalized	AM	20.0	B	21.4	C
		PM	13.1	B	14.7	B
19. Laurel Road/Empire Avenue	Signalized	AM	52.2	D	52.8	D
		PM	47.6	D	48.3	D
20. Bridgehead Road/Northern Project Driveway	Side Street Stop	AM	N/A	N/A	9.2	A
		PM	N/A	N/A	9.3	A
21. Bridgehead Road/Southern Project Driveway	Side Street Stop	AM	N/A	N/A	15.7	C
		PM	N/A	N/A	16.4	C

(Continued on next page)

Table 4.4-10
Intersection LOS – Cumulative Plus Project Conditions

Intersection	Traffic Control	Peak Hour	Cumulative No Project		Cumulative Plus Project	
			Delay	LOS	Delay	LOS
22. Oakley Road/Empire Avenue*	Signalized	AM	15.8	B	15.8	B
		PM	19.8	B	19.8	B
23. Norcross Lane/Main Street	Signalized	AM	20.7	C	21.4	C
		PM	27.3	C	31.0	C
24. Gateway Drive/Empire Avenue	Side Street Stop	AM	***40.5***	***E***	***40.8***	***E***
		PM	***> 50.0***	***F***	***> 50.0***	***F***
25. Approved Arco Driveway/Laurel Road	Signalized	AM	5.1	A	5.1	A
		PM	5.0	A	5.1	A
26. O'Hara Avenue/Neroly Road.	Signalized	AM	20.5	C	20.8	C
		PM	21.0	C	21.1	C
27. Bridgehead Road/Cline Project Entrance	Signalized	AM	7.9	A	8.2	A
		PM	9.3	A	9.7	A

Notes:
- Delay is presented in seconds per vehicle.
- ***Bold and italicized*** text indicates applicable LOS threshold exceeded.
- ***Highlight*** indicates potentially significant impact.
- (*) indicates queuing capacity exceeded.

Source: Abrams Associates, 2019.

Mitigation Measure(s)

With implementation of the following mitigation measures, intersection operations would be improved to an acceptable LOS under Cumulative Plus Project conditions. It should be noted that the City's Traffic Impact Fee will be updated to include the required improvements to the Big Break Road/Main Street intersection. Payment of a fair share contribution to the improvements, as required by Mitigation Measure 4.4-8(b), would be required after completion of the Traffic Impact Fee update. Thus, with implementation of the following mitigation measures, the project's incremental contribution to the cumulative impact would be *less than cumulatively considerable*.

4.4-8(a) *<u>Bridgehead Road/Wilbur Avenue</u> – Prior to buildout of the proposed project or as determined by the City Engineer, the project applicant shall construct the installation of a four-way traffic signal with crosswalks at the Wilbur Avenue/Bridgehead Road intersection, to the satisfaction of the City Engineer. The improvement is included in the City's 2017 Traffic Impact Fee Update.*

4.4-8(b) *<u>Big Break Road at Main Street</u> – Prior to issuance of the first building permit or as determined by the City Engineer, the project applicant shall pay a fair share contribution to the City of Oakley to fund the following improvements to the Big Break Road/Main Street intersection, to the satisfaction of the City Engineer 1) widening of the southbound Big Break Road approach to the intersection to allow for an additional approach lane; 2) construction of a dual left turn lane on the eastbound Main Street approach to the intersection; and 3) Widening of the* *eastbound and westbound Main Street approaches to allow for three through lanes in each direction.*

4.4-8(c) *Implement Mitigation Measure 4.4-2.*

4.4-9 Impacts to study roadway segments under Cumulative Plus Project conditions. Based on the analysis below and with implementation of mitigation, the impact is *less than cumulatively considerable*.

As part of the Transportation Impact Analysis, a detailed analysis of the roadway segment traffic operations was conducted for Wilbur Avenue and Bridgehead Road adjacent to the project site. The analysis indicated that Wilbur Avenue would continue to have acceptable conditions during the weekday AM and PM peak commute hours (LOS D or better) under Cumulative Plus Project conditions. However, the segment of Bridgehead Road south of the planned entrance to the River Oaks Crossing Specific Plan Area (i.e. the segment south of the railroad over- crossing) would exceed LOS D under both the AM and PM peak hours with and without the addition of project traffic. The two-lane roadway segment is forecast to operate at LOS F during the PM peak hour with the removal of the Live Oak Avenue extension and the addition of forecast traffic from the proposed project and the River Oaks Specific Plan.

Planned improvements on the southbound approach to the Main Street intersection in combination with improvements to the planned River Oaks Crossing entrance intersection could potentially improve operations on the Bridgehead Road segment, depending on the final design for the improvements. However, the proposed project would increase the V/C ratio on the affected segment by more than 0.01 relative to Cumulative (no project) conditions. Complete roadway segment analysis tables for all study scenarios are included in the appendix to the TIA (see Appendix G to this EIR).

Based on the above, under Cumulative Plus Project conditions, the project's incremental contribution to the significant impact at the affected segment of Bridgehead Road would be ***cumulatively considerable***.

Mitigation Measure(s)

With implementation of the following mitigation measure, intersection operations would be improved to an acceptable LOS under Cumulative Plus Project conditions. It should be noted that the City's Traffic Impact Fee will be updated to include the required Bridgehead Road widening. Payment of a fair share contribution to the improvements, as required by Mitigation Measure 4.4-9, would be required after completion of the Traffic Impact Fee update. Thus, with implementation of the following mitigation measures, the project's incremental contribution to the cumulative impact would be *less than cumulatively considerable*.

4.4-9 *Bridgehead Road between the Planned River Oaks Crossing Entrance and the Main Street/Neroly Road Intersection – Prior to issuance of certificates of occupancy or as determined by the City Engineer, the project applicant shall pay a fair-share contribution towards the* *widening of Bridgehead Road between the planned River Oaks Crossing entrance and the northernmost driveway at the ARCO development to include a four-lane cross-section, to the satisfaction of the City Engineer. In addition, the project applicant shall provide for the construction of the widening of Bridgehead Road between the northernmost driveway of the Arco Development and the Main Street/Neroly Road intersection to include a four-lane cross-section, to the satisfaction of the City Engineer.*

4.4-10 Impacts to freeway operations under Cumulative Plus Project conditions. Based on the analysis below, even with mitigation, the impact is *cumulatively considerable* and *significant and unavoidable*.

Project-generated traffic on the segments of SR 4 located within the vicinity of the project was evaluated under both Cumulative Plus Project conditions. The resulting delay index for the freeway segments is shown in Table 4.4-11 below. As shown in the table, the project would not increase the delay index along eastbound or westbound segments relative to Cumulative conditions.

Table 4.4-11
Freeway Operations – Cumulative Plus Project Conditions

Peak Hour	Direction	MTSO	Cumulative No Project	Cumulative Plus Project
AM	Eastbound	2.5	1.3	1.3
	Westbound	2.5	***3.1***	***3.1***
PM	Eastbound	2.5	1.8	1.8
	Westbound	2.5	1.5	1.5

Note: ***Bold and italicized*** text indicates MTSO exceeded.

Source: Abrams Associates, 2019.

Nonetheless, because the MTSO at the freeway segment would be exceeded, payment of applicable East Contra Costa. Regional Fee and Financing Authority (ECCRFFA)/Regional Transportation Development Impact Mitigation (RTDIM) fees would be required. Without payment of the required fees, the project's incremental contribution to cumulative SR 4 impacts would be ***cumulatively considerable***.

Mitigation Measure(s)

Implementation of the following mitigation measure would help to offset the project's incremental contribution to significant impacts along SR 4. However, given that SR 4 is not under the City's jurisdiction, the City does not have control over the funding, prioritization, or construction of improvements along the freeway. Thus, the project's contribution to the impact identified above would remain *cumulatively considerable* and *significant and unavoidable*.

4.4-10 *Prior to issuance of building permits, the project applicant shall pay the applicable Regional Transportation Development Impact Mitigation (RTDIM) Fee to fund regional freeway system improvements along SR*

4. Proof of payment shall be submitted to the City of Oakley Planning Division.

4.4-11 Substantially increase cumulative hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Based on the analysis below, even with mitigation, the impact is *cumulatively considerable* and *significant and unavoidable*.

As traffic volumes increase vehicle queues typically will also increase at most intersections. In Cumulative Plus Project condition, the project traffic would contribute to the average vehicle queues (based on the 95th percentile vehicle queue) potentially extending beyond the available storage for the following movements:

5. Bridgehead Road/Wilbur Avenue
   - Northbound Bridgehead Road left turn.
9. Neroly Road/Bridgehead Road/Main Street
   - Eastbound Main Street left turn;
   - Southbound Bridgehead Road left turn; and
   - Northbound Bridgehead Road left turn.
14. Empire Avenue/Main Street
   - Westbound Main Street left turn;
   - Northbound Empire Avenue left turn; and
   - Southbound Charles Way left turn.
22. Oakley Road/Empire Avenue
   - Westbound Oakley Town Center left turn.

Such movements are forecast to continue exceeding the available storage regardless of whether or not the proposed project is implemented. Nonetheless, given that the project could exacerbate existing queuing issues, thereby resulting in more frequent lane blockages, the project's incremental contribution to significant cumulative impacts related to traffic safety could be ***cumulatively considerable*** under Cumulative Plus Project conditions.

Mitigation Measure(s)

With implementation of the following mitigation measure, vehicle queuing would be reduced to acceptable conditions under Cumulative Plus Project conditions. However, a portion of the required improvements are not included in the City's 2017 Traffic Impact Fee Update. Given that timing and funding for the improvements have not been identified by the City, the impact would remain *cumulatively considerable and significant and unavoidable.*

4.4-11 Implement Mitigation Measures 4.4-7(a), 4.4-7(b), and 4.4-8(a).

4.5 Utilities and Service Systems

4.5. Utilities and Service Systems

4.5.1 INTRODUCTION

The Utilities and Service Systems chapter of the EIR summarizes the setting information and identifies potential new demands resulting from the proposed project's water supply, wastewater systems, and solid waste disposal. Information for the Utilities and Service Systems chapter was primarily drawn from a technical water supply memorandum prepared for the proposed project by Diablo Water District (Water Memo) (see Appendix H),[1] a technical sewer memorandum prepared for the project by Coleman Engineering (Sewer Memo) (see Appendix I),[2] the Diablo Water District 2015 Urban Water Management Plan (UWMP),[3] the City of Oakley General Plan,[4] and the General Plan EIR.[5]

4.5.2 EXISTING ENVIRONMENTAL SETTING

The following section describes the existing utilities, including water delivery infrastructure and supplies, wastewater conveyance and treatment, solid waste, and gas, electric, and telecommunications infrastructure.

Water Delivery Infrastructure and Available Supplies

The Diablo Water District (DWD) currently provides potable water service to the project area, including the project site.

Water Distribution Infrastructure

Along the southern boundary of the subject property, DWD maintains a 24-inch water line within the Burlington Northern Santa Fe (BNSF) railroad corridor. At the southwest corner of the subject property, the line extends northward to Wilbur Avenue, transitioning to a 10-inch line. Within Wilbur Avenue, the existing water line extends towards Bridgehead Road, where the line connects to a larger north-south oriented 12-inch line within the roadway. To the north, the 12-inch line connects to a line near the Antioch/Oakley Regional Park. To the south, the 12-inch line connects to an existing water line before looping to other DWD-maintained water conveyance infrastructure in Main Street to the south of the site. In addition to the public DWD-owned water lines, the project site contains numerous domestic and fire service connections that feed an existing private on-site water system. The extent of the private on-site water conveyance infrastructure is not well-documented.

Water Supply Sources

Per the DWD's 2015 UWMP, DWD's primary water supply for its distribution system is treated surface water from the United States Bureau of Reclamation's Central Valley Project (CVP) purchased from the Contra Costa Water District (CCWD). CVP water is conveyed through the

---

1 Diablo Water District. *Logistics Center – Development Agreement (DA 01-18), Rezone (RZ 08-18), Tentative Map (05-18) and Design Review (DR 12-18).* January 9, 2019.
2 Coleman Engineering. *Lift Station Recommendations, Oakley Logistics Center.* September 24, 2019
3 Diablo Water District. *2015 Urban Water Management Plan.* June 2016.
4 City of Oakley. *2020 General Plan.* February 2, 2016.
5 City of Oakley. *Oakley 2020 General Plan Environmental Impact Report.* 2002.

Contra Costa Canal and Los Vaqueros system, and treated at the Randall-Bold Water Treatment Plant (WTP) in Oakley, which is jointly owned by DWD and CCWD.

In addition, DWD has developed its own groundwater supply system to provide additional supply reliability. When fully implemented, groundwater may comprise up to 20 percent of DWD's total supply. Table 4.5-1 summarizes the current and projected available water supply from DWD's sources, presented in millions of gallons (MG).

Table 4.5-1
Current and Projected Available Water Supplies (MG)

Water Supply Source	2015	2020	2025	2030	2035	2040
Surface Water Purchased from CCWD	2,738	4,563	4,563	5,475	5,475	5,475
DWD Groundwater	672	924	924	1,176	1,176	1,176
Total Supply	3,410	5,487	5,487	6,651	6,651	6,651
Source: Diablo Water District, 2016.						

Surface Water Purchased from CCWD

DWD purchases CVP water from CCWD, its wholesale supplier, who has a contract with the U.S. Bureau of Reclamation for 195,000 acre-feet (AF) per year through February 2045. Raw surface water is supplied by way of the Contra Costa Canal, which can convey water either from Rock Slough in the Sacramento-San Joaquin River Delta, Los Vaqueros Reservoir, or CCWD's other intakes on Old River and Victoria Canal (near Middle River). The Contra Costa Canal is owned by the U.S. Bureau of Reclamation and operated by CCWD. The Los Vaqueros Reservoir is a 160,000-AF storage facility located approximately eight miles south of the City of Brentwood. Water to fill the reservoir comes from a pump station intake on Old River near SR 4 or Victoria Canal near Middle River.

The raw surface water from the Contra Costa Canal and/or Los Vaqueros Reservoir is treated at the Randall-Bold WTP in the City of Oakley. The Randall-Bold WTP is jointly owned by DWD and CCWD, and is operated and maintained by CCWD. DWD has a joint powers agreement with CCWD for 15-million gallons per day (mgd) of treated water from the Randall-Bold WTP, with the right to purchase additional capacity up to a total of 30 mgd. DWD intends to purchase additional treated surface water capacity from CCWD, when needed, as its primary supply for future development.

Per the 2015 UWMP, accommodating buildout of DWD's ultimate service area, including the project area, will require either purchase of additional excess capacity at the existing WTP, if any is available, or expansion of the existing WTP, which was initially designed and constructed with a capacity of 40 mgd and is expandable to 80 mgd. DWD's current capacity of 15 mgd from the Randall-Bold WTP provides an average day supply of 7.5 mgd (2,738 MG). A total of 30-mgd ultimate capacity for maximum day demand conditions will provide an average day supply of 15 mgd (5,475 MG). In accordance with current agreements, DWD must purchase additional supply in no larger than 5-mgd increments. It is anticipated that DWD will purchase a total of 7.5 mgd in additional capacity between 2020 and 2030 in order to meet demands and water quality blending goals for the groundwater system.

Groundwater

The groundwater supply system operated by DWD currently consists of groundwater from two wells in the City Oakley, conveyed in a dedicated well supply pipeline to a blending facility located near the Randall-Bold WTP.[6] Currently, the DWD operates with a total groundwater supply capacity of 4.0 mgd. by 2020, DWD expects to develop an additional 1.5 mgd in well capacity, with another 1.5 mgd provided by 2030. Ultimately, groundwater may provide up to 20 percent of DWD's overall water supply.

The groundwater wells operated by DWD overlie the northwestern portion of the Tracy Subbasin, which is part of the larger San Joaquin Valley Groundwater Basin. As noted in the 2015 UWMP, per the Department of Water Resources (DWR), the Basin is not adjudicated and is not currently in a state of overdraft. The DWR has not yet established a priority level for the Tracy Subbasin.[7]

Water Demand Projections

The 2015 UWMP includes water demand and connection projections for the DWD service area for 2020 through 2040 (see Table 4.5-2). The future demand projections are estimated based on the calculated number of non-residential connections per acre from available buildout land use planning information for the DWD service area, including the City of Oakley General Plan. Linear interpolation was used to determine the number of connections at five-year intervals from 2015 to 2040, which assumes a constant growth rate from 2015 to buildout in 2040.

Table 4.5-2
Existing and Projected Water Deliveries (MG)

Water Use Sector	2015	2020	2025	2030	2035	2040
Industrial	<1	73	146	219	292	365
Total Water Demand	1,492	2,263	3,036	3,805	4,578	5,349

Source: Diablo Water District, 2016.

Buildout of the project site, which is currently designated Light Industrial (LI), Utility Energy (UE), and Business Park (BP) per the City's General Plan, was included in the demand projections. Specifically, the 2015 UWMP assumed development of the site with a large heavy industrial user to replace the former Dupont chemical manufacturing facility. As shown in the table above, metered industrial water demand for 2015 was negligible within the DWD service area. Development of new industrial uses outside of the project site is not currently anticipated by DWD. Thus, the 365 MG of industrial water demand projected for 2040 would be primarily attributed to full buildout of the project site.

Water Supply Availability

A comparison of projected water supply and demand during normal, single-dry, and multiple-dry years is included in Table 4.5-3 below, as adapted from the 2015 UWMP. Results of the comparisons show surpluses of water supply compared with demand all conditions. As shown in the table, DWD has adequate supply sources to meet future needs under all conditions.

6 Diablo Water District. *Final 2015 Urban Water Management Plan [pg. 4-5].* June 2016.
7 California Department of Water Resources. *Sustainable Groundwater Management Act 2018 Basin Prioritization* [Table A-1]. January 2019.

Table 4.5-3
Summary of Water Demand Versus Supply During Hydrologic Normal, Single Dry, and Multiple Dry Years (MG)

		2020	2025	2030	2035	2040
Normal Year						
Total Water Supply		5,487	5,487	6,651	6,651	6,651
Total Water Demand		2,263	3,036	3,509	3,986	4,462
Surplus/Deficit		**+3,224**	**+3,224**	**+3,142**	**+2,665**	**+2,189**
Single Dry Year						
Total Surface Water Supply		5,487	5,487	6,651	6,651	6,651
Total Water Demand		2,263	3,036	3,805	4,578	5,349
Surplus/Deficit		**+3,224**	**+3,224**	**+3,142**	**+2,665**	**+2,189**
Multiple Dry Years						
First Year	Total Water Supply	5,487	5,487	6,651	6,651	6,651
	Total Water Demand	2,263	3,036	3,509	3,986	4,462
	Surplus/Deficit	**+3,224**	**+3,224**	**+3,142**	**+2,665**	**+2,189**
Second Year	Total Water Supply	5,487	5,487	6,651	6,542	6,323
	Total Water Demand	2,263	3,036	3,509	3,986	4,462
	Surplus/Deficit	**+3,224**	**+3,224**	**+3,142**	**+2,555**	**+1,860**
Third Year	Total Water Supply	5,030	5,030	6,104	5,994	5,830
	Total Water Demand	2,263	3,036	3,509	3,686	4,462
	Surplus/Deficit	**+2,767**	**+1,994**	**+2,594**	**+2,008**	**+1,368**

Note: Projected water demands for each hydrologic condition account for demand reductions needed to maintain an urban water use target of 163 gpd after 2020. The required reductions for are as follows: 296 MG for 2030; 592 MG for 2035, and 887 MG for 2040.

Source: Diablo Water District, 2016.

Water Shortage Contingency Planning

As part of the 2015 UWMP, DWD has considered possibilities of shortage and outages that could affect water supply. Water shortage contingency planning includes actions to be implemented during a catastrophic interruption of water supplies including, but not limited to, regional power outage, earthquake, fire, flooding, or other disasters. The 2015 UWMP contains a draft Water Shortage Contingency Plan that can be tailored by DWD to meet specific drought or emergency conditions that may occur in the future. The purpose of the Water Shortage Contingency Plan is to be prepared to impose temporary demand reductions in case available supply falls below the planned levels discussed in the UWMP. The draft Water Shortage Contingency Plans addresses both short-term and long-term water supply outages.

Water Quality

Water quality supplies are tested by DWD daily, weekly, monthly, and annually. Once a year, DWD issues the Annual Consumer Confidence Report, which includes reported water testing results. As noted previously, the DWD's water supplies are treated at the Randall-Bold WTP in the City of Oakley.

Wastewater Conveyance and Treatment

Ironhouse Sanitary District (ISD) provides sanitary sewer collection and treatment for the project area, including the project site. Per the *Sanitary Sewer Management Plan*, the ISD maintains 125 miles of collection system pipelines and 15.9 miles of force main pipelines, as well as 34 sewer lift stations.[8] The ISD owns and operates a 4.3 mgd Wastewater Treatment Plant (WWTP) located at 450 Walnut Meadows Drive in the City of Oakley.

ISD operates the existing Lauritzen Sewer Pump Station in Lauritzen Lane at the north edge of the site. From the pump station, a sewer force main in Lauritzen Lane and Bridgehead Road connects to a short section of gravity sewer piping near the off-site mobile home park. The gravity piping flows to the existing Bridgehead Sewer Pump Station near the north edge of the existing Arco AM/PM shopping center at Bridgehead Road before ultimately reaching the ISD WWTP. In addition, within the project site, existing sewer lines likely connect the Administration Building to either the Lauritzen Pump Station or the sewer force main in Bridgehead Road; however, the system is not well-documented. Other on-site wastewater flows including contaminated groundwater are collected in a central collection area and trucked off-site for disposal.

Solid Waste

Solid waste collection services within the City of Oakley are provided under a franchise agreement with Mt. Diablo Resource Recovery. Mt. Diablo Resource Recovery provides both solid waste pickup and recycling pickup for commercial businesses within the City, as well as processing of demolition and recycling waste.

The solid waste collected by Mt. Diablo Resource Recovery is hauled to the Recycling Center and Transfer Station (RCTS) in Pittsburg, which is operated by Contra Costa Waste Service. Residential, commercial, and industrial waste is processed at this transfer facility and the residual material is hauled to Potrero Hills Landfill (PHLF) located in Solano County to the north.[9]

In 2008 a Construction and Demolition sort line was designed and installed at RCTS which diverts in excess of 90 percent of all construction and demolition material. Since then, the facility diversion has increased to over 40 percent of all incoming materials, assisting the Contra Costa County and Solano County jurisdictions in meeting and exceeding their Assembly Bill (AB) 939 goals, AB 341 goals and AB 1826 goals.[10]

Per the most recent Joint Technical Document prepared for the facility, as of March 18,2016, the PHLF had a remaining effective capacity of approximately 54.6 million cubic yards, or approximately 69 percent of the facility's total available capacity of 78.9 million cubic yards. Based on anticipated future refuse to be received at the facility, the site life of the PHLF is estimated to extent to approximately 2048.[11]

Gas and Electricity Infrastructure

Natural gas and electricity service within the City of Oakley is provided by the Pacific Gas & Electric Company (PG&E). PG&E is a San Francisco based, private company, publicly regulated by the California Public Utilities Commission and provides electricity and natural gas to the majority of Northern California. PG&E's long-range plans provide for availability of service to accommodate increased demand associated with projected growth.

8 Ironhouse Sanitation District. *Sewer System Management Plan* [pg. I-3]. April 2017.
9 City of Oakley. *2020 General Plan* [pg. 4-20]. February 2, 2016.
10 Mount Diablo Resource Recovery. *About Us.* Available at: https://mdrr.com/about/. Accessed July 2019.
11 Golder Associates. *Joint Technical Document, Potrero Hills Landfill* [pg. 12]. July 2017.

Currently, electricity and natural gas lines are located within a utility easement along portions of the northern and western boundaries of the project site. In addition, multiple gas lines are located within Bridgehead Road to the west of the project site.

4.5.3 REGULATORY CONTEXT

The following discussion contains a summary review of regulatory controls pertaining to utilities and service systems, including federal, State, and local rules and regulations.

Federal Regulations

The following are the federal environmental laws and policies relevant to utilities and service systems.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit system was established in the federal Clean Water Act (CWA) to regulate municipal and industrial discharges to surface waters of the U.S. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that the Environmental Protection Agency (EPA) must consider in setting effluent limits for priority pollutants.

Safe Drinking Water Act

The federal Safe Drinking Water Act (SDWA), which was enacted in 1974, gives the U.S. EPA the authority to set standards for contaminants in drinking water supplies. The EPA was required to establish primary regulations for the control of contaminants that affected public health and secondary regulations for compounds that affect the taste, odor, and aesthetics of drinking water. Accordingly, the U.S. EPA set a maximum contaminant level or treatment technique for each of the 83 contaminants in drinking water listed in the SDWA. Under the provisions of SDWA, the California Department of Health Services (DHS) has the primary enforcement responsibility. Title 22 of the California Administrative Code establishes DHS authority, and stipulates State drinking water quality and monitoring standards.

State Regulations

The following are the State environmental laws and policies relevant to utilities and service systems.

California Green Building Code

The California Building Code (CBC) contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The CBC is adopted every three years by the Building Standards Commission (BSC). The 2016 California Green Building Standards Code, otherwise known as the CALGreen Code, is the most recent version of the code. In addition to the new State-wide mandates, CALGreen encourages local governments to adopt more stringent voluntary provisions, known as Tier 1 and Tier 2 provisions, to further reduce air pollutant emissions, improve energy efficiency, and conserve natural resources. If a local government adopts one of the tiers, the provisions become mandates for all new construction within that jurisdiction. The most significant features of the CALGreen Code related to public services and utilities include the following:

- Mandatory reduction in indoor water use, through the use of high-efficiency toilets, faucet aerators and other fixtures;
- Diversion of 50 percent of construction waste from landfills, increasing voluntarily to 65 and 75 percent for new homes; and
- Mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particle board.

The 2019 CALGreen Code was published on July 1, 2019 and will take effect on January 1, 2020. The updated code will provide more stringent energy efficiency requirements for new commercial and industrial development,

Assembly Bill 1881

Assembly Bill (AB) 1881, the Water Conservation in Landscaping Act of 2006 required the Department of Water Resources (DWR) to update the Model Efficient Landscape Ordinance. Furthermore, AB 1881 required local agencies to adopt the updated model ordinance or an equivalent ordinance by January 1, 2010. If local jurisdictions failed to adopt the updated model ordinance or an equivalent by January 1, 2010, the DWR's updated model ordinance would automatically be adopted by statute. Chapter 31 of the City of Oakley Municipal Code includes the City's adopted Water-Efficient Landscape Requirements.

Sustainable Groundwater Management Act (SGMA)

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package, composed of AB 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley), collectively known as the SGMA. For the first time in its history, California was provided with a framework for sustainable, groundwater management - "management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results."

The SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, such basins should reach sustainability within 20 years of implementing sustainability plans. For critically over-drafted basins, the deadline year is set at 2040. For the remaining high- and medium-priority basins, 2042 is the deadline. Through the Sustainable Groundwater Management Program, DWR provides ongoing support to local agencies through guidance and financial and technical assistance. SGMA empowers local agencies to form Groundwater Sustainability Agencies (GSAs) to manage basins sustainably and requires such GSAs to adopt Groundwater Sustainability Plans (GSPs) for crucial groundwater basins in California.

In 2007, DWD voluntarily adopted a Groundwater Management Plan for the Tracy Subbasin according to the procedures outlined in the SGMA.[12] The purpose of the Groundwater Management Plan is to provide a management framework for maintaining a high quality, reliable, and sustainable supply of groundwater from the Tracy Subbasin within DWD's sphere of influence. As noted in the 2015 UWMP, DWD intends to manage groundwater conjunctively with its surface water resources and support basin management objectives (BMOs) directed toward the sustainability of groundwater supplies on regional and local scales (e.g., groundwater basin and subbasin).[13] Groundwater management involves coordinated actions related to groundwater

12 Diablo Water District. *Groundwater Management Plan for AB 3030.* May 2007.
13 Diablo Water District. *Final 2015 Urban Water Management Plan.* June 2016.

withdrawal, replenishment, and protection to achieve long-term sustainability of the resource without detrimental effects on other resources and the environment. The Groundwater Management Plan sets forth the framework and related actions necessary to accomplish DWD's purposes while satisfying regional BMOs.

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code Sections 10610 – 10656). The Act requires that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually shall prepare and adopt an UWMP within a year of becoming an urban water supplier and update the plan at least once every five years. The Act specifies the content that is to be included in an UWMP, and states that urban water suppliers should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry-years. The Act also states that the management of urban water demands and the efficient use of water shall be actively pursued to protect both the people of the State and their water resources.

California Integrated Waste Management Act - Assembly Bill 939

To minimize the amount of solid waste that must be disposed of by transformation (i.e., recycling) and land disposal, the State Legislature passed the California Integrated Waste Management Act of 1989 (AB 939), effective January 1990. According to AB 939, all cities and counties are required to divert 25 percent of all solid waste from landfill facilities by January 1, 1995, and 50 percent by January 1, 2000. Solid waste plans are required to explain how each city's AB 939 plan will be integrated within the respective county plan. The plans must promote (in order of priority) source reduction, recycling and composting, and environmentally safe transformation and land disposal. Cities and counties that do not meet this mandate are subject to $10,000-per-day fines.

Senate Bill 1016

In 2007, SB 1016 amended portions of AB 939, which allows the California Integrated Waste Management Board (CIWMB) to use per capita disposal as an indicator in evaluating compliance with the requirements of AB 939. Jurisdictions track and report their per capita disposal rates to CalRecycle.

AB 341 (2011) also established a statewide recycling goal of 75 percent; the 50 percent disposal reduction mandate still applies for cities and counties under AB 939 (1989). This law also requires certain businesses to recycle. To comply with this requirement, businesses may separate their recyclables and self-haul them to a recycling facility, recycle on-site, or subscribe to a mixed waste process service that diverts recyclables.

Assembly Bill 1826

AB 1826 (2014) requires certain business, beginning in 2016, to recycle their organic waste. The law also requires jurisdictions to develop and implement an organics recycling program. To comply with this requirement, businesses may separate their organic waste and self-haul it to an organics recycling facility, recycle on-site, or subscribe to a service that recycles organic waste.

Senate Bill 605

SB 605 (2014) directed the California Air Resources Board (CARB) to develop a comprehensive Short-Lived Climate Pollutant (SLCP) strategy in coordination with CalRecycle and other state and local agencies to reduce statewide emissions of SLCPs. SB 1383 (2016) directed the CARB to approve and start implementing the SLCP strategy by 2018. Since methane is a SLCP produced from the decomposition of organic waste in landfills, the bill established targets to achieve a statewide 50-percent reduction in the level of the disposal of organic waste from the 2014 level by 2020, a 75-percent reduction in the level of the disposal of organic waste from the 2014 level by 2025, and no less than 20 percent recovery of edible food currently disposed by 2025. The bill required CalRecycle, in coordination with the CARB, to adopt regulations to achieve the organic waste reduction targets. The CARB approved a Short-Lived Climate Pollutant Strategy in 2017. CalRecycle is currently developing regulations.

Local Regulations

The following local standards and regulations are applicable to the proposed project.

City of Oakley General Plan

The following goals and policies related to utilities and service systems from the City of Oakley General Plan are applicable to the proposed project.

Goal 4.7 — Promote and seek to assure the provision of safe, efficient, and cost-effective removal of waste from residences, businesses, and industry.

- Policy 4.7.1 — Promote the reduction of the amount of waste disposed of in landfills by: 1) reducing the amount of solid waste generated (waste reduction); 2) reusing as much of the solid waste as possible (recycling); 3) utilizing the energy and nutrient value of the solid waste (waste to energy and composting); and 4) properly disposing of the remaining solid waste (landfill disposal).
- Policy 4.7.2 — Support the diversion of as much waste as feasible from landfills through recovery and recycling.
- Policy 4.7.5 — Consider solid waste disposal capacity in land use planning and permitting activities, along with other utility requirements, such as water and sewer service.

Goal 4.8 — Assure the provision of potable water availability in quantities sufficient to serve existing and future residents.

- Policy 4.8.1 — Coordinate future development with all water agencies to ensure facilities are available for proper water supply.
- Policy 4.8.4 — Ensure that new development pays the costs related to the need for increased water system capacity.
- Policy 4.8.5 — Ensure that water service systems be required to meet regulatory standards for water delivery, water storage, and emergency water supplies.
- Policy 4.8.12 — Reduce the need for water system improvements by encouraging new development to incorporate water conservation measures to decrease peak water use.

- Program 4.8.A — At the project approval stage, the City shall require new development to demonstrate that adequate water quantity and quality can be provided. The City shall determine whether 1) capacity exists within the water system if a development project is built within a set period of time, or 2) capacity will be provided by a funded program or other mechanism. This finding will be based on information furnished or made available to the City from consultations with the appropriate water agency, the applicant, or other sources.

Goal 4.9 Assure the provision of sewer collection, treatment and disposal facilities that are adequate to meet the current and projected needs of existing and future residents.

Policy 4.9.1 Coordinate future development with the Ironhouse Sanitary District to ensure facilities are available for proper wastewater disposal.

Policy 4.9.4 Reduce the need for sewer system improvements by requiring new development to incorporate water conservation measures, which reduce flows into the sanitary sewer system.

Program 4.9.A Require new development to pay its fair share of the cost of on- and off-site infrastructure. This shall include installation of necessary public facilities, payment of impact fees, and participation in a Capital Improvement Program.

Program 4.9.D At the project approval stage, require new development to demonstrate that wastewater treatment capacity can be provided. The City shall obtain assurance that 1) capacity exists within the wastewater treatment system if a development project is built within a set period of time, or 2) capacity will be provided by a funded program or other mechanism. This finding will be based on information furnished or made available to the City from consultations with the Ironhouse sanitation District, the applicant, or other sources.

4.5.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology utilized to analyze and determine the proposed project's potential impacts related to utilities and service systems. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, determination of significant impacts is based on whether the proposed project would result in the following:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;

- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or
- Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

The proposed project's potential impacts associated with construction/expansion of stormwater drainage facilities are addressed in Chapter 4.3, Hydrology and Water Quality, of this EIR.

Method of Analysis

Determinations of the significance of the proposed project's impacts were made based on the project's modifications to existing or planned utilities, and the ability of the existing utilities to accommodate the proposed project, using the above significance criteria.

Water Supply and Conveyance

Projected water demand associated with the proposed project was evaluated by the DWD based on the historical consumption at the former DuPont Facility. The 2015 UWMP prepared for the DWD was used to determine the adequacy of existing water supplies for the proposed project and future anticipated demand.

Wastewater Treatment and Conveyance

The Sanitary Sewer Memo prepared for the proposed project by Coleman Engineering was used to evaluate the options of the proposed project to convey wastewater from the project site into the existing gravity sewer collection system on SR 4 operated by ISD, as well as the size and capacity required by the proposed new pump station.

Policies regarding sewers are found in Section 6.7 of the City of Oakley Municipal Code. Additionally, Coleman Engineering consulted with ISD for specific flow rates and capacities. Sanitary sewer flows are characterized by a diurnal curve, where flows tend to be low during early morning hours, at maximum sometime in the morning, and at maximum again in the afternoon/evening hours. In addition, sewer flows increase during wet weather as groundwater and rain water leaks into the system. Such leakage is termed inflow and infiltration (I/I). Groundwater (infiltration) seeps into sewer pipes through holes, cracks, joint failures, and faulty connections. Stormwater (inflow) rapidly flows into sewers by way of roof drain downspouts, foundation drains, storm drain cross-connections, and holes in manhole covers. Most I/I is caused by aging infrastructure that requires maintenance or replacement.
Design flow calculations were based on equivalent sizing units per 1,000 sf. Three options were evaluated within the memo to determine the most efficient and effective method for wastewater treatment and conveyance:

1. Pump into the existing Lauritzen Pump Station;
2. Pump from the project site to the existing Lauritzen Force Main Pipeline on Bridgehead Road; and

3. Pump from the project site directly to the Bridgehead Pump Station using a new project-specific Force Main Pipeline.

Solid Waste

Solid waste generated by the proposed project was estimated and considered with respect to the anticipated capacity at the solid waste facilities that would serve the proposed project. Sources of solid waste generation for the proposed project include demolition waste, construction material waste, and waste associated with long-term operations at the proposed facility.

Natural Gas and Electricity

The natural gas and electricity demand of the proposed project were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 software. As discussed in further depth in Chapter 4.1, Air Quality and Greenhouse Gas Emissions, of this EIR, CalEEMod provides a standardized platform for the estimation of air quality emissions within California. To calculate air quality emissions, CalEEMod estimates the amount of natural gas and electricity that operation of a proposed project would demand. CalEEMod outputs are included as Appendix D to this EIR.

Project Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in comparison with the standards of significance identified above.

4.5-1 Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. Based on the analysis below, the impact is *less than significant*.

The following sections include analysis of potential environmental effects related to physical relocation or construction of water supply, wastewater treatment, and electric, natural gas, and telecommunications utilities necessary to serve the proposed project.

Water Supply Infrastructure

Currently, DWD operates an existing 24-inch water line in the railroad corridor along the southern boundary of the site. The 24-inch water line leaves the railroad corridor and extends to Wilbur Avenue, transitioning to a 10-inch line beneath the road. The line then extends north and ties to an existing line near the Antioch/Oakley Regional Shoreline. Additionally, the site contains a series of formerly privately-operated water lines.

As part of the proposed project, the private on-site water system would be removed completely. In addition, a portion of the existing DWD 24-inch line conflicts with the location of proposed Building 1 (the most southwesterly) and would be relocated east, under the proposed public street. Per DWD standards, any waterline serving more than one building must be owned and operated by DWD and each building must have its own metered potable water service. DWD facilities must be in public right of way or within an easement granted to DWD. Accordingly, the relocated water line in the extension of Wilbur Avenue and C Street would be owned and operated by DWD, as would any water lines within A Street and B Street. From the DWD lines, individual services to Buildings 1 through 5 would be privately owned and operated. Figure 3-7 in Chapter 3 of this EIR provides an overview of the proposed utility improvements.

On-site fire hydrants would be served by a private fire loop within the drive aisles and parking areas and would be spaced to meet Fire Code requirements. Fire services would be sized to meet demand requirements calculated for each individual building and use. Additionally, the East Contra Costa Fire Protection District would review the proposed site plan and ensure that the current and proposed water conveyance infrastructure would be sufficient to serve the project site.

The proposed project would not necessitate the expansion of the existing DWD-owned water supply lines that would serve the project site. As noted above, the project would include relocation of an existing water line and construction of new private water supply infrastructure within the site, which would involve trenching and other ground-disturbing activity; however, off-site water utility improvements would not be required. Potential environmental effects associated with such ground-disturbing activities are analyzed throughout this EIR.

Wastewater Infrastructure

Development of the proposed project would include construction of a new six-inch sanitary sewer line that would extend from the beginning of Wilbur Avenue to the end of the cul de sac and then move south to service Buildings 1 and 2. The sewer lines would flow to a new lift station located on the north side of Wilbur Avenue. All lines within the project site would be sized to accommodate the flows generated by each building and use.

Per the Sanitary Sewer Memo written for the proposed project, three options were evaluated to determine the best wastewater conveyance plan. Two of the options would include connection to the Lauritzen and Bridgehead Pump Stations. However, both options would require sizable upgrades to all systems and would be environmentally intensive. Thus, the third option evaluated in the Memo would be implemented with development of the project site.

As part of the proposed project, a new pump station would be constructed on the project site within Wilbur Avenue, and would be known as the Oakley Logistics Center Pump Station. In addition, a new six-inch force main would connect to the pump station and extend approximately 2,500 feet south, along Bridgehead Road, and connect to the Bridgehead Pump Station. The new Oakley Logistics Center Force Main would parallel the existing Laurtizen Force Main in Bridgehead Road. Construction of the new pump station and force main would not have any effect on the existing Lauritzen Pump Station or Force Main.

However, the increased flow from the project site to the Bridgehead Pump Station would require the pump to operate more frequently and process at least 454 gallons per minute (gpm) in order to convey the anticipated peak flows from the upstream sewer sheds. At the current flow rate, the existing pumps would not be able to accommodate the increased flows from the project site. Thus, the pumps at the

Bridgehead Pump Station would require upgrading, as well as a new epoxy coating in the wet well. Additionally, considering the additional flows from the project site, the velocity would be too high for any additional flow to be added to the existing four-inch Bridgehead Force Main. Thus, the proposed project includes replacement of the existing main with a six-inch pipeline.

Construction of the new Oakley Logistics Center Force Main would occur within previously disturbed areas in or adjacent to existing roadways, and would not permanently degrade the existing environmental setting. Potential impacts related to criteria and pollutant and greenhouse gas (GHG) emissions associated with the sewer improvements are analyzed in Chapter 4.1, Air Quality and Greenhouse Gas Emissions. In addition, potential biological impacts associated with the sewer improvements are analyzed in Chapter 4.2. All proposed sewer improvements are presented in Figure 4.5-1 below.

Electricity, Natural Gas, and Telecommunications

Electricity and natural gas services within the project area are provided by PG&E. The proposed project would include installation of new connections to the existing electrical and gas lines located within Bridgehead Road. The project site currently contains easements for gas pipe lines at the north and south borders of the project site. New easements would be created for any new improvements required to serve the project.

Conclusion

Based on the above, the proposed on-site water system improvements would meet the minimum design standards of the City of Oakley and DWD. While construction of the wastewater conveyance system would require construction of a new pump station and force main as well as improvements to existing wastewater infrastructure, the construction and expansion of such has been analyzed as part of the proposed project.

Therefore, the proposed project would have a ***less-than-significant*** impact related to requiring or resulting in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

Mitigation Measure(s)

None required.

4.5-2 Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. Based on the analysis below, the impact is *less than significant*.

As noted previously, the 2015 UWMP assumed development of the project site with a large heavy industrial user to replace the former Dupont chemical manufacturing facility. The UWMP included up to 1.1 mgd of water consumption at the former DuPont location. Since 2015, long-term, significant supply issues have not arisen that would impact the District's ability to serve the project site.

Figure 4.5-1
Proposed Sewer Improvements

Additionally, the estimated water consumption for the proposed project is significantly lower than the demands estimated in 2015. Thus, per a Memo from the DWD, the District has sufficient water supplies available to serve the project.[14]

Under the current General Plan land use and zoning designations, full buildout of the project site could include up to 1,985,304 sf of industrial uses. Based on the 2015 UWMP, industrial land uses require the smallest percentage of water amongst other land uses. For comparison, single-family residential uses are projected to require 1,475 MG of water in the year 2020 while industrial uses are projected to need 73 MG.

Given the relatively small amount of water required for industrial uses, that the UWMP has accounted for buildout of an industrial land use on the project site, and because the DWD has confirmed that water supplies would be sufficient to serve the project site, the proposed project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

4.5-3 Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. Based on the analysis below, the impact is *less than significant.*

As discussed above, the proposed project would construct new sanitary sewer lines on the project site with connection to a new sewer pump station and force main. The average peak flows of the proposed project were calculated by Coleman Engineering in the Sanitary Sewer Memo and are listed in Table 4.5-4 below. The calculations include a measurement of an equivalent service unit (ESU) per 1,000 sf based on 2,187,324 sf. Since preparation of the Sanitary Sewer Memo, the proposed project square footage has been reduced to 1,985,304 sf. Thus, the analysis presented herein is conservative.

Table 4.5-4
Anticipated Design Flows

ESU/1,000 sf	gpd/ESU	Peaking Factor	GWI (gpm)	Peak Flow (gpm)
0.25	195	3.5	15	274
Source: Coleman Engineering, 2019				

An ESU is described as a measurement unit based on impervious surface area of an average improved lot or parcel, determined by a statistically significant sampling of such parcels. Additionally, the Memo calculated the gallons per day (gpd) per ESU in order to determine the estimated wastewater flows per day at the project site based

[14] Diablo Water District. *RE: Logistics Center – Development Agreement (DA 01-18), Rezone (RZ 08-18), Tentative Map (05-18), and Design Review (DR 12-18).* January 9, 2019.

on the impervious surface area. Groundwater infiltration (GWI) was also evaluated in order to determine the extraneous groundwater flows which would be processed by pump stations and force mains within the City. Finally, all calculations were used to determine the peak flow rate of wastewater produced by the project site which would contribute to the City's overall wastewater system.

Based on the table above, the proposed project would result in a peak flow of 274 gpm. Thus, the pump station which wastewater would be directed must be able to accommodate an increase in 274 gpm. As discussed above, the Lauritzen Pump Station to the north of the project site is currently at full capacity during wet weather. Additionally, the Bridgehead Pump station has an approximate average flow of 180 gpm. Because neither of the existing pump stations in the vicinity of the project area able to accommodate flows of 274 gpm from the project site, the proposed project would include construction of a new pump station on the project site, as well as connection and construction of a new force main, which would direct wastewater flows to the Bridgehead Pump Station. The new force main would be four-inches in diameter in order to process the 274 gpm from the pump station at a velocity of 7.0 feet per second. With construction of the new pump station and connecting force main, the proposed project would result in adequate capacity for wastewater conveyance.

In addition to the construction of new infrastructure, the proposed project would upgrade both the Bridgehead Pump Station and the Bridgehead Force Main. The Bridgehead Pump Station would be upgraded to accommodate at least 454 gpm of wastewater in order to convey the anticipated peak flows from the upstream sewer sheds. The Bridgehead Force Main would also be upgraded to six-inches.

Based on the above anticipated flow rate from the project site, the proposed project would require construction of a new pump station and force main as well as upgrades to the existing Bridgehead Pump Station and Force Main. Thus, upon buildout of the proposed project, the Sanitary Sewer Memo has determined that the project would result in a determination by the wastewater treatment provider that adequate capacity to serve the project's projected demand in addition to the provider's existing commitments exists. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.5-4 Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste. Based on the analysis below, the impact is *less than significant*.

The proposed project would generate solid waste associated with demolition and construction activities as well as from future operations of the proposed development. Construction debris would be disposed of in accordance with applicable federal, State, and local regulations and standards. As discussed previously, solid waste collection services would be provided by the City of Oakley in coordination with Oakley Disposal, Inc. and Mt. Diablo Recycling. Solid waste collected by Oakley Disposal is hauled to the RCTS in Pittsburg, which is operated by Contra Costa Waste Service. Residential, commercial, and industrial waste is processed at the transfer facility and the residual material is hauled to the PHLF located in Solano County to the north. As stated above, the PHLF has remaining effective capacity of approximately 54.6 million cubic yards, or approximately 69 percent of the facility's total available capacity of 78.9 million cubic yards. The total acreage of the Landfill is approximately 525 acres, with a disposal acreage of 340 acres. The most recent solid waste permit was issued for the Landfill on February 14, 2012. According to the Permit, the estimated closure date is 2048.[15]

The proposed project consists of the demolition of two existing on-site structures totaling approximately 14,418 sf and subsequent development of an approximately 1,985,304 sf of total building area, parking areas, and various associated improvements. The demolition and activity would generate debris, which could create a short-term impact on solid waste disposal, while operations associated with the proposed facilities would generate additional waste over the long-term life of the project.

The U.S. EPA's report, *Estimating 2003 Building-Related Construction and Demolition Materials Amounts*, was used to estimate the amount of waste that would be generated by construction activities. The EPA estimates that non-residential construction generates an average of 4.34 lbs/sf, while non-residential demolition generates an average of 158 lbs/sf.[16] The proposed project would therefore be expected to generate approximately 8,616,219 lbs of construction waste (1,985,304 sf x 4.34 lbs/sf) and approximately 2,278,044 lbs of demolition waste (14,418 sf X 158 lbs/sf). Thus, the proposed project would be anticipated to generate a total of 10,894,263 lbs, or approximately 5,447 tons, of waste during demolition and construction activities.

The construction and demolition debris estimate presented above represents a conservative analysis of the maximum potential waste production from the construction and demolition process. The City of Oakley Municipal Code requires at least 50 percent diversion of construction and demolition waste for projects. As such, a minimum of 2,770 tons of waste would be diverted away from landfill disposal during construction and demolition. Considering the applicable Municipal Code requirements, the proposed project would be anticipated to contribute approximately 2,770 tons of waste. Construction and demolition waste generation represents a short-term increase in waste generation and all disposal of construction and demolition debris would adhere to the requirements set forth throughout Section 4.20 of the Municipal Code. Therefore, waste from construction and demolition associated with the project would not violate any City policies or exceed the allowable disposal limit at the PHLF.

Long-term operation of the proposed project would produce solid waste that would be collected by the City of Oakley and taken to the RCTS and eventually hauled to the

---

15 Solano County Department of Resource Management. *Solid Waste Facility Permit (Potrero Hills Landfill).* February 14, 2012.

16 U.S. Environmental Protection Agency. *Estimating 2003 Building-Related Construction and Demolition Materials Amounts.* 2009.

PHLF. Solid waste generated by the project site would be typical of an industrial use. The City's General Plan EIR analyzed solid waste impacts with development of the City and determined that the policies implemented in the General Plan will ensure that the production of waste does not strain solid waste and recycling services. The proposed project would adhere to all applicable policies in the General Plan, including 4.7.1, which requires projects promote the reduction of the amount of waste disposed of in landfills by reducing, recycling, composting, and properly disposing of solid waste.

Based on the above, solid waste generated from the construction and operation of the proposed project would not exceed the permitted capacity of the RCTS or PHLF; as a result, impacts related to increased demand for solid waste disposal services would be ***less-than-significant***.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, "cumulative impacts" refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

4.5-5 Increase in demand for utilities and service systems associated with the proposed project, in combination with future buildout of the City. Based on the analysis below, the project's incremental contribution to this significant cumulative impact is *less than cumulatively considerable*.

Implementation of the proposed project would contribute to an increased demand for public services and utilities in the City of Oakley and the region. The impacts of such demand is discussed below.

Water

Implementation of the proposed project would contribute to an increased demand for public services and facilities in the DWD region and the City's future water demand is anticipated to continue to increase as approved projects build out and new developments are approved and constructed within the DWD's water service area. The DWD currently has an extensive water shortage contingency plan in place, as described in the 2015 UWMP. Based on the 2015 UWMP, the DWD anticipates surplus supply for the demand of water in the District.

Development of the project site has been anticipated and analyzed by the UWMP and the City's General Plan. Both analyses have taken into account concurrent growth with development of the proposed project and determined that water supplies are sufficient to serve the project site.

Wastewater

As described above, the Sanitary Sewer Memo identified the best option for the proposed project's wastewater conveyance system. Based on the Memo, development of the project would include construction of a new sanitary sewer pump station on the project site as well as connection to and construction of a new force main which would extend approximately 2,500 feet south along Bridgehead Road to the Bridgehead Pump Station. Based on the current flow rate and projection of future wastewater directed to the Bridgehead Pump Station, the Memo determined that the existing capacity of the pump station would not be sufficient to meet the project demands. Thus, the proposed project would also include upgrades to the Bridgehead Pump Station and expansion of the Bridgehead Force Main to a six-inch pipeline.

Based on the above, the construction of new on-site sewer conveyance infrastructure and the improvements to existing infrastructure would ensure that the proposed project would not increase the demand for services in combination with future buildout of the City above what has been anticipated by the City's General Plan.

Solid Waste

The PHLF is expected to have adequate capacity to serve the regional waste disposal needs until the anticipated closure date of approximately 2048. Similar to water supply demands, as standards and regulations regarding solid waste reduction and recycling programs become more stringent, the overall demand for solid waste disposal services would likely reduce compared to baseline conditions. Furthermore, Oakley's General Plan EIR concluded that impacts related to solid waste would be less than significant with implementation of Goal 4.7 mentioned above. Potential future development within the City would be required to comply with all applicable General Plan policies, which would encourage recycling and reduce construction waste during development of the project. As discussed above, development of the project site with an industrial center has been anticipated in the General Plan EIR and thus, solid waste production at the site has been analyzed. Upon development of the proposed project, all relevant goals and policies set forth by the City and County would be applied.

Electricity and Natural Gas

The proposed project would result in energy consumption in the form of electricity and natural gas for interior and exterior building lighting, heating, ventilation, and air conditioning (HVAC), electronic equipment, machinery, refrigeration, appliances, security systems, and more. In addition, maintenance activities during operations, such as landscape maintenance, would involve the use of electric or fueled equipment. The proposed project site is located adjacent to other existing development to the north that are currently supplied electricity and natural gas services by PG&E. The project site would connect to existing PG&E utility lines in the project vicinity.

Electricity and natural gas demand associated with the proposed project were estimated using California Emissions Estimator Model (CalEEMod). Operational energy use associated with the proposed project based on CalEEMod outputs is anticipated to be 30.1 GWh/yr. For comparison, the Countywide consumption of electricity in 2018 totaled 9,308 GWh. As such, the proposed project would account for 0.0032 percent of the County's total electricity use. Additionally, the project's natural gas consumption would total approximately 0.358 million therms/yr. The

Countywide consumption of natural gas in 2018 was 1,124 million therms. Thus, the project would account for 0.0003 percent of the County's total usage.

Based on the above, the proposed project's incremental increase in electricity and natural gas consumption would not result in a cumulative increase in demand for electricity or natural gas in combination with future buildout of the City.

Conclusion

Based on the above, adequate water supplies exist to accommodate cumulative growth within the City, including the increased demand due to operation of the proposed project. In addition, the project would include construction of new wastewater conveyance infrastructure in order to accommodate the increased flows. The project would not result in any significant cumulative impacts related to necessary expansion of electrical and natural gas infrastructure. Thus, the project's impact would be minimized to the maximum extent feasible such that the project's incremental contribution to the significant cumulative impact would be ***less than cumulatively considerable***.

Mitigation Measure(s)

None feasible.

5. Statutorily Required Sections

5. Statutorily Required Sections

5.1 INTRODUCTION

The Statutorily Required Sections chapter of the Draft EIR includes discussions regarding those topics that are required to be included in an EIR, pursuant to CEQA Guidelines, Section 15126.2. The chapter includes a discussion of the proposed project's potential to induce growth. In addition, the chapter includes lists of significant irreversible environmental changes, cumulative impacts, and significant and unavoidable impacts caused by the proposed project.

5.2 GROWTH-INDUCING IMPACTS

An EIR must discuss the ways in which a proposed project could foster economic or population growth in the vicinity of the project and how that growth would, in turn, affect the surrounding environment (see CEQA Guidelines, Section 15126.2[d]). Growth can be induced in a number of ways, including through the elimination of obstacles to growth or through the stimulation of economic activity within the region. Examples of projects likely to have growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or office complexes in areas that are currently only sparsely developed or are undeveloped. The discussion of the removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth unforeseen at the time of project approval.

The CEQA Guidelines are clear that while an analysis of growth-inducing effects is required, it should not be assumed that induced growth is necessarily significant or adverse. A number of issues must be considered when assessing the growth-inducing effects of development plans, such as the proposed project, including the following:

- **Elimination of Obstacles to Growth:** The extent to which infrastructure capacity provided to accommodate the proposed project would allow additional development in surrounding areas; and
- **Economic Effects**: The extent to which development of the proposed project could cause increased activity in the local or regional economy.

Growth-inducing impacts associated with the proposed project would be considered to be any effects of the project allowing for additional growth or increases in population beyond that proposed by the project or anticipated in the Oakley General Plan.

The proposed project would include demolition of the existing on-site structures to construct five new buildings and associated improvements within the 143.3-acre project site. The proposed buildings would range in size from 150,000 square feet (sf) to 642,960 sf, for a total of approximately 2.0 million sf, and would include front load and cross docked warehouses. For the purpose of this EIR, the buildings are assumed to be capable of accommodating a range of light industrial, warehousing, distribution, e-commerce fulfillment, and light manufacturing uses. Specific uses for the buildings would be subject to the site-specific development standards as set forth in the proposed Planned Unit Development.

Given that the proposed project would not create housing, the nature of the project would not directly induce population growth. The project site is located within the vicinity of existing residential land uses, namely east of the site and south, across Main Street. Thus, housing opportunities are available in the project area should employees need to relocate for new employment at the proposed industrial facility.

While the proposed project would not create housing, which would directly affect growth-inducing factors, the project would not create obstacles to growth within the area. A physical obstacle to growth typically involves the lack of public service infrastructure. The extension of public service infrastructure, including roadways, water mains, and sewer lines, into areas that are not currently provided with these services, would be expected to support new development. Similarly, the elimination or change to a regulatory obstacle, including existing growth and development policies, could result in new growth. The primary infrastructure systems installed as part of the proposed project, including roadways and wastewater, water, and storm drain systems, would be sized to meet on those demands created by the proposed project. In addition, utility lines currently exist in the project vicinity and the proposed project would connect to the existing lines.

Therefore, because the proposed project would not directly induce any population growth and infrastructure required for the proposed project would be sized to meet the demands created solely by the project, the proposed project would not be expected to result in any growth-inducing impacts.

5.3 CUMULATIVE IMPACTS

CEQA Guidelines, Section 15130 requires that an EIR discuss the cumulative and long-term effects of the proposed project that adversely affect the environment. “Cumulative impacts” are defined as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (CEQA Guidelines, Section 15355). “[I]ndividual effects may be changes resulting from a single project or a number of separate projects” (CEQA Guidelines, Section 15355, subd. [a]). “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time” (CEQA Guidelines, Section 15355, subd. [b]).

The need for cumulative impact assessment reflects the fact that, although a project may cause an “individually limited” or “individually minor” incremental impact that, by itself, is not significant, the increment may be “cumulatively considerable,” and, thus, significant, when viewed together with environmental changes anticipated from past, present, and probable future projects (CEQA Guidelines, Section 15064, subd. [h(1)], Section 15065, subd. [c], and Section 15355, subd. [b]). Accordingly, particular impacts may be less than significant on a project-specific basis but significant on a cumulative basis if their small incremental contribution, viewed against the larger backdrop, is cumulatively considerable. However, it should be noted that CEQA Guidelines, Section 15064, Subdivision (h)(5) states, “[…] the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulatively considerable.” Therefore, even where cumulative impacts are significant, any level of incremental contribution is not necessarily deemed cumulatively considerable.

Section 15130(b) of CEQA Guidelines indicates that the level of detail of the cumulative analysis need not be as great as for the project impact analyses, but that analysis should reflect the severity of the impacts and their likelihood of occurrence, and that the analysis should be focused, practical, and reasonable. To be adequate, a discussion of cumulative effects must include the following elements:

> (1) Either (a) a list of past, present and probable future projects, including, if necessary, those outside the agency's control, or (b) a summary of projections contained in an adopted general plan or related planning document, or in a prior certified EIR, which described or evaluated regional or area-wide conditions contributing to the cumulative impact, provide that such documents are reference and made available for public inspection at a specified location;
>
> (2) A summary of the individual projects' environmental effects, with specific reference to additional information and stating where such information is available; and
>
> (3) A reasonable analysis of all of the relevant projects' cumulative impacts, with an examination of reasonable, feasible options for mitigating or avoiding the project's contribution to such effects (Section 15130[b]).

For some projects, the only feasible mitigation measures will involve the adoption of ordinances or regulations, rather than the imposition of conditions on a project-by-project basis (Section 15130[c]). Section 15130(a)(3) states that an EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable, and thus not significant, if a project is required to implement or fund the project's fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

Cumulative Setting

The lead agency should define the relevant geographic area of inquiry for each impact category (id., Section 15130, subd. [b][3]), and should then identify the universe of "past, present, and probable future projects producing related or cumulative impacts" relevant to the various categories, either through the preparation of a "list" of such projects or through the use of "a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact" (id., subd. [b][1]).

Cumulative impacts are analyzed in each of the technical chapters of this EIR (Chapters 4.1 through 4.5). The majority of the cumulative analyses for the proposed project presented throughout this EIR are based on buildout of the City's General Plan as well as present and probable future projects within the region. With regard to the Transportation and Circulation analysis presented in this EIR, cumulative traffic volumes were developed assuming incremental growth in background traffic (one percent per year) based on the County's traffic model. Limited situations exist where the cumulative geographic setting differs related to certain environmental issue areas. One example includes air quality, for which the cumulative geographic setting is the San Francisco Bay Area Air Basin (SFBAAB). Global climate change is, by nature, a cumulative impact. Emissions of greenhouse gas (GHG) contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change (e.g., sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts). A single project could not generate enough GHG emissions to contribute noticeably to a change in the global average temperature. However, the combination of GHG emissions from a project in combination with other past, present, and future projects could contribute substantially to the world-wide phenomenon of global climate change and the associated environmental impacts. Although the geographical context for global climate change is the Earth, for analysis purposes under CEQA, and due to the regulatory context pertaining to GHG emissions and global climate change applicable to the proposed project, the geographical context for global climate change in this EIR is limited to the State of California.

5.4 ENERGY CONSERVATION

In order to ensure energy implications are considered in project decisions, Appendix G of CEQA Guidelines requires a discussion of the potential energy impacts of projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. The goal of conserving energy implies the wise and efficient use of energy. Per Appendix G, a project would result in a significant impact related to energy conservation if the project would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction operation; or
b. Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

The main forms of available energy supply are electricity, natural gas, and oil. A description of the 2016 California Green Building Standards Code, with which the proposed project would be required to comply, as well as discussions regarding the proposed project's potential effects related to each form of energy supply during construction and operations is provided below.

California Green Building Standards Code

The 2019 California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), is a portion of the California Building Standards Code (CBSC), which will become effective with the rest of the CBSC on January 1, 2020. The purpose of the CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California.

The CALGreen Code encourages local governments to adopt more stringent voluntary provisions, known as Tier 1 and Tier 2 provisions, to further reduce emissions, improve energy efficiency, and conserve natural resources. If a local government adopts one of the tiers, the provisions become mandates for all new construction within that jurisdiction.

Building Energy Efficiency Standards

The 2019 Building Energy Efficiency Standards is a portion of the CBSC (CCR Title 24, Parts 6 and 11) and expands upon energy efficiency measures from the 2016 Building Energy Efficiency Standards, resulting in a reduction of approximately 30 percent in energy consumption relative to the 2016 standards for non-residential structures. Energy reductions relative to previous Building Energy Efficiency Standards would be achieved through various regulations including requirements for the use of high efficacy lighting, improved water heating system efficiency, and high-performance mechanical equipment.

Construction Energy Use

Appendix F of the CEQA Guidelines identifies several potential sources of energy conservation impacts, including the project's construction energy requirements and energy use efficiencies by amount and fuel type. Construction of the proposed project would result in a temporary increase in energy consumption in the area.

As discussed in Chapter 4.1, Air Quality and Greenhouse Gas Emissions, of this EIR, construction of the proposed project is conservatively assumed to commence in March 2020 and would occur over approximately three years. All construction equipment and operation thereof would be regulated per the California Air Resources Board (CARB) In-Use Off-Road Diesel Vehicle Regulation, which includes measures to reduce emissions from vehicles by subjecting fleet owners to retrofit or accelerate replacement/repower requirements, imposing idling limitations on owners, operators, renters, or lessees of off-road diesel vehicles. Project construction would also be required to implement all of the Basic Construction Mitigation Measures provided in the BAAQMD CEQA Guidelines, which include limits on idling times and requirements related to construction equipment maintenance and upkeep. Such regulations promote the use of efficient, modern equipment, which often results in the consumption of less fuel.

Construction equipment operating at the project site would occur over a relatively short duration in comparison to the operational lifetime of the proposed project, and would operate intermittently over the construction period for the project. Construction activities would occur during normal daytime working hours, between 7:30 AM and 7:00 PM Monday through Friday, and from 9:00 AM to 7:00 PM on Saturdays and Sundays, per Section 4.2.208 of the Municipal Code. Furthermore, implementation of Mitigation Measure 4.1-1(a) would require that all off-road heavy-duty diesel-powered equipment (e.g., rubber tired dozers, excavators, graders, scrapers, pavers, paving equipment, and cranes) to be used for each phase of construction of the project (i.e., owned, leased, and subcontractor vehicles) meet U.S. Environmental Protection Agency emissions standards for Tier 4 engines or equivalent, which would increase the fuel efficiency of equipment used on the project site.

The CARB has prepared the *2017 Climate Change Scoping Plan Update (The 2017 Climate Change Scoping Plan Update)*,[1] which builds upon previous efforts to reduce GHG emissions and is designed to continue to shift the California economy away from dependence on fossil fuels. Appendix B of the 2017 Scoping Plan includes examples of local actions (municipal code changes, zoning changes, policy directions, and mitigation measures) that would support the State's climate goals. The examples provided include, but are not limited to, enforcing idling time restrictions for construction vehicles, utilizing existing grid power for electric energy rather than operating temporary gasoline/diesel-powered generators, and increasing use of electric and renewable fuel-powered construction equipment. The regulations described above, with which the proposed project must comply, as well as the required mitigation measures set forth in this EIR, would be consistent with the intention of the 2017 Scoping Plan and the recommended actions included in Appendix B of the 2017 Scoping Plan. Additionally, the City of Oakley has taken action to meet the goals of the State by outlining a comprehensive and actionable approach for energy reduction through the Strategic Energy Plan, where sustainable construction practices are encouraged.

Nonetheless, buildout of the proposed project would involve on-site energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker

[1] California Air Resources Board. *California's 2017 Climate Change Scoping Plan.* November 2017.

vehicle trips, hauling and materials delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary on-site lighting, welding, and for supplying energy to areas of the site where energy supply cannot be met via a hookup to the existing electricity grid.

Electricity Demand During Construction

Typically, at construction sites, electricity from the existing grid is used to power portable and temporary lights or office trailers. Because grid electricity would be utilized primarily for steady sources such as lighting, not sudden, intermittent sources such as welding or other hand-held tools, the increase in electricity usage at the site during construction would not be expected to cause any substantial peaks in demand. However, the base demand for electricity in the area would increase.

The proposed project is anticipated to be built out over multiple phases, one-by-one, where only portions of the project site would be developed at a time, with periods of non-construction between phases. Overall, construction equipment operating at the project site would occur over a relatively short duration in comparison to the operational lifetime of the proposed project, and would operate intermittently over the construction period. As the site develops, operational electricity demand would become the dominant demand source. Operational electricity demand would be much greater than construction, and is discussed in further detail below.

The Pacific Gas and Electric Company (PG&E) supplies electricity to the City of Oakley and would serve the site following construction of the proposed project. Electricity is provided from PG&E-owned sources, and additional electricity supplies are purchased by PG&E from other energy providers. Thus, PG&E relies on a variety of electricity sources including hydropower, natural gas-fired generators, nuclear, and renewable energy sources.[2] Construction of the proposed project, which would result in temporary increases in electricity demand, would not cause a permanent or substantial increase in demand that would exceed PG&E's demand projections or exceed the ability of PG&E's existing infrastructure to handle such an increase.

Based on the above, construction of the proposed project would not cause a permanent or substantial increase in demand that would exceed demand projections for the region or such that the existing PG&E supplies or infrastructure could not handle the increase. Therefore, project construction would not result in any significant impacts on local or regional electricity supplies, the need for additional capacity, or on peak or base period electricity demands. As such, the temporary increase in electricity due to project construction activities would not be considered an inefficient, wasteful, and unnecessary consumption of energy, and significant adverse impacts on electricity resources would not occur.

Oil Demand During Construction

Worker, delivery, and hauling vehicle trips would be generated during construction. Worker vehicle trips are assumed to use gasoline, and delivery and hauling trucks are assumed to use diesel fuel. Diesel fuel would also be used to power the construction and off-road equipment necessary for construction activities, including rubber-tired dozers, tractors, excavators, cranes, and other types of equipment. In addition, diesel-fueled portable generators may be used where electricity from the grid cannot be provided or for where more immediate electricity is needed such as for welding or other hand tools. Overall, construction equipment operating at the project site

2 Pacific Gas & Electric Company. *Company Profile*. Available at: https://www.pge.com/en_US/about-pge/company-information/profile/profile.page. Accessed June 2019.

would occur over a relatively short duration in comparison to the operational lifetime of the project and would be intermittent over the period of construction for the project. Operational oil demand would be much greater than construction oil demand, and is discussed further below.

A number of federal, State, and local standards and regulations exist that require improvements in vehicle efficiency, fuel economy, cleaner-burning engines, and emissions reductions. For example, as noted above, CARB has adopted the In-Use Off-Road Diesel Vehicle Regulation, which is intended to reduce emissions from in-use, off-road, heavy-duty diesel vehicles in California by imposing limits on idling, requiring all vehicles to be reported to CARB, restricting the addition of older vehicles into fleets, and requiring fleets to reduce emissions by retiring, replacing, or repowering older engines, or installing exhaust retrofits. The In-Use Off-Road Diesel Vehicle Regulation would subsequently help to improve fuel efficiency and reduce GHG emissions. Any licensed contractor for the project and equipment would have to be in compliance with all applicable regulations, such as the in-use, off-road, heavy-duty vehicle regulation. Thus, the proposed project would comply with existing standards related to construction fuel efficiency. Technological innovations and more stringent standards are being researched, such as multi-function equipment, hybrid equipment, or other design changes, which could help to reduce demand on oil and emissions associated with construction.

Overall, the temporary increase in gasoline and diesel consumption due to project construction activities would not be an inefficient, wasteful, and unnecessary consumption of energy, and significant adverse impacts on oil resources would not occur.

Conclusion

Construction of the proposed project would result in a temporary increase in demand for energy resources. However, the temporary increase would not result in a significant increase in peak or base demands or require additional capacity from local or regional energy supplies. In addition, the proposed project would be required to comply with all applicable regulations related to energy conservation and fuel efficiency, which would help to reduce the temporary increase in demand. As such, the project would not result in an inefficient, wasteful, and unnecessary consumption of energy. Therefore, buildout of the proposed project would result in a less-than-significant impact on energy resources during construction.

Operational Energy Use

In order to ensure energy implications are considered in project decisions, Appendix F of the CEQA Guidelines requires a discussion of the potential energy impacts of a project, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F identifies several potential methods of evaluating a project’s energy use, which are listed as follows and discussed in further detail below, with the exception of the project’s construction-related energy requirements and energy use efficiencies, which are discussed above:

- The project’s energy requirements and energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal.
- The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the project on peak and base period demands for electricity and other forms of energy.

- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Building Energy

The project site is currently developed with two existing buildings, totaling 11,778 sf and 2,640 sf, respectively. Prior to vacancy, the buildings were connected to PG&E utility lines and contributed to energy use within the City. As part of the proposed project, the existing buildings would be demolished and the site would be redeveloped with warehouse and distribution uses. The proposed buildings would connect to existing PG&E utility lines in the project vicinity. Energy use associated with operation of the proposed project would be typical of industrial park uses, requiring electricity and natural gas for interior and exterior building lighting, heating, ventilation, and air conditioning (HVAC), electronic equipment, machinery, refrigeration, security systems, and more. The proposed project's operational emissions were estimated using CalEEMod. The modeling performed for the proposed project included compliance with BAAQMD rules and regulations (i.e., low-VOC [volatile organic compounds] paints and low-VOC cleaning supplies), as well as with the 2019 California Building Energy Efficiency Standards Code. All buildings within the State of California are required to comply with the mandatory standards within the 2019 California Building Energy Efficiency Standards Code.

The proposed project would increase the intensity of development within the project site from current levels, and result in energy demands for natural gas of approximately 21,430,000 kBTU/yr and demands for electricity of approximately 30,000,000 kWhr/yr. Such demands for natural gas and electricity would be higher than what currently exists for the project site; however, increased energy demand does not necessarily mean that a project would have an impact related to energy resources. Based on Appendix F of the CEQA Guidelines, a proposed project would result in an impact related to energy resources if a project would result in the inefficient use or waste of energy.

As stated above, structures included in the proposed project would be subject to all relevant provisions of the 2019 update of the CBSC, including the 2019 Building Energy Efficiency Standards. Adherence to the most recent CALGreen and the 2019 Building Energy Efficiency Standards would require that new efficacy lighting be installed, as well as ensure the efficient use of electricity and natural gas through the incorporation of such features as efficient water heating systems, and high-performance mechanical equipment.

Transportation Energy

The annual VMT at full buildout of the proposed project is anticipated to be approximately 7,561,950, based on CalEEMod outputs for the project (see Appendix D). The average fuel economy for the U.S. passenger vehicle fleet was 24.2 miles per gallon (mpg) in 2017, the most recent year such data is available.[3] An average of 24.2 mpg and an annual VMT of 7,561,950 would result in the consumption of 7,440 barrels of gasoline a year. California is estimated to

3 U.S. Energy Information Administration. *Total Energy, Table 1.8 Motor Vehicle Mileage, Fuel Consumption, and Fuel Economy*. Available at: https://www.eia.gov/totalenergy/data/browser/?tbl=T01.08#/?f=A&start=200001. Accessed September 2019.

consume approximately 558 million barrels of petroleum per year.[4] Based on the annual consumption within the State, the proposed project would result in a 0.000013 percent increase in the State's current consumption of gasoline with development of the proposed project. It should be noted that a portion of the trips associated with the proposed project would not necessarily be new trips. Rather, some trips would be redistributed as residents already living in the area redirect their commute to the project site. As such, energy consumption associated with project VMT would not be unique to the project.

California leads the nation in registered alternatively-fueled and hybrid vehicles. In addition, State-specific regulations encourage fuel efficiency and reduction of dependence on oil. Improvements in vehicle efficiency and fuel economy standards help to reduce consumption of gasoline and reduce the State's dependence on petroleum products. The 2019 CBSC also requires new developments to include the necessary electrical infrastructure for electric vehicle charging stations. The proposed project would be required to comply with all applicable regulations associated with vehicle efficiency and fuel economy. In addition, bicycle and pedestrian facilities would be provided along Bridgehead Road to facilitate alternative transportation. The project would also be required to improve sidewalks with connection to the adjacent streets and sidewalks. The aforementioned improvements would provide pedestrian connectivity within the project site and to existing off-site pedestrian facilities, thereby helping to discourage driving and reduce vehicle trips.

Conclusion

As discussed above, the proposed project operations would involve an increase in energy consumption. However, the proposed project would comply with all applicable standards and regulations regarding energy conservation and fuel efficiency, which would ensure that the future uses would be designed to be energy efficient to the maximum extent practicable. Accordingly, the proposed project would not be considered to result in a wasteful, inefficient, or unnecessary usage of energy, and impacts related to operational energy would be considered less than significant.

5.5 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines mandate that an EIR address any significant irreversible environmental changes that would result if the proposed project were implemented (CEQA Guidelines, Section 15126.2[c]). An impact would fall into this category if any of the following would occur:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of a project would generally commit future generations to similar uses (e.g., a highway provides access to a previously remote area);
- The project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
- The phasing of the proposed consumption of resources is not justified (e.g., the project involves a wasteful use of energy).

[4] U.S. Energy Information Administration. *California: State Profile and Energy Estimates*. Available at: https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_use_pa.html&sid=US&sid=CA. Accessed September 2019.

The proposed project would likely result in, or contribute to, the following significant irreversible environmental changes:

- Placement and/or extension of roadways;
- Irreversible consumption of goods and services associated with the future operations; and
- Irreversible consumption of energy and natural resources, such as electricity and natural gas, associated with the future operations.

5.6 SIGNIFICANT AND UNAVOIDABLE IMPACTS

According to CEQA Guidelines, an EIR must include a description of those impacts identified as significant and unavoidable should the proposed action be implemented (CEQA Guidelines §15126.2[b]). Such impacts would be considered unavoidable when the determination is made that either mitigation is not feasible or only partial mitigation is feasible such that the impact is not reduced to a level that is less-than-significant. This section identifies significant impacts that could not be eliminated or reduced to a less-than-significant level by mitigations imposed by the City. The final determination of the significance of impacts and the feasibility of mitigation measures would be made by the City as part of the City's certification action. The significant and unavoidable impacts of the proposed project are listed below. A complete analysis of the significant and unavoidable impacts can be found in Chapters 4.1 and 4.4 of this EIR.

4.1-1 Conflict with or obstruct implementation of the applicable air quality plan during project construction.

4.1-5 Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

4.4-10 Impacts to freeway operations under Cumulative Plus Project conditions.

4.4-11 Substantially increase cumulative hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

6. Alternatives Analysis

6. ALTERNATIVES ANALYSIS

6.1 INTRODUCTION

The Alternatives Analysis chapter of the EIR includes consideration and discussion of a range of reasonable alternatives to the proposed project, as required per CEQA Guidelines Section 15126.6. Generally, the chapter includes discussions of the following: the purpose of an alternative analysis; alternatives considered but dismissed; reasonable range of project alternatives and their associated impacts in comparison to the proposed project's impacts; and the environmentally superior alternative.

6.2 PURPOSE OF ALTERNATIVES

The primary intent of the alternatives evaluation in an EIR, as stated in Section 15126.6(a) of the CEQA Guidelines, is to "[…] describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." In the context of CEQA Guidelines Section 21061.1, "feasible" is defined as:

> ...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

Section 15126.6(f) of CEQA Guidelines states, "The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice." Section 15126.6(f) of CEQA Guidelines further states:

> The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

In addition, an EIR is not required to analyze alternatives when the effects of the alternative "cannot be reasonably ascertained and whose implementation is remote and speculative."

The CEQA Guidelines provide the following guidance for discussing alternatives to a proposed project:

- An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives (CEQA Guidelines Section 15126.6[a]).

- Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly (CEQA Guidelines Section 15126.6[b]).
- The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination […] Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts (CEQA Guidelines Section 15126.6[c]).
- The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison (CEQA Guidelines Section 15126.6[d]).
- If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed (CEQA Guidelines Section 15126.6[d]).
- The specific alternative of "no project" shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline (CEQA Guidelines Section 15126.6[e][1]).
- If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (CEQA Guidelines Section 15126.6[e][2]).

Project Objectives

Based on the above, reasonable alternatives to the project must be capable of feasibly attaining most of the basic objectives of the project. The proposed project is being pursued with the following objectives:

1. Develop a logistics center with approximately 2,000,000 sf of Class A industrial light warehousing, e-commerce fulfillment, distribution, and light manufacturing space consisting of five buildings.
2. Redevelop the former DuPont site with a robust logistics center that provides nearly 2,000 jobs for the region.
3. Implement a key focus in the Oakley General Plan to develop industrial and like distribution uses on the site.
4. Implement the City's vision in the General Plan to develop this site as a primary employment center.
5. Allow the sensitive area designated "Delta Recreation" on the property to remain in its natural state.

Impacts Identified in the EIR

In addition to attaining the majority of project objectives, reasonable alternatives to the project must be capable of reducing the magnitude of, or avoiding, identified significant environmental impacts of the proposed project. A summary of the environmental impacts identified for the proposed project are provide below.

Significant and Unavoidable

Impacts of the proposed project that have been determined to remain significant and unavoidable, even after implementation of the feasible mitigation measures set forth in this EIR, include the following:

- ***Air Quality and Greenhouse Gas Emissions.*** The EIR determined that implementation of the proposed project could result in a significant impact related to emissions of the criteria pollutant NO_X. In addition, a significant impact would occur related to conflicting with the goals of Senate Bill (SB) 32 related to GHG emissions. The EIR requires mitigation to minimize impacts as much as possible; however, despite implementation of mitigation measures, the project would still result in significant and unavoidable impacts.

- ***Transportation and Circulation.*** The project would result in a significant impact to the westbound segment of SR 4 in the project vicinity and could result in significant queuing impacts at the Bridgehead Road/Wilbur Avenue, Neroly Road/Bridgehead Road/Main Street, Empire Avenue/Main Street, and Oakley Road/Empire Avenue intersections under Cumulative Plus Project conditions. Even with implementation of mitigation, the identified significant impacts were determined to remain significant and unavoidable.

Less Than Significant with Mitigation

Significant environmental impacts of the proposed project that have been identified as requiring mitigation measures to ensure that the level of significance is ultimately less than significant include the following:

- ***Air Quality and Greenhouse Gas Emissions.*** The EIR determined that implementation of the proposed project could result in significant impacts related to operational emissions of ROG. Furthermore, project operations could result in substantial emissions of the TAC DPM due to the use of transportation refrigeration units at Building 1. The EIR requires mitigation in order to ensure that the impacts are reduced to a less-than-significant level.

- ***Biological Resources.*** The EIR determined that implementation of the proposed project could result in significant impacts related to the following: special-status vernal pool branchiopods; special-status bird species; riparian habitat or other sensitive natural community, or federally protected wetlands as defined by Section 404 of the CWA through direct removal, filling, hydrological interruption, or other means; and a conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. The EIR requires mitigation in order to ensure that the impact is reduced to a less-than-significant level.

- ***Hydrology and Water Quality.*** The EIR determined that implementation of the proposed project could result in significant impacts related to the following: violation of federal, State, or County potable water quality standards, creation or contribution of runoff water which would include substantial additional sources of polluted water, or otherwise substantially degrade surface or ground water quality during construction and operation; and substantial alteration of the existing drainage pattern of the site or area, or increase the rate or amount of surface runoff. The EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to less-than-significant levels.

- ***Transportation and Circulation.*** The EIR determined that implementation of the proposed project could result in significant impacts to study intersections under Baseline Plus Project and Cumulative Plus Project conditions. Under Existing Plus Project and Baseline Plus Project conditions, the proposed project could result in significant impacts related to queuing at the Main Street/Bridgehead Road, Main Street/Empire Avenue, and Oakley Road/Empire Avenue intersections. In addition, a significant impact was identified for construction traffic and for study roadway segments under Cumulative Plus Project conditions. The EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to less-than-significant levels.

Less Than Significant

Environmental impacts of the proposed project that have been identified as less than significant in this EIR include the following:

- ***Utilities and Service Systems.*** This EIR determined that implementation of the proposed project would result in less-than-significant impacts related to Utilities and Service Systems

The Initial Study prepared for the proposed project includes a detailed environmental checklist addressing a range of technical environmental issues (see Appendix A). For each technical environmental issue, the Initial Study identifies the level of impact for the proposed project. The Initial Study identifies the environmental effects as either “no impact,” “less-than-significant,” “less-than-significant with mitigation incorporated,” or “potentially significant.” Impacts identified for the proposed project in the Initial Study as “no impact,” “less-than-significant,” or “less-than-significant with mitigation incorporated” are listed below.

- Aesthetics (All Sections);
- Agriculture Resources (All Sections);
- Air Quality (d);
- Biological Resources (f);
- Cultural Resources (All Sections);
- Geology and Soils (All Sections);
- Hazards and Hazardous Materials (All Sections);
- Land Use and Planning (All Sections);
- Mineral Resources (All Sections);
- Noise (All Sections);
- Population and Housing (All Sections);
- Public Services (All Sections);
- Recreation (All Sections);
- Transportation and Circulation (d);

- Tribal Cultural Resources (All Sections); and
- Wildfire (All Sections).

As stated above, reasonable alternatives to the project must be capable of reducing the magnitude of, or avoiding, identified significant environmental impacts of the proposed project. Because the proposed project would not result in significant impacts related to the resource areas listed above, a comparison of potential impacts associated with the aforementioned resource areas as a result of project alternatives versus the proposed project is not provided in this chapter. Rather, this chapter focuses on those resource areas and specific impacts listed above that have been identified for the proposed project as either significant and unavoidable or less than significant with mitigation.

6.3 SELECTION OF ALTERNATIVES

The requirement that an EIR evaluate alternatives to the proposed project or alternatives to the location of the proposed project is a broad one; the primary intent of the alternatives analysis is to disclose other ways that the objectives of the project could be attained, while reducing the magnitude of, or avoiding, one or more of the environmental impacts of the proposed project. Alternatives that are included and evaluated in the EIR must be feasible alternatives. However, the CEQA Guidelines require the EIR to "set forth only those alternatives necessary to permit a reasoned choice." The following sections discuss the alternatives that were considered but dismissed from further analysis.

Alternatives Considered But Dismissed From Further Analysis

Consistent with CEQA, primary consideration was given to alternatives that could reduce significant impacts, while still meeting most of the basic project objectives. As stated in Guidelines Section 15126.6(c), among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are:

- failure to meet most of the basic project objectives;
- infeasibility; or
- inability to avoid significant environmental impacts.

Regarding infeasibility, among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent). Not one of these factors establishes a fixed limit on the scope of reasonable alternatives.

The two alternatives that were considered but dismissed from detailed analysis in this EIR are discussed below, along with the reason(s) for dismissal, within the context of the three above-outlined permissible reasons.

Off-Site Alternative

As noted previously, the purpose of an alternatives analysis is to develop alternatives to the proposed project that substantially lessen at least one of the significant environmental effects identified as a result of the project, while still meeting most, if not all, of the basic project objectives. Development of the proposed project at an off-site location would not be capable of meeting the majority of project objectives due to a number of the project objectives being specific to the project site size and location. For example, Objective 2 is related to redeveloping the former DuPont site, which is the project site; by definition, the off-site alternative would not involve redevelopment of the DuPont site, and, thus, Objective 2 would not be met. Objective 3 and 4 are related to developing the site as an industrial site/primary employment center. Although other sites may be appropriate for the proposed project, the other sites are currently developed with industrial operations. It should also be noted that while other industrial areas exist within the City of Oakley, the project proponents do not own the other industrial sites. Additionally, alternative locations would not adequately meet the needs of the project site, including the size of the project site and the Light Industrial designation. Two other locations with the designation of Light Industrial exist in the City of Oakley. Location 1 is located north of Oakley Road and east of Neroly Road. Location 2 is located west of the Ironhouse Sanitary District offices, northeast of Main Street. Location 1 is currently partially developed and used for industrial purposes while Location 2 is a fraction of the size of the current project site.

In addition, the City's General Plan identifies the project site as an area suitable for development as included in the proposed project. For instance, Policy 5.1.L of the City's General Plan identifies the project site as an important area for future development through a comprehensive business park master plan or Planned Unit Development, while page 5-10 of the General Plan identifies the site as an Economic Development Opportunity within the City, and page 2-26 of the City's General Plan envisions the area containing the project site as the primary employment center for the City. Development of off-site alternatives would fail to fulfill the foregoing policies and visions within the General Plan.

The CEQA Guidelines (Section 15126.6[b]) requires that only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR. The Off-Site Alternative would involve the construction of the proposed project on an alternative location. The Off-Site Alternative would have the same type and intensity of uses as the proposed project. The Off-Site Alternative site Location 1 within the City is currently partially developed and located near residences. The development of the site would be expected to result in greater impacts than the proposed project given the close proximity to existing residences. For instance, off-site locations may contain cultural resources that have not been disturbed by previous development. Even if a site fit for redevelopment were to be considered for an Off-Site Alternative, the proposed uses would not be likely to complement the existing uses and/or activities at the site to the extent that would occur from reuse of the former DuPont site for industrial uses. Furthermore, the project site is located adjacent to SR 160, with convenient access to SR 4, thereby reducing traffic volumes routed through city streets within the project area. Consequently, development of an Off-Site Alternative would be expected to result in at least the same, if not greater, level of impacts as compared to the proposed project. Furthermore, the Applicant does not own an alternative location that would be adequate to construct the proposed project.

Overall, a feasible off-site location that would meet the requirements of CEQA, as well as meet the basic objectives of the proposed project, does not exist. Therefore, an Off-Site Alternative was dismissed from detailed analysis within this EIR.

No Project (Buildout Pursuant to Existing Designation) Alternative

The No Project (Buildout Pursuant to Existing Designation) Alternative would require the industrial manufacturing facilities be developed on the northeastern portion of the project site as it is currently the only designated Light Industrial portion of the site. The western portion of the project site is designated Business Park and the southern portion of the site is designated Utility Energy. In compliance with the existing land use designations of the site, the No Project (Buildout Pursuant to Existing Designation) Alternative would develop business offices on the Business Park portion of the site as well as complimentary industrial manufacturing operations on the northeastern portion of the site. As part of the No Project (Buildout Pursuant to Existing Designation) Alternative, the Utility Energy portion of the site would be used for energy related activities, such as substations and power plants.

While the Alternative would not require a General Plan Amendment, the No Project (Buildout Pursuant to Existing Designation) Alternative would incorporate similar operations as the proposed project. For example, the No Project (Buildout Pursuant to Existing Designation) Alternative would involve construction of manufacturing and business park structures, resulting in similar construction emissions and ground disturbance. In addition, the No Project (Buildout Pursuant to Existing Designation) Alternative would involve development of all areas of the site currently designated as Light Industrial. Therefore, a No Project (Buildout Pursuant to Existing Designation) Alternative would not involve designation of any portion of the project site as "Delta Recreation", and existing biological resources within the project site would be avoided within the proposed Delta Recreation area under the proposed project but would be impacted under the Alternative.

Consequently, development of the No Project (Buildout Pursuant to Existing Designation) Alternative would be expected to result in greater levels of impacts as compared to the proposed project. Therefore, a No Project (Buildout Pursuant to Existing Designation) Alternative was dismissed from detailed analysis within this EIR.

Alternatives Considered in this EIR

Three alternatives to the proposed project were developed based on City staff input and the technical analysis performed to identify the significant environmental effects of the proposed project. The following three alternatives are considered feasible alternatives to the project, and are evaluated in further detail in this section:

- No Project (No Build) Alternative;
- Reduced Intensity Alternative; and
- Reduced Footprint Alternative.

Each of the project alternatives is described in detail below, with a corresponding analysis of each alternative's impacts in comparison to the proposed project. While an effort has been made to include quantitative data for certain analytical topics, where possible, qualitative comparisons of the various alternatives to the project are primarily provided. Such an approach to the analysis is appropriate as evidenced by CEQA Guidelines Section 15126.6[d], which states that the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed. The analysis evaluates impacts that would occur with the alternatives relative to the significant impacts identified for the proposed project. The following terminology is used:

- “Fewer” = Fewer amount of impacts than Proposed Project;
- “Similar” = Similar to Proposed Project; and
- “Greater” = Greater than Proposed Project.

When the term “fewer” is used, the reader should not necessarily equate this to elimination of significant impacts identified for the proposed project. For example, in many cases, an alternative would reduce the relative intensity of a significant impact identified for the proposed project, but the impact would still be expected to remain significant under the alternative, thereby requiring mitigation. In other cases, the use of the term “fewer” may mean the actual elimination of an impact identified for the proposed project altogether. The following discussions will clarify the use of the term.

A comparison of the environmental impacts resulting from the considered alternatives and the proposed project is provided in Table 6-4.

No Project (No Build) Alternative

CEQA requires the evaluation of the comparative impacts of the “No Project” alternative (CEQA Guidelines Section 15126.6[e]). Analysis of the no project alternative shall:

> “… discuss […] existing conditions […] as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.” (*Id.*, subd. [e][2]) “If the project is other than a land use or regulatory plan, for example a development project on identifiable property, the ‘no project’ alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in the property’s existing state versus environmental effects that would occur if the project were approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this ‘no project’ consequence should be discussed. In certain instances, the no project alternative means ‘no build,’ wherein the existing environmental setting is maintained. However, where failure to proceed with the project would not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment.” (*Id.*, subd. [e][3][B]).

The No Project (No Build) Alternative is defined as the continuation of the existing conditions of the project site, which currently consists of remnants left from the operation of the DuPont Chemical Plant on the western portion of the 375.7-acre subject property. All DuPont manufacturing ceased in 1999 and the manufacturing facilities at the site were mostly demolished. The No Project (No Build) Alternative would not require the demolition of the remaining on-site structures. Because development of the site would not occur, potential impacts from the proposed project would not occur as a result of the No Project (No Build) Alternative. However, leaving the site in its barren and highly disturbed condition could cause negative aesthetic impacts and result in blighted conditions. Moreover, the City’s General Plan identifies the site as an area suitable for development and envisions the project site and surrounding area acting as the primary employment center for the City. The No Project (No Build) Alternative would not fulfill the stated aims of the City's General Plan.

Air Quality and GHG Emissions

The No Project (No Build) Alternative would consist of the continuation of the existing conditions of the project site. Because the No Project (No Build) Alternative would not involve construction activities, the Alternative would not result in emissions of criteria pollutants. Considering that the No Project (No Build) Alternative would not result in any construction activity or resulting emissions from the project site, the No Project (No Build) Alternative would not result in any impacts related to the emissions of criteria pollutants during construction. Furthermore, the No Project (No Build) Alternative would not involve any operational emissions of toxic air contaminants or criteria pollutants, and the mitigation measures included in this EIR to reduce such emissions under the proposed project would not be required under the No Project (No Build) Alternative. Under the No Project (No Build) Alternative, GHG emissions would not occur from related to operations at the project site. Thus, the No Project (No Build) Alternative would not result in a significant and unavoidable impact related to GHG emissions. It should be noted that in the absence of the proposed project, the demand for transporting goods within the project region would remain, and vehicle trips generated from such would still occur in the region. Therefore, the No Project (No Build) Alternative would not necessarily guarantee that emissions related to the movement of goods in the project region would be lower than the levels that would occur with implementation of the proposed project. Nevertheless, under the No Project (No Build) Alternative, the significant and unavoidable impacts related to criteria pollutant emissions during construction and GHG emissions would not occur.

Biological Resources

Because construction or any other ground-disturbing activities would not occur under the No Project (No Build) Alternative, impacts associated with the on-site seasonal and permanent wetlands would not occur. Similarly, the No Project (No Build) Alternative would not involve disturbance to any of the on-site trees; thus, impacts to potential Swainson's hawk nesting trees or other special-status bird species that could use the on-site trees as habitat would not occur. Because the existing on-site trees would remain, the No Project (No Build) Alternative would not have the potential to result in the removal of existing heritage or protected trees. Therefore, impacts identified for the proposed project related to biological resources would not occur under the No Project (No Build) Alternative.

Hydrology and Water Quality

Because the No Project (No Build) Alternative would not involve construction, impacts related to a violation of federal, State, or County potable water quality standards, creation or contribution of runoff water which would include substantial additional sources of polluted water, or otherwise substantially degrade surface or ground water quality during construction and operation would not occur. Additionally, because the No Project (No Build) Alternative would not alter the existing drainage pattern of the site or surrounding area or increase the rate or amount of surface runoff, impacts related to such would not occur under the Alternative. Furthermore, the No Project (No Build) Alternative would not include development within a 100-year floodplain.

Overall, impacts identified for the proposed project related to hydrology and water quality would not occur under the No Project (No Build) Alternative.

Transportation and Circulation

Because the No Project (No Build) Alternative would not involve construction activities, impacts associated with traffic related to construction and operation activities would not occur. In addition, because the No Project (No Build) Alternative would not involve any changes to the existing on-site uses, an increase in traffic associated with the site would not occur. Therefore, impacts related to degradation of intersection operations and traffic congestion would not occur. Furthermore, the No Project (No Build) Alternative would not modify the existing or planned alternative transportation facilities or services and, thus, would not have the potential to conflict with policies from the City of Oakley's General Plan. Accordingly, impacts related to such would not occur.

Overall, none of the impacts identified for the proposed project related to transportation and circulation would occur under the No Project (No Build) Alternative.

Utilities and Service Systems

Under the No Project (No Build) Alternative, significant impacts related to wastewater supplies or infrastructure, solid waste, electricity, and natural gas services would not occur. Because the No Project (No Build) Alternative would not involve improvements to off-site waste water infrastructure, impacts related to such would not occur as a result of the No Project (No Build) Alternative. Additionally, the No Project (No Build) Alternative would not include construction of a new pump station to accommodate wastewater flows. Therefore, the impacts identified for the proposed project related to generation of solid waste and wastewater conveyance that may have a significant impact on the environment would not occur under the No Project (No Build) Alternative.

Reduced Intensity Alternative

The Reduced Intensity Alternative would involve development of the proposed project; however, the Alternative would be designed to reduce the total amount of proposed building square footage. The Reduced Intensity Alternative would still be capable of large operations and employ a substantial amount of people. For the proposed project, this EIR assumes the total square footage of the project would be approximately 2.0 million sf. Under the Reduced Intensity Alternative, the total building space would be reduced by 50 percent and total approximately 1.0 million sf. All other aspects of the proposed project would be similar under the Reduced Intensity Alternative.

The reduced size of the structures included in the Reduced Intensity Alternative would curtail the ability of the Reduced Intensity Alternative to meet the objectives of the proposed project. For instance, Objective 1 refers specifically to development of approximately 2.0 million sf of industrial facilities on the site. The Alternative would only involve development of 1.0 million sf of industrial facilities on the site. The Alternative would not meet Objectives 1 and 2, and would only partially meet objectives 3 and 4. Because the Reduced Intensity Alternative would involve development of the site for employment type uses, the Reduced Intensity Alternative could partially fulfill the employment focused vision for the site as articulated in Policy 5.1.L, and on pages 5-10 and 2-26 of the City's General Plan.

The Reduced Intensity Alternative would be designed to avoid any disturbance of the biological resources and wetlands located northeast of the site. While the conceptual design of this alternative would eliminate the proposed project's potentially significant impact to wetland resources, the Reduced Intensity Alternative would not be capable of reducing the project's significant and unavoidable impacts related to transportation and circulation and associated cumulative impacts to less-than-significant levels for reasons identified below.

Air Quality and GHG Emissions

The Reduced Intensity Alternative would result in less development on the project site and thus, would result in slightly less construction activities. Accordingly, the air pollutant emissions associated with construction activities would be slightly reduced under the Reduced Intensity Alternative. Emissions from construction of the Reduced Intensity Alternative were quantified, and are presented in Table 6-1 below. The Reduced Intensity Alternative would be subject to implementation of Mitigation Measures 4.1-1(a) and 4.1-1(b); thus, Table 6-1 presents only mitigated emissions. It should be noted that emissions modeling for the alternative assumed a portion of the proposed high cube fulfillment center use would be used for storage purposes only, similar to what is proposed in the project, and would not generate additional vehicle trips.

As shown in Table 6-1, implementation of Mitigation Measures 4.1-1(a) and 4.1-1(b) would be sufficient to reduce emissions below the BAAQMD's thresholds. Consequently, the Reduced Intensity Alternative would not result in a significant and unavoidable impact related to project construction.

Table 6-1
Reduced Intensity Alternative Maximum Construction Emissions (lbs/day)

Pollutant	Project Site Emissions	Threshold of Significance	Exceeds Threshold?
ROG	5.08	54	**NO**
NO_x	37.13	54	**NO**
PM_{10} (exhaust)	0.33	82	**NO**
PM_{10} (fugitive)	14.56	None	**N/A**
$PM_{2.5}$ (exhaust)	0.32	54	**NO**
$PM_{2.5}$ (fugitive)	5.58	None	**N/A**

Source: CalEEMod, October 2019 (see Appendix D).

With regard to operational emissions, the Reduced Intensity Alternative would result in less development of the project site, and thus, less warehousing spaces, which would slightly reduce the number of vehicles traveling to and from the project site. Given that operational emissions associated with the proposed project were determined to be less-than-significant, the Alternative is anticipated to be below the necessary thresholds as well.

Due to the anticipated reduction in vehicle trips to and from the site under the Reduced Intensity Alternative, impacts related to exposure of sensitive receptors to substantial pollutant concentrations associated with project operations, would be fewer; however; Mitigation Measure 4.1-3 would likely continue to be required under the Reduced Intensity Alternative. Furthermore, although reductions in on-site operations would reduce operational GHG emissions, in general, the Reduced Intensity Alternative would be anticipated to result in a significant and unavoidable impact related to GHG emissions.

Overall, the Reduced Intensity Alternative would not result in the significant and unavoidable impact identified for implementation of the proposed project related to construction emissions.

Although the Reduced Intensity Alternative would be anticipated to result in a significant and unavoidable impact related to GHG emissions, the Reduced Intensity Alternative would result in fewer impacts as compared to the proposed project.

Biological Resources

The Reduced Intensity Alternative would involve development of the project site with approximately 1.0 million sf of building space. Although the Alternative would result in a 50 percent reduction in building space, the disturbance area of the site would remain the same. Given the size of the proposed industrial development under the alternative, implementation of the Reduced Intensity Alternative would be anticipated to result in some fill of seasonal wetlands on-site, as well as the removal of some on-site trees and conversion of grassland habitat. Therefore, implementation of the Reduced Intensity Alternative would continue to require mitigation as presented in the Biological Resources Section of this EIR.

It should be noted that development under the Reduced Intensity Alternative would occur in areas of the project site both within and outside of the East Contra Costa County Habitat Conservation Plan/Natural Community Plan (ECCC HCP/NCCP) (see Figure 6-1). Thus, only portions of the Reduced Intensity Alternative could be mitigated through mitigation fee payment and ECCC HCP/NCCP minimization, avoidance, and mitigation measures.

Considering the above, the Reduced Intensity Alternative would result in similar impacts as compared to the proposed project; however, the same mitigation measures required for the proposed project would be applicable for the Alternative as well.

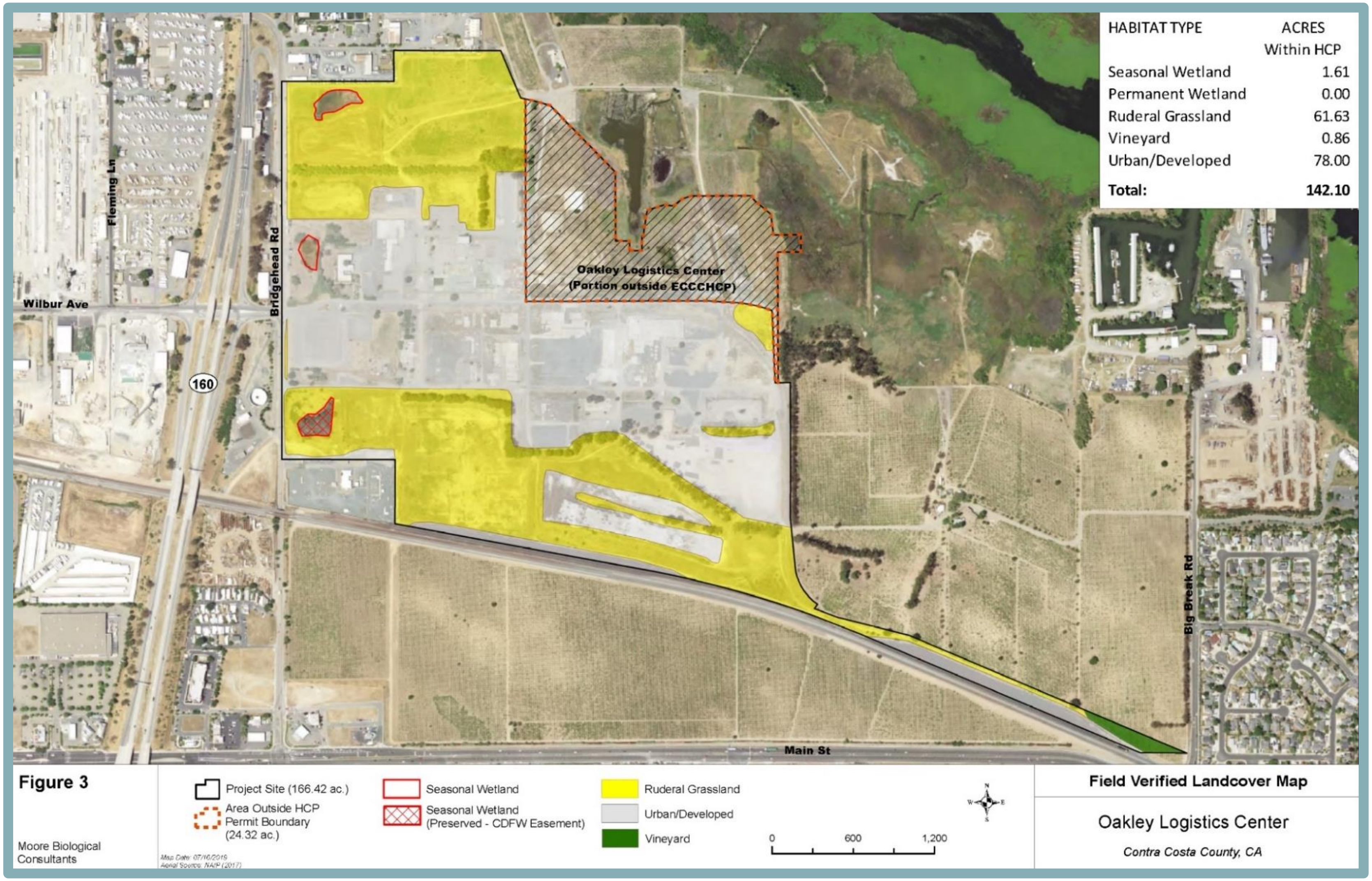
Hydrology and Water Quality

Given that the Reduced Intensity Alternative would involve the same construction activities as the proposed project, similar impacts would occur related to water quality. Because the Alternative would result in new impervious areas, alteration of the drainage patterns of the site would still be necessary which would increase the amount of stormwater runoff. Mitigation Measure 4.3-4 would still be required to ensure runoff does not exceed the capabilities of existing infrastructure. Furthermore, the Alternative would still result in development of the northwest portion of the site which is located in the Zone AE 100-year floodplain. Mitigation Measures 4.3-5 would still be required for the Alternative and, thus, would result in similar impacts related to flooding.

The Reduced Intensity Alternative would involve altering existing drainage patterns of the site which would redirect stormwater flows. Accordingly, the potential to result in similar impacts related to stormwater drainage during operations would occur under the Alternative and the same mitigation measures would be required to ensure impacts are reduced to less than significant. The Reduced Intensity Alternative would still result in impacts related to the 100-year floodplain. With impacts related to flooding and alteration of the existing drainage pattern of the site or area, the Alternative would result in similar impacts as the proposed project.

Therefore, overall, the impacts identified for the Reduced Intensity Alternative related to hydrology and water quality would be similar than that of the proposed project.

Figure 6-1
Land Cover within ECCC HCP/NCCP Permit Area



Transportation and Circulation

Because the Reduced Intensity Alternative would still involve demolition of the on-site structures and construction of new buildings, similar levels of construction vehicle traffic would occur. Accordingly, impacts associated with traffic related to construction activities would be similar under the Alternative. Because buildout of the Reduced Intensity Alternative would result in development of the project site, the Alternative would still result in the potential to conflict with policies from the City of Oakley's General Plan. Given that truck haul traffic has the potential to conflict with traffic patterns along the surrounding roadways, Mitigation Measure 4.4-6 would still be applicable.

While construction activities would result in similar vehicle traffic, vehicle trip generation associated with the Alternative would be fewer than that of the proposed project due to the reduced square footage. As shown in Table 6-2, average daily trips for the Alternative would total approximately 2,255 trips. Given that the average daily trips would be almost half as much as the proposed project, associated traffic impacts would be fewer.

Table 6-2
Reduced Intensity Alternative Trip Generation

Land Use	Size	Trip Generation						
			AM Peak Hour			PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
Warehousing Trip Rates		*1.74*	*0.04*	*0.17*	*0.13*	*0.14*	*0.19*	*0.05*
Alternative Warehouse Trip Generation	920,000	1,601	37	157	120	129	175	46
High Cube Fulfillment Center Trip Rates		*8.18*	*0.14*	*0.59*	*0.45*	*0.99*	*1.37*	*0.38*
Alternative Distribution Center Trip Generation	80,000	654	11	47	36	79	110	31
Total Project Trip Generation	**1,000,000**	**2,255**	**48**	**204**	**156**	**208**	**285**	**77**
Source: Abrams Associates, 2019.								

Overall, development of the Reduced Intensity Alternative would result in slightly fewer impacts related to Transportation and Circulation compared to that of the proposed project; however, the significant and unavoidable impacts identified for the proposed project would still be expected to occur given that construction of the proposed project would still increase traffic on local roadways.

Utilities and Service Systems

As discussed in Chapter 4.5, Utilities and Service Systems, of this EIR, the proposed project would not result in significant impacts related to wastewater supplies or infrastructure, solid waste, electricity, and natural gas services. Because the Reduced Intensity Alternative would involve less square footage than the proposed project, the amount of wastewater generation, solid waste generation, demand for public services and facilities, including energy consumption associated with the site would be less under the Reduced Intensity Alternative.

While wastewater and solid waste generation would be reduced under the Alternative, off-site improvements to the wastewater infrastructure and construction of a new pump station would still be necessary. Currently, the Lauritzen Pump station is at full capacity and the Bridgehead Pump station is not capable of accommodating the flow of the Alternative. As a result, off-site infrastructure improvements, including upgrades to the Bridgehead Pump Station and Force Main, would be required to ensure adequate capacity for wastewater conveyance. The Alternative would also be required to construct a new pump station as to not exceed the capabilities of the wastewater infrastructure. Therefore, development of the Reduced Intensity Alternative would result in similar impacts related to utilities and service systems to that of the proposed project.

Reduced Footprint Alternative

The Reduced Footprint Alternative would involve buildout of the site with a reduced development footprint. The Alternative would reduce the footprint of the project by 50 percent while the proposed square footage would be reduced by 75 percent. The proposed project would include grading of 141.8 acres of the project site while the Reduced Footprint Alternative would only involve grading of 70.9 acres. As part of the Alternative, reducing the square footage by 75 percent of the total square footage would result in a total of 500,000 sf. The Alternative would still allow operations of the industrial facilities; however, the size of the buildings, drive aisles, and parking spaces on the site would be significantly reduced.

While the Reduced Footprint Alternative would generally involve similar operations as the proposed project, the Alternative would result in fewer employees and output operations as a result of the reduction in the overall footprint and proposed building area. The Alternative would still be capable of incorporating the five buildings; however, the production capabilities may be limited. Additionally, the Alternative would not meet certain objectives for the proposed project; however, the Alternative would still be feasible. For example, Project Objective 1 refers specifically to development of approximately 2.0 million sf of industrial warehousing and light manufacturing space. The Alternative would only use 500,000 sf for the industrial warehousing but could feasibly still consist of five buildings. Objective 4 aims to develop the site as a primary employment center. Because operations and production output would reduce as a result of the Reduced Footprint Alternative, the number of employees would likely decrease; however, Objective 4 could still be partially met as the Alternative could still employ a substantial number of people. Because the Reduced Footprint Alternative would involve development of the site for employment type uses, the Reduced Footprint Alternative could partially fulfill the employment focused vision for the site as articulated in Policy 5.1.L, and on pages 5-10 and 2-26 of the City's General Plan.

The Reduced Footprint Alternative would be designed to avoid any disturbance of the biological resources and wetlands located northeast of the site. The reduction in square footage would allow the project footprint to match the East Contra Costa County Habitat Conservation Plan (ECCC HCP/NCCP) boundaries. As shown in , the proposed project is currently exceeding the boundaries of the ECCC HCP/NCCP permit area. The Alternative would avoid the wetland areas and biological resources on-site, thus, reducing the impact.

While the conceptual design of this alternative would eliminate the proposed project's potentially significant impact to wetland resources, Reduced Footprint Alternative would not be capable of reducing the project's significant and unavoidable impacts related to transportation and circulation and associated cumulative impacts to less-than-significant levels for reasons identified below.

Air Quality and GHG Emissions

The Reduced Footprint Alternative would involve a reduced area of disturbance during construction activities due to the reduction in building square footage, which would subsequently result in less construction activity than the proposed project. A reduction in construction activities would result in fewer associated air pollutant emissions. Emissions from construction of the Reduced Footprint Alternative were quantified, and are presented in Table 6-3 below. The emissions presented in Table 6-3 represent mitigated emissions following implementation of Mitigation Measures 4.1-1(a) and 4.1-1(b). It should be noted that emissions modeling for the alternative assumed a portion of the proposed high cube fulfillment center use would be used for storage purposes only, similar to what is proposed in the project, and would not generate additional vehicle trips.

Table 6-3
Reduced Footprint Alternative Maximum Construction Emissions (lbs/day)

Pollutant	Project Site Emissions	Threshold of Significance	Exceeds Threshold?
ROG	3.13	54	**NO**
NO_x	21.25	54	**NO**
PM_{10} (exhaust)	0.24	82	**NO**
PM_{10} (fugitive)	11.11	None	**N/A**
$PM_{2.5}$ (exhaust)	0.23	54	**NO**
$PM_{2.5}$ (fugitive)	4.54	None	**N/A**

Source: CalEEMod, October 2019 (see Appendix D).

As shown in Table 6-3, implementation of Mitigation Measures 4.1-1(a) and 4.1-1(b) would be sufficient to reduce construction-related emissions below the BAAQMD's thresholds of significance. Consequently, the Reduced Footprint Alternative would not result in a significant and unavoidable impact related to project construction. Furthermore, implementation of the Reduced Footprint Alternative would result in reduced operational activity within the site, thus, trips associated with delivery and operations would be reduced.

Due to the anticipated reduction in vehicle trips to and from the site under the Reduced Footprint Alternative, impacts related to exposure of sensitive receptors to substantial pollutant concentrations associated with project operations, would be fewer; however; Mitigation Measure 4.1-3 may continue to be required under the Reduced Footprint Alternative. Furthermore, although reductions in on-site operations would reduce operational GHG emissions, overall, the Reduced Footprint Alternative would be anticipated to result in a significant and unavoidable impact related to GHG emissions.

Overall, the Reduced Footprint Alternative would not result in the significant and unavoidable impact identified for implementation of the proposed project related to construction emissions. Although the Reduced Footprint Alternative would be anticipated to result in a significant and unavoidable impact related to GHG emissions, the Reduced Footprint Alternative would result in fewer impacts as compared to the proposed project.

Biological Resources

The Reduced Footprint Alternative would greatly reduce on-site development and focus the remaining development within portions of the project site covered by the ECCC HCP/NCCP. Focusing the proposed development within areas covered by the ECCC HCP/NCCP would ensure that the proposed project would avoid the existing seasonal wetland within the northeast portion of the project site, which would reduce impacts to seasonal wetlands within the project site by at least 0.02 acres. In addition, the reduced development footprint would likely allow for the preservation of some of the existing on-site trees; thus, reducing impacts to heritage and protected trees.

By restricting development to areas of the project site within the ECCC HCP/NCCP Permit Area, all construction activities associated with the Reduced Footprint Alternative would be considered covered activities under the ECCC HCP/NCCP. The ECCC HCP/NCCP provides for a uniform regional mechanism of project mitigation and impact reduction through the payment of ECCC HCP/NCCP impact fees and the application of minimization, avoidance, and mitigation measures. All ground-disturbance associated with the Reduced Footprint Alternative would be considered covered activities under the ECCC HCP/NCCP and would be mitigated through application of fee payment and standard minimization, avoidance, and mitigation measures. Compared to the proposed project, implementation of the Reduced Footprint Alternative solely within the portion of the site covered by the ECCC HCP/NCCP would serve to reduce impacts to biological resources by providing for comprehensive mitigation based on regional conservation strategies. Considering the above, the Reduced Footprint Alternative would reduce potential impacts to wetlands and trees on-site. Furthermore, the alternative would only include development within areas of the site covered by the ECCC HCP/NCCP, which would reduce impacts related to ground-disturbing activities and conversion of grassland to industrial uses. Overall, the impacts related to biological resources identified for the proposed project would be fewer under the Reduced Footprint Alternative, and although mitigation would continue to be required to ensure consistency with the ECCC HCP/NCCP, fewer mitigation measures as compared to the proposed project would be required.

Hydrology and Water Quality

Reduced Footprint Alternative would involve a smaller area of disturbance than what would occur under the proposed project. The reduced area of disturbance would result in a reduced potential for impacts related to the altering of drainage patterns on the site. Nonetheless, Mitigation Measure 4.3-4 would still be required to minimize the potential for stormwater to exceed infrastructure capabilities. While Mitigation Measures 4.3-4 would still be required, Mitigation Measure 4.3-5 would not be required for Reduced Footprint Alternative as a reduction in square footage would result in development outside of the 100-year floodplain. Thus, impacts related to development within a 100-year floodplain would not occur under the Alternative.

Because Reduced Footprint Alternative would involve a smaller building square footage for the industrial facility, which would correlate to a reduction in the on-site impervious surface area, the amount of runoff would be reduced under the Alternative. For similar reasons, impacts related to the alteration of the existing drainage pattern of the site or area, as well as an increase in the rate or amount of surface runoff, would be fewer under the Alternative than the proposed project. Given that the amount of runoff for the proposed project would decrease, the off-site basin would not be needed for the Alternative.

Overall, the impacts identified for the proposed project related to hydrology and water quality would be fewer under Reduced Footprint Alternative given that the proposed project would no longer be located in the 100-year floodplain and would not require the off-site drainage basin.

Transportation and Circulation

Because Reduced Footprint Alternative would involve a smaller area of disturbance and overall building square footage than the proposed project, the level of associated construction vehicle traffic would be reduced. Accordingly, impacts associated with traffic related to construction activities would be fewer under the Alternative.

Given that the Reduced Footprint Alternative would reduce the building square footage on the site and the overall development area, associated operational vehicle trips would likely be fewer. The number of drive aisles and parking spaces would be significantly reduced, and thus, would result in fewer vehicle trips on- and off-site. Furthermore, given that vehicle trips would be approximately half as much as the proposed project for a 50 percent reduction in square feet, it can be assumed that reducing square footage by 75 percent would reduce significant and unavoidable impacts to less-than-significant.

In addition, the Reduced Footprint Alternative could result in slightly fewer cumulative impacts. The intersections of Big Break Road/Main Street and Oakley Road/Live Oak Avenue would operate at an unacceptable standard of LOS F under the proposed project. Given that the development area of the Reduced Footprint Alternative would be significantly reduced, traffic conditions would operate at acceptable levels. As such, implementation of Mitigation Measures 4.4-9 and 4.4-10 would not be necessary for the Alternative. Thus, the Reduced Footprint Alternative would result in fewer impacts under Cumulative Plus Project conditions than that of the proposed project and, thus, reduce significant and unavoidable impacts to less-than-significant.

Overall, development of the Reduced Footprint Alternative would result in fewer impacts related to transportation and circulation compared to that of the proposed project and the significant and unavoidable impacts identified for the proposed project would not be expected to occur.

Utilities and Service Systems

As discussed in Chapter 4.5, Utilities and Service Systems, of this EIR, the proposed project would not result in significant impacts related to wastewater supplies or infrastructure, solid waste, electricity, and natural gas services. Because the Reduced Footprint Alternative would involve a substantial reduction in square footage of the proposed project, the Alternative would generate less wastewater and solid waste. Accordingly, the amount of wastewater generation, solid waste generation, and energy consumption associated with the site would be fewer under the Reduced Footprint Alternative.

Although reduction in the project footprint would result in significantly less waste, improvements to the Bridgehead Pump Station would still be required to accommodate the proposed project. Because the Lauritzen Pump station is currently at full capacity, upgrades to the Bridgehead Pump station and force main would be necessary to accommodate wastewater flows. In addition to the improvements of the Bridgehead Pump station and force main, construction of a new pump station would be included in order to ensure adequate capacity for wastewater conveyance. Therefore, development of the Reduced Footprint Alternative would result in similar impacts related to utilities and service systems to that of the proposed project.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. Section 15126(e)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states, "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

Designating a superior alternative depends in large part on what environmental effects one considers most important. This EIR does not presume to make this determination; rather, the determinations of which impacts are more important are left to the reader and the decision makers. Generally, the environmentally superior alternative is the one that would result in the fewest environmental impacts as a result of project implementation. However, it should be noted that the environmental considerations are one portion of the factors that must be considered by the public and the decisionmakers in deliberations on the proposed project and the alternatives. Other factors of importance include urban design, economics, social factors, and fiscal considerations. In addition, the superior alternative would, ideally, still provide opportunities to achieve the project objectives.

The No Project (No Build) Alternative would not meet any of the project objectives, because the site would not be redeveloped for Light Industrial use. The Reduced Intensity Alternative would not meet Objectives 1 or 2, and would only partially meet Objectives 3 and 4. The Reduced Footprint Alternative would not meet Objectives 1 and 2, and would only partially meet Objectives 3 and 4. Objective 5 would be met under both the Reduced Intensity Alternative and the Reduced Footprint Alternative.

A comparison of the impacts that would occur under each of the alternatives, as discussed in detail above, to those anticipated for the proposed project is illustrated in Table 6-4 below. As shown in Table 6-4, all of the significant impacts identified for the proposed project would not occur under the No Project (No Build) Alternative. The Reduced Intensity Alternative would result in fewer impacts related to Air Quality and Greenhouse Gas Emissions, and Transportation and Circulation, but would result in similar impacts related to Biological Resources, Hydrology and Water Quality, and Utilities and Service Systems. The Reduced Footprint Alternative would result in fewer impacts related to Air Quality and Greenhouse Gas Emissions, Biological Resources, Hydrology and Water Quality, and Transportation and Circulation but would result in similar impacts related to Utilities and Service Systems. It should be noted that the Reduced Intensity Alternative would not eliminate the significant and unavoidable impacts related to Transportation and Circulation and GHG Emissions; however, the Reduced Footprint Alternative would reduce significant and unavoidable impacts related to Transportation and Circulation to less than significant. Because the Reduced Footprint Alternative would be capable of reducing more of the impacts identified for the proposed project than the Reduced Intensity Alternative, while still meeting the majority of the project objectives, the Reduced Footprint Alternative would be considered the environmentally superior alternative to the proposed project.

Table 6-4
Alternative Environmental Impacts Comparison

Resource Area	Proposed Project	No Project (No Build) Alternative	Reduced Intensity Alternative	Reduced Footprint Alternative
Air Quality and GHG Emissions	Significant and Unavoidable	None	Fewer*	Fewer*
Biological Resources	Less-Than-Significant with Mitigation	None	Similar	Fewer
Hydrology and Water Quality	Less-Than-Significant with Mitigation	None	Similar	Fewer
Transportation and Circulation	Significant and Unavoidable	None	Fewer*	Fewer
Utilities and Service Systems	Less-than-significant	None	Similar	Similar

Notes:
No Impact = "None"
Less than Proposed Project = "Fewer"
Similar to Proposed Project = "Similar"
Greater than Proposed Project = "Greater"
* Significant and unavoidable impacts identified for the proposed project would remain.

7. EIR Authors and Persons Consulted

7. EIR Authors and Persons Consulted

Raney Planning & Management, Inc.

C. Timothy Raney, AICP	President
Cindy Gnos, AICP	Senior Vice President
Nick Pappani	Vice President
Rod Stinson	Division Manager/Air Quality Specialist
Angela DaRosa	Assistant Division Manager/Air Quality Specialist
Jacob Byrne	Senior Associate/Air Quality Technician
Zac Smith	Associate
Elyse Marsh	Associate
Clay Gallagher	Associate

City of Oakley

Joshua McMurray	Community Development Director
Ken Strelo	Principal Planner

Abrams Associates Traffic Engineering, Inc.

Stephen Abrams	President

Balance Hydrologics, Inc. and Carlson, Barbee & Gibson, Inc.

Jason Vogan	Principal Engineer

Coleman Engineering

Chad Coleman	Principal Engineer
Megan Shaw	Principal Engineer

Moore Biological Consultants

Diane Moore	Principal Biologist

Pioneer Technologies Corporation

Troy Bussey, Jr.	Principal Engineer

Tree, Bugs, Dirt

Michael Baefsky	Arborist

8. References

8. References

Abrams Associates Traffic Engineering, Inc. *Transportation Impact Analysis, Oakley Logistics Center, City of Oakley.* September 19, 2019.

Association of Bay Area Governments and Metropolitan Transportation Commission. *Plan Bay Area 2040: Final.* Available at: http://2040.planbayarea.org/reports. Accessed August 2019.

Balance Hydrologics and Carlson, Barbee & Gibson, Inc. *Stormwater Control Plan Oakley Logistics Center.* June 21, 2019.

Bay Area Air Quality Management District. *Air Quality Guidelines*. May 2017.

Bay Area Air Quality Management District. *Air Quality Plans*. Available at: http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans.aspx. Accessed September 2019.

Bay Area Air Quality Management District. *Air Quality Standards and Attainment Status*. Available at: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status. Accessed August 2019.

Bay Area Air Quality Management District. *California Environmental Quality Act Guidelines Update: Proposed Thresholds of Significance*. December 7, 2009.

Bay Area Air Quality Management District. *Ultrafine Particulate Matter Study in the San Francisco Bay Area Part I: Study Plan*. August 23, 2010.

California Air Resources Board. *AB 32 Scoping Plan*. Available at: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed September 2019.

California Air Resources Board. Aerometric Data Analysis and Management (iADAM) System. Available at: http://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed June 2019.

California Air Resources Board. *Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling*. October 24, 2013. Available at: http://www.arb.ca.gov/msprog/truck-idling/truck-idling.htm. Accessed August 2019.

California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.

California Air Resources Board. *California Ambient Air Quality Standards (CAAQS).* May 4, 2016. Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Accessed May 2019.

California Air Resources Board. *California's 2017 Climate Change Scoping Plan*. November 2017.

California Air Resources Board. *First Update to the Climate Change Scoping Plan*. May 22, 2014.

California Air Resources Board. *Glossary of Air Pollution Terms*. Available at: http://www.arb.ca.gov/html/gloss.htm. Accessed May 2019.

California Air Resources Board. *In-Use Off-Road Diesel Vehicle Regulation*. December 10, 2014. Available at: http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm. Accessed August 2016.

California Air Resources Board. *Reducing Toxic Air Pollutants in California's Communities*. February 6, 2002.

California Air Resources Board. *2002-07-29 Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations*. June 3, 2015. Available at: http://www.arb.ca.gov/toxics/atcm/asb2atcm.htm. Accessed June 2019.

California Code of Regulations, Title 13, Article 4.8, Chapter 9, Section 2449.

California Department of Fish and Wildlife. *Staff Report Regarding Mitigation for Impacts to Swainson's Hawk (Buteo swainsoni) in the Central Valley of California.* November 8, 1994.

California Department of Transportation. *Transportation Project-Level Carbon Monoxide Protocol*. Revised December 1997.

California Department of Water Resources. *Sustainable Groundwater Management Act 2018 Basin Prioritization.* January 2019.

California Energy Commission. *California Commercial End-Use Survey Results*. Available at: http://capabilities.itron.com/CeusWeb/Chart.aspx. Accessed September 2019.

California Energy Consumption Data Management System. *Electricity Consumption by County.* Available at: http://ecdms.energy.ca.gov/elecbycounty.aspx. Accessed July 2019.

California Energy Consumption Data Management System. *Gas Consumption by County.* Available at: http://ecdms.energy.ca.gov/gasbycounty.aspx. Accessed July 2019.

California Environmental Services. *Focused Rare Plant Surveys, Chemours-Oakley, California Site*. September 7, 2017.

California Natural Diversity Database. *California Department of Fish and Wildlife's Natural Heritage Program, Sacramento, California*. 2019.

California Native Plant Society. *Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). California Native Plant Society, Sacramento, CA*. Available at: http://www.rareplants.cnps.org. Accessed 2019.

California Natural Resources Agency. *Safeguarding California: Reducing Climate Risk*. July 2014.

California Public Utilities Commission. *California Renewables Portfolio Standard (RPS)*. Available at: http://www.cpuc.ca.gov/renewables/. Accessed November 2017.

City of Oakley. *2020 General Plan.* February 2, 2016.

City of Oakley. *Oakley 2020 General Plan Environmental Impact Report.* 2002.

Code of Federal Regulations. *Title 50. Volume 1 - Wildlife and Fisheries. Section 17.96 - Critical habitat-plants. Designation of critical habitat for Contra Costa wallflower (Erysimum capitatum var. angustatum). Designated in Federal Register notice 43:39044; August 31, 1978.* 1999a.

Code of Federal Regulations. *Volume 1 - Wildlife and Fisheries. Section 17.96 – Critical habitat-plants. Designation of critical habitat for Antioch dunes evening primrose (Oenothera deltoides var. howellii). Designated in Federal Register notice 43:39042; August 31, 1978.* 1999b.

Coleman Engineering. *Lift Station Recommendations, Oakley Logistics Center.* September 24, 2019.

Contra Costa Clean Water Program and Dan Cloak Environmental Consulting. *Stormwater C.3 Guidebook, Stormwater Quality Requirements for Development Applications, 6th Edition*. February 15, 2012.

Diablo Water District. *Groundwater Management Plan for AB 3030.* May 2007.

Diablo Water District. *Logistics Center – Development Agreement (DA 01-18), Rezone (RZ 08-18), Tentative Map (05-18) and Design Review (DR 12-18).* January 9, 2019.

Diablo Water District. *2015 Urban Water Management Plan.* June 2016.

DNV GL. *RASS Reporting Center.* Available at: https://webtools.dnvgl.com/rass2009/. Accessed September 2019.

ENVIRON International Corporation and the California Air Districts. *California Emissions Estimator Model User's Guide Version 2016.3.1*. November 2017.

FISHBIO. *Biological Assessment of the Oakley Logistics Center Stormwater Discharge Outlet.* July 15, 2019.

Golder Associates. *Joint Technical Document, Potrero Hills Landfill*. July 2017.

Health Effects Institute. *Understanding the Health Effects of Ambient Ultrafine Particles*. January 2013.

Institute of Transportation Engineers. *High-Cube Warehouse Vehicle Trip Generation Analysis*. October 2016.

Intergovernmental Panel on Climate Change*. Climate Change 2007: Impacts, Adaptation, and Vulnerability.* 2007.

Ironhouse Sanitation District. *Sewer System Management Plan.* April 2017.

Moore Biological. *Application and Planning Survey Report*. September 27, 2019.

Moore Biological Consultants. *"Oakley Logistics Center", Oakley, California: 2019 Surveys for Special-Status Plants in Waters of the U.S. Outside the East Contra Costa County Habitat Conservation Plan.* September 19, 2019.

Moore Biological. *Memorandum: "Contra Costa Logistics Center", Oakley, California: Overview of Special-Status Species in the Portion of the Site Outside the East Contra Costa County Habitat Conservation Plan*. July 18, 2019.

Mount Diablo Resource Recovery. *About Us.* Available at: https://mdrr.com/about/. Accessed July 2019.

Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments*. February 2015.

Pacific Gas & Electric Company. *Clean Energy CA*. Available at: https://www.pge.com/en_US/residential/solar-and-vehicles/clean-energy/about-clean-energy.page?. Accessed September 2019.

Pacific Gas & Electric Company. *Company Profile*. Available at: https://www.pge.com/en_US/about-pge/company-information/profile/profile.page. Accessed June 2019.

Sacramento Metropolitan, El Dorado, Feather River, Placer, and Yolo-Solano Air Districts, Spare the Air website. *Air Quality Information for the Sacramento Region.* Available at: http://www.sparetheair.com/health.cfm?page=healthoverall. Accessed May 2019.

Shuford, W.D., and Gardali T., editors. *California Bird Species of Special Concern A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California.* Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Wildlife, Sacramento. 2008.

Solano County Department of Resource Management. *Solid Waste Facility Permit (Potrero Hills Landfill).* February 14, 2012.

South Coast Air Quality Management District. *Final 2012 Air Quality Management Plan*. December 2012.

Trees, Bugs, Dirt. *Final Arborist Report*. December 7, 2018.

U.S. Energy Information Administration. *California: State Profile and Energy Estimates*. Available at: https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_use_pa.html&sid=US&sid=CA. Accessed September 2019.

U.S. Energy Information Administration. *Total Energy, Table 1.8 Motor Vehicle Mileage, Fuel Consumption, and Fuel Economy*. Available at:

https://www.eia.gov/totalenergy/data/browser/?tbl=T01.08#/?f=A&start=200001. Accessed September 2019.

U.S. Environmental Protection Agency. *Climate Change Indicators: Atmospheric Concentrations of Greenhouse Gases*. Available at: https://www.epa.gov/climate-indicators/climate-change-indicators-atmospheric-concentrations-greenhouse-gases. Accessed September 2019.

U.S. Environmental Protection Agency. *Estimating 2003 Building-Related Construction and Demolition Materials Amounts.* 2009.

U.S. Environmental Protection Agency. *Sources of Greenhouse Gas Emissions*. Available at: https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions. Accessed September 2019.

U.S. Fish and Wildlife Service. *50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Cirsium hydrophilum var. hydrophilum (Suisun thistle) and Cordylanthus mollis ssp. mollis (soft bird's-beak). Final Rule. Federal Register Vol. 72, No. 70.* April 12, 2007.

USFWS. *Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Evaluation and Economic Exclusions from August 2003 Final Designation, Final Rule. Federal Register Vol. 70, No. 154.* August 11 2005.

U.S. Green Building Council. *Building Area Per Employee by Business Type*. May 13, 2008.

Appendix A

OAKLEY

CALIFORNIA

California Environmental Quality Act (CEQA) Initial Study for

Oakley Logistics Center

(DA 01-18, DR 12-18, GP 04-18, RZ 08-18, TM 05-18)

February 2019

Prepared by

RANEY
PLANNING & MANAGEMENT, INC.
1501 Sports Drive, Suite A, Sacramento, CA 95834

INITIAL STUDY

A. BACKGROUND

1.	Project Title:	Oakley Logistics Center
2.	Lead Agency Name and Address:	City of Oakley 3231 Main Street Oakley, CA 94561
3.	Contact Person and Phone Number:	Joshua McMurray Planning Manager (925) 625-7000
4.	Project Location:	6000 Bridgehead Road Oakley, CA 94561
	Assessor’s Parcel Numbers (APNs):	037-020-008, -009, -010, -014, -015, -016, -017, -018, -019, -020, -021, and -022
5.	Project Sponsor:	North Point Development 12977 North Forty Drive, Suite 203 St. Louis, Missouri 63141
6.	Existing General Plan:	Business Park/Light Industrial/Utility Energy/ Delta Recreation
7.	Proposed General Plan:	Light Industrial
8.	Existing Zoning:	Specific Plan
9.	Proposed Zoning:	Planned Unit Development

10. Project Description Summary:

The Oakley Logistics Center (proposed project) is located on approximately 345 acres of land on the northwest side of the City of Oakley. The proposed project would include development of approximately 150 acres of the land project area. The proposed logistics center would be developed with light industrial uses. The project site is currently zoned Specific Plan and seeks to be rezoned as Planned Unit Development in order to allow flexibility to develop light industrial and related uses consistent with the General Plan. The site is currently designated Business Park/Light Industrial/Utility Energy/Delta Recreation under the City of Oakley 2020

General Plan. The proposed project would include a General Plan Amendment to remove the Business Park and Utility Energy land use designations, and expand the Light Industrial land use designation over the area to be developed. The Delta Recreation designation would remain and the area would not be developed.

11. Surrounding Land Uses and Setting:

    The proposed project would develop approximately 150 acres of the project site, located on Bridgehead Road north of Main Street and the Burlington Northern Santa Fe (BNSF) railroad, with entrance provided by Wilbur Avenue. Surrounding existing land uses include commercial and industrial uses to the west, vacant land to the south, a mobile home park southwest, vacant land to the east, and the San Joaquin River Delta and Lauritzen Yacht Harbor to the north.

12. Status of Native American Consultation Pursuant to Public Resources Code Section 21080.3.1.:

    In compliance with Assembly Bill (AB) 52 (Public Resources Code Section 21080.3.1), project notification letters were distributed to the Amah Mutsin Tribal Band of Mission San Juan Bautista, The Ohlone Indian Tribe, Wilton Rancheria, the Indian Canyon Mutsun Band of Costanoan, the Muwekma Ohlone Indian Tribe of the SF Bay Area, the North Valley Yokuts Tribe, and the Torres Martinez Desert Cahuila Indians. The letters were distributed on January 28, 2019 and requests to consult were not received to date.

B. SOURCES

All technical reports and modeling results prepared for the project analysis are available upon request at the City of Oakley City Hall, located at 3231 Main Street, Oakley, CA 94561. The following documents are referenced information sources utilized by this analysis:

1. Abrams Associates Traffic Engineering. *Transportation Impact Analysis Oakley Logistics Center*. December 14, 2018.
2. AECOM 2017a. *Emergency Action, Preparedness, Prevention and Contingency Plan, Chemours Oakley, Oakley California.* November 2017.
3. AECOM 2017b. *Facility Wide Management Plan and Generator Requirements, Chemours Oakley Facility, Oakley California*. June 2017.
4. Ascent Environmental. *Request for Preliminary Jurisdictional Determination for the Chemours Oakley Remediation Project. (SPK-2018-00848).* January 2018.
5. Association of Bay Area Governments. *Resilience Program*. Available at: http://gis.abag.ca.gov/website/Hazards/. Accessed January 7, 2019.
6. Bumgardner Biological Consulting. *Additional Assessment for Potential Occurrence and Adverse Effects to Delta Smelt and Giant Garter Snake at the Chemours Remediation Project, Oakley, California*. January 2018.
7. California Department of Conservation. *Contra Costa County Important Farmland 2016.* Published August 2018.
8. California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. June 12, 2018.
9. California Department of Toxic Substances Control. EnviroStor. Available at: http://www.envirostor.dtsc.ca.gov. Accessed January 2019.
10. California Department of Transportation Division of Environmental Analysis. *Technical Noise Supplement to the Traffic Noise Analysis Protocol.* September 2013.
11. California Department of Transportation. *California Scenic Highway Mapping System Contra Costa County*. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/. Accessed January 2019.
12. California Department of Transportation. *Transportation and Construction Vibration Guidance Manual*. September 2013.
13. City of Oakley. *City of Oakley 2020 General Plan* [Table 9-3]. Amended February 2, 2016.
14. Department of Toxic Substances Control. *Initial Study Chemours Oakley Site Sediment, Soil and Groundwater Corrective Measure Studies*. June 29, 2018.
15. Diablo Water District. *Diablo water District Final 2015 Urban Water Management Plan.* June 2016.
16. Moore Biological Consultants. *Contra Costa Logistics Center, Oakley, California: Overview of Special-Status Species Not Covered Under the ECCCHCP.* January 2019.
17. Moore Biological Consultants. *Planning Survey Report for Oakley Logistics Center*. December 2018.

18. Parsons. *Chemours Oakley Site: Wetland Delineation Reverification (SPK-2007-01861).* November 2016.
19. Trees, Bugs, Dirt Landscape Consulting and Training. *Final Arborist Report Chemours Dupont Site-Oakley CA*. December 7, 2018.
20. USDA Natural Resources Conservation Service. *Web Soil Survey*. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed January 3, 2019.

C. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is "Potentially Significant" as indicated by the checklist on the following pages.

☐ **Aesthetics**	☐ **Agriculture and Forest Resources**	✖ **Air Quality**
✖ **Biological Resources**	☐ **Cultural Resources**	✖ **Energy**
☐ **Geology and Soils**	✖ **Greenhouse Gas Emissions**	☐ **Hazards and Hazardous Materials**
✖ **Hydrology and Water Quality**	☐ **Land Use and Planning**	☐ **Mineral Resources**
☐ **Noise**	☐ **Population and Housing**	☐ **Public Services**
☐ **Recreation**	✖ **Transportation**	☐ **Tribal Cultural Resources**
☐ **Wildfire**	✖ **Utilities and Service Systems**	

D. DETERMINATION

On the basis of this Initial Study:

☐ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the applicant. A MITIGATED NEGATIVE DECLARATION will be prepared.

✖ I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

______________________	______________________
Signature	Date
Joshua McMurray	City of Oakley
Printed Name	For

E. BACKGROUND AND INTRODUCTION

This Initial Study (IS) provides an environmental analysis pursuant to the California Environmental Quality Act (CEQA) for the proposed project. The applicant has submitted this application to the City of Oakley, which is the Lead Agency for the purposes of CEQA review. The IS contains an analysis of the environmental effects of construction and operation of the proposed project.

In December 2002, the City of Oakley adopted the Oakley General Plan and the Oakley General Plan Environmental Impact Report (EIR). The General Plan EIR was a program-level EIR, prepared pursuant to Section 15168 of the CEQA Guidelines (Title 14, California Code of Regulations, Sections 15000 *et seq*.). The General Plan EIR analyzed full implementation of the Oakley General Plan and identified measures to mitigate the significant adverse project and cumulative impacts associated with the General Plan. Pursuant to CEQA Guidelines Section 15150(a), the City of Oakley General Plan and General Plan EIR are incorporated by reference. Both documents are available at the City of Oakley, 3231 Main Street, Oakley, CA 94561.

The impact discussions for each section of this IS have been largely based on information in the Oakley General Plan and the Oakley General Plan EIR.

The mitigation measures prescribed for environmental effects described in this IS would be implemented in conjunction with the project, as required by CEQA, and the mitigation measures would be incorporated into the project. In addition, findings and a project Mitigation Monitoring and Reporting Program (MMRP) would be adopted in conjunction with approval of the project.

The proposed project site is the location of a former DuPont chemical manufacturing facility that produced chlorofluorocarbons and anti-knock fuel additive compounds. All manufacturing activities ceased by 1999 and the manufacturing facilities at the site have been demolished. The site is undergoing corrective action under the Resource Conservation and Recovery Act. The Department of Toxic Substances Control (DTSC), as the lead agency, certified a Mitigated Negative Declaration (MND) for the remediation project on June 29, 2018. The remedial activities will eliminate or reduce potential exposures and hazards at the site. As the remediation is completed, the remediated areas of the site will be ready for the development of industrial and commercial uses.

F. PROJECT DESCRIPTION

The following section includes a description of the project's location and surrounding land uses, as well as a discussion of the project components and discretionary actions requested of the City of Oakley by the applicant.

Project Location and Surrounding Land Uses

The project site is located on the northwest side of the City of Oakley, adjacent to State Route (SR) 160, on Bridgehead Road, north of Main Street and the BNSF Railroad, with entrance provided by Wilbur Avenue. The entire property is approximately 345 acres. However, the proposed project would only develop approximately 150 acres of the property. The remaining 195 acres would be undisturbed. The site is bounded by commercial and industrial uses to the west, vacant land to the east, the BNSF railroad and a mobile home park to the south, and the Delta and Lauritzen Yacht Harbor to the north (see Figure 1).

Project Components

The proposed project includes construction of seven buildings across the project site ranging in size from 47,460 square feet (sf) to 567,840 sf, for a total of 2,249,544 sf (see Figure 2). The buildings would include front load and cross docked warehouses. The proposed project would include demolition of the existing structures and construction of the proposed buildings.

Construction and Proposed Uses

The development of the proposed project would occur over three years and would include construction of seven buildings with associated parking areas, circulation improvements, and truck court areas. The frontage road on Wilbur Avenue would be improved to provide access to each building, and construction of two entrances north and south of Wilbur Avenue off of Bridgehead Road would also improve circulation throughout the project site.

The proposed project would provide spaces for light industrial, warehousing, and manufacturing uses consistent with the General Plan.

Grading

Existing grades within the project site range from a low of about seven feet at the northwest corner of the site to a high of about 23 feet in the southwest corner. Proposed grading would consist of a series of cuts and fills to produce an overland stormwater release path towards the Central Slough and Delta edges. Two existing wetlands along Bridgehead Road would be filled. Elevations for the proposed buildings would be between 19.3 and 23.7 feet with adjacent truck docks being approximately four feet below the finished floors. A preliminary earthwork model for the grading scheme indicates that approximately 250,000 cubic yards of import would be needed. However, as the site planning is refined, an effort would be made to reduce the amount of material required for import and export.

Figure 1
Project Vicinity Map

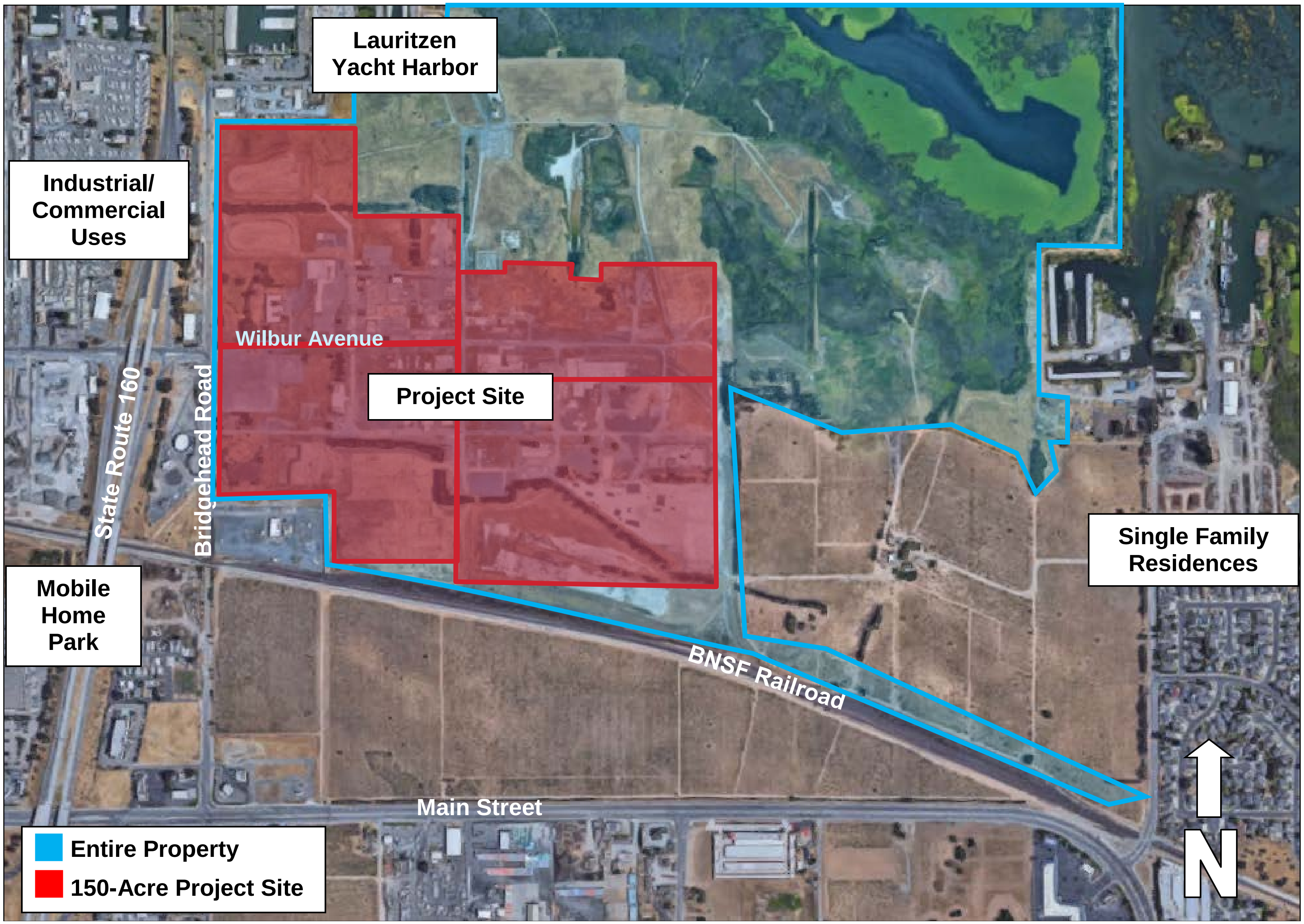
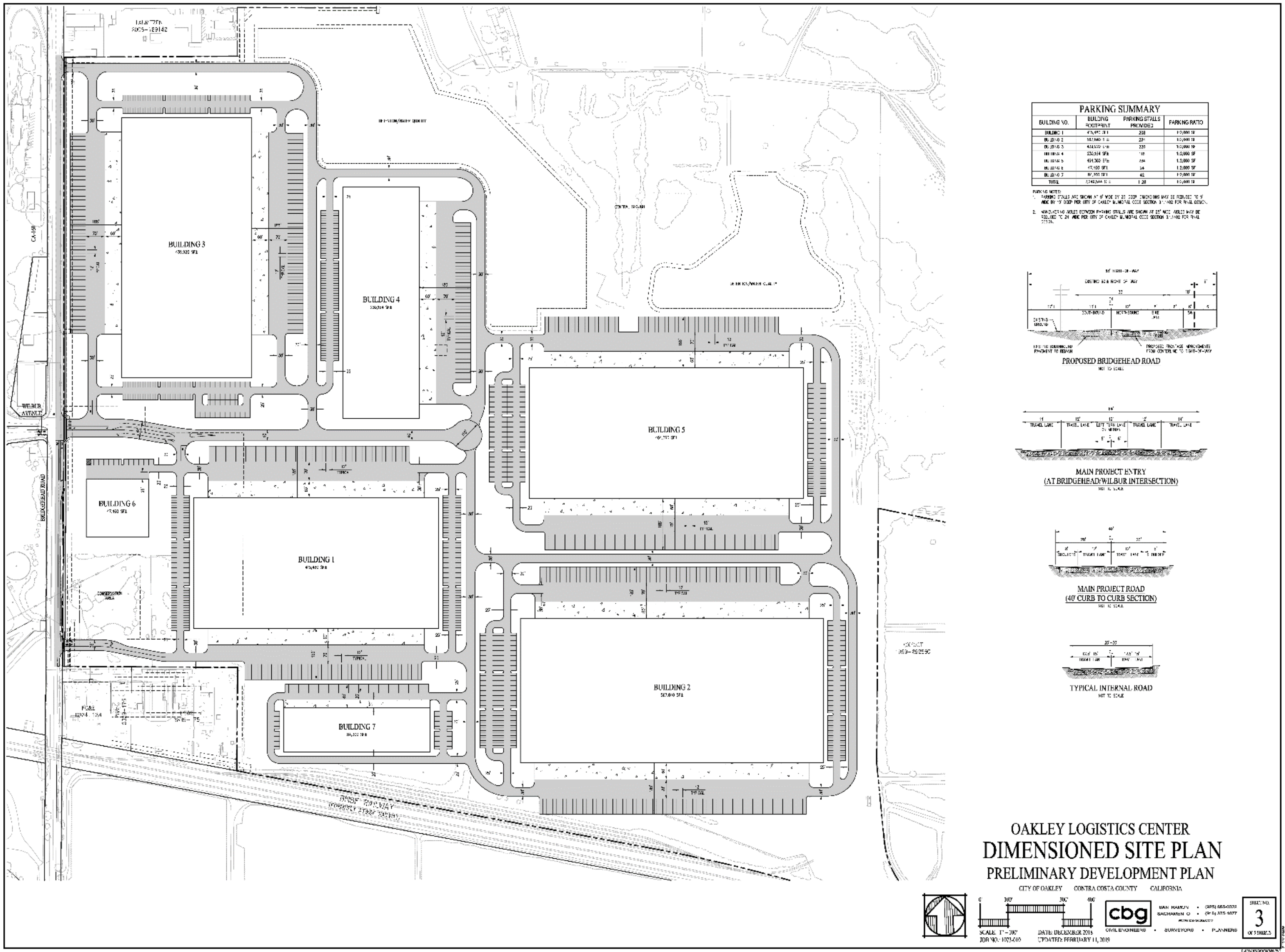


Figure 2
Tentative Site Map



Project Site Access

The main entrance to the project site would be located on the eastern side of the intersection of Wilbur Avenue and Bridgehead Road. Two secondary access points would also be provided on Bridgehead Road. The first would be located to the south of the Wilbur Avenue entrance and the second would be located to the north.

Each of the seven buildings would have individual access and parking areas. Buildings 1 through 5 would have loading dock access on two sides of each building. The proposed project would include a total of 1,128 parking spaces. Parking spaces would be 9 feet wide by 20 feet deep per the City of Oakley Municipal Code Section 9.1.1402.

Roadway Improvements

Consistent with the Oakley 2020 General Plan, roadway infrastructure would be constructed to meet the needs of a planned unit development and provide access to the project area. Street widths would be designed in accordance with traffic studies completed for the project as well as the specifications within the Oakley 2020 General Plan.

Wilbur Avenue would provide the main entrance to the proposed project. Internal circulation roads would be privately maintained. The southern entrance from Bridgehead Road would be constructed to circulate the project site and provide access to Buildings 1 and 7. The entrance from the northern portion of Bridgehead Road would be constructed to provide access to Building 3 and circulate the entire project site. The primary entrance on Wilbur Avenue would be expanded to 64 feet at the entrance.

Additionally, the proposed project would include a change to the General Plan Figure 3-1, Circulation Diagram, to remove the proposed extension of Live Oak Avenue through the project site (See Figure 3)

Utilities

The following is a discussion of the planned utility services of the proposed project. See Figure 4 for the proposed utilities site plan.

Water

Diablo Water District (DWD) provides potable water service to the project area. DWD has existing water lines along the southern boundary of the site, extending north and south. The private on-site water system currently used would be removed completely. The project includes a proposed water line in the main private drive aisle extending from Wilbur Avenue to the proposed cul-de-sac, operated by DWD. From that point, services to Buildings 2, 5, and 7 would be privately owned and operated. Buildings 1, 3, 4, and 6 would also be served from connections off the DWD line at connections along the main drive aisle.

Figure 3
General Plan Circulation Diagram

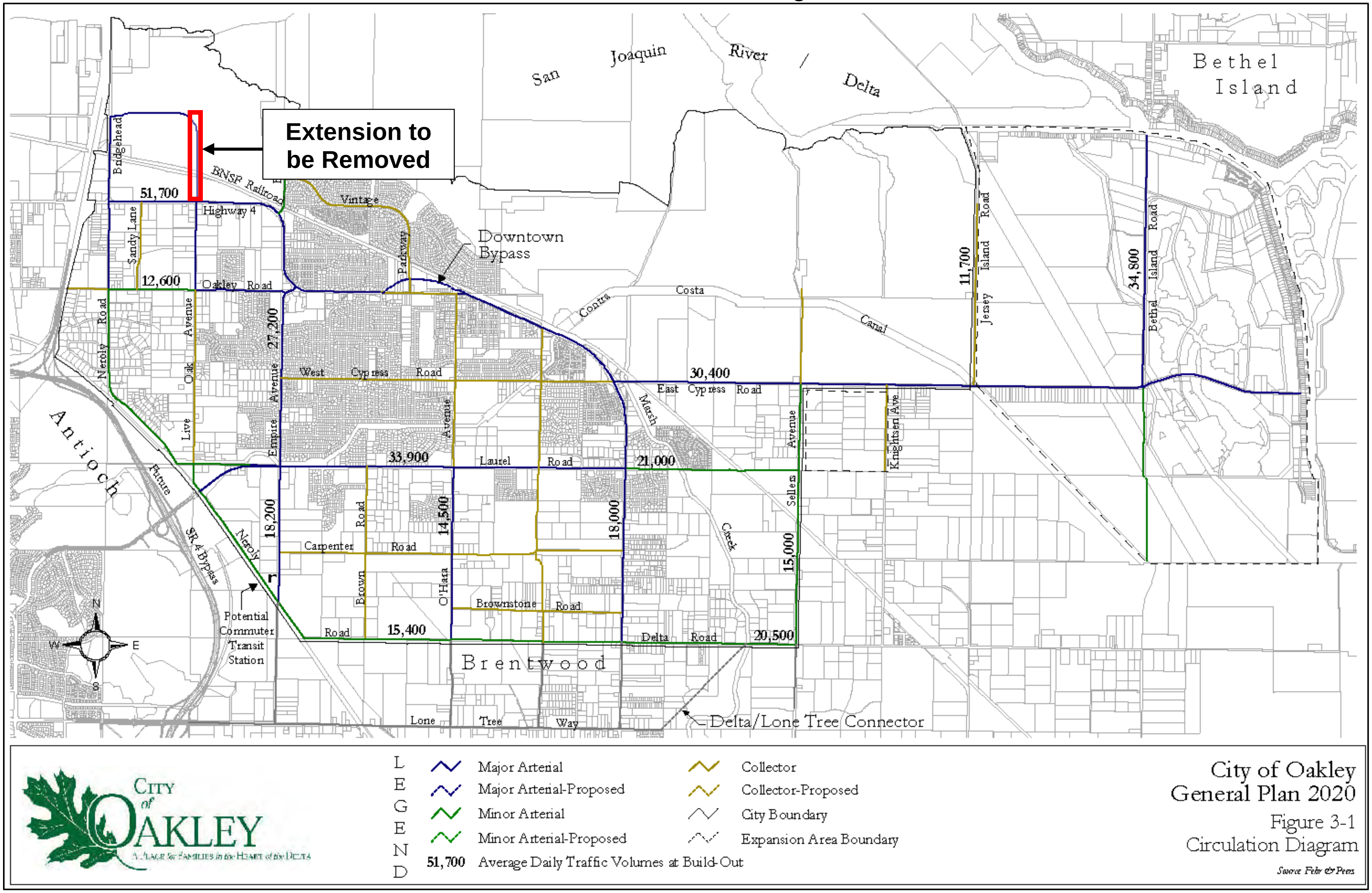
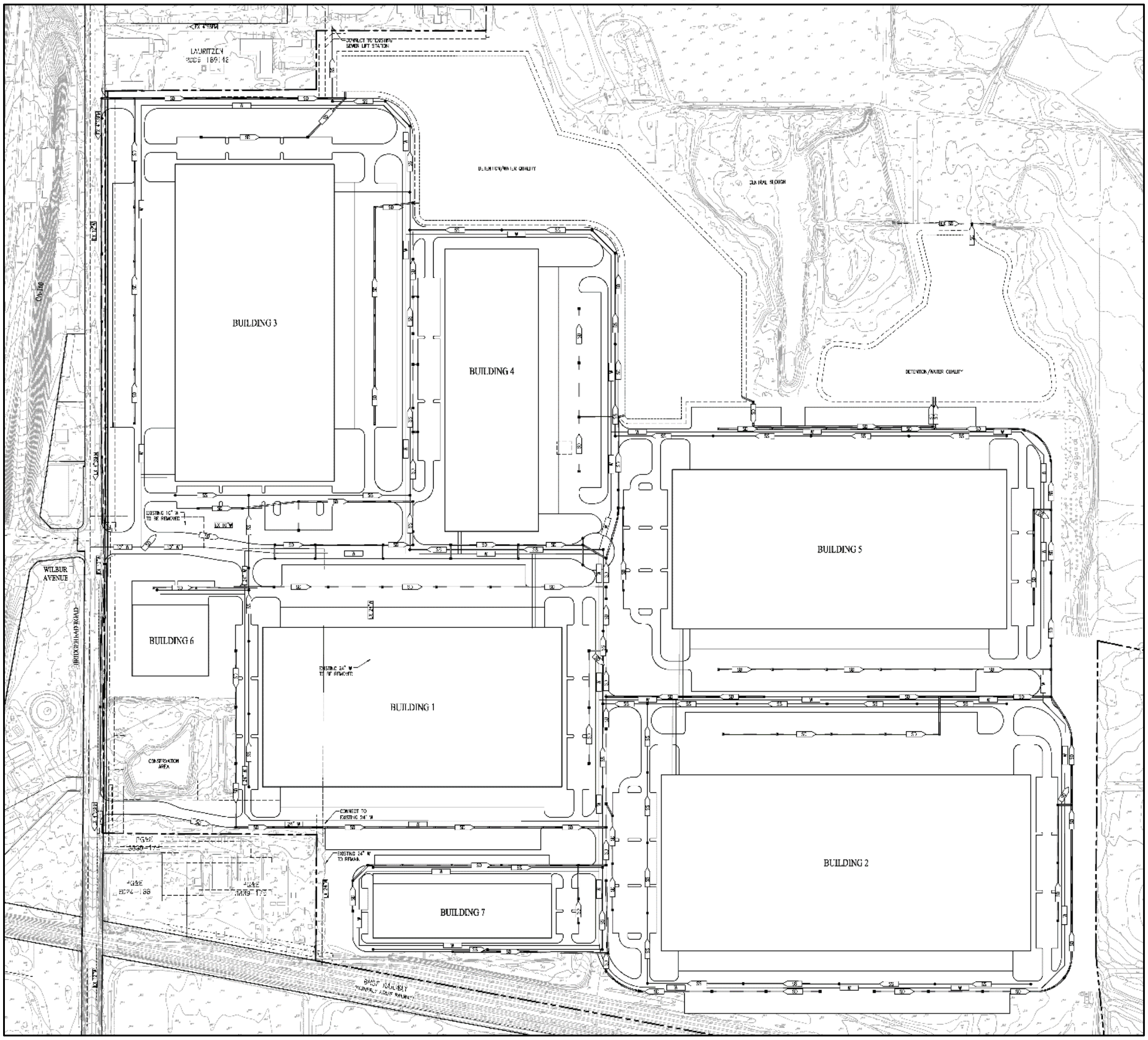


Figure 4
Proposed Utilities Map



Sewer

Iron House Sanitary District (ISD) provides sanitary sewer collection and treatment for the project area. ISD operates the existing Lauritzen Sewer Pump Station in Lauritzen Lane at the north edge of the site. Wastewater flows generated from the buildings would be collected in a pipe network that circulates within the parking and drive aisles of the project area and connects to the Lauritzen Pump Station.

Storm Drainage

The City of Oakley operates and maintains the public storm drain system in the vicinity of the project area. The site currently does not contain existing or planned public storm drain facilities. Stormwater from impervious building rooves and pavement areas would be conveyed to biofiltration basins located throughout the site. Water from the basins would then be conveyed to the southern tip of Central Slough. Flows from the site would be conveyed to an existing pipe and discharged to the Delta. On-site piping and biofiltration basins would be privately maintained.

Discretionary Actions

Implementation of the proposed project would require the following discretionary actions by the City of Oakley:

- Certification of the Environmental Impact Report;
- Adoption of the Mitigation Monitoring and Reporting Program;
- Approval of a General Plan Amendment (GP 04-18) to amend the land use designation from Light Industrial/Business Park/Utility Energy to Light Industrial;
- Approval of General Plan Amendment to remove the proposed extension of Live Oak Avenue from General Plan Figure 3-1, Circulation Diagram;
- Approval of a Rezone (RZ 08-18) from Specific Plan (SP-3) to Planned Unit Development (P-1);
- Approval of Preliminary and Final Development Plan;
- Approval of a Design Review (DR 12-18);
- Approval of a Tentative Subdivision Map to create 11 parcels (TM 05-18); and
- Approval of a Development Agreement (DA 01-18).

G. ENVIRONMENTAL CHECKLIST

The following checklist contains the environmental checklist form presented in Appendix G of the CEQA Guidelines. The checklist form is used to describe the impacts of the proposed project. A discussion follows each environmental issue area identified in the checklist. Included in each discussion are project-specific mitigation measures required, where necessary, as part of the proposed project.

For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which mitigation has not been identified. If any potentially significant impacts are identified, an EIR must be prepared.

Less Than Significant With Mitigation Incorporated: An impact that requires mitigation to reduce the impact to a less-than-significant level.

Less-Than-Significant Impact: Any impact that would not be considered significant under CEQA relative to existing standards.

No Impact: The project would not have any impact.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
I. AESTHETICS. *Would the project:*				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	✖	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	✖	☐
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	✖	☐
d. Create a new source of substantial light or glare which would adversely affect day or night-time views in the area?	☐	☐	✖	☐

Discussion

a. Scenic resources in Oakley, as defined in the City's General Plan, include predominant natural landscape features such as the Delta Waterway, Marsh Creek, and views of Mount Diablo to the west. The City of Oakley does not specifically identify scenic vistas within the City's planning area, but the conclusion could be drawn that any development which would impact views of any of the aforementioned landscape features from public viewpoints would result in an impact to scenic vistas. The nearest location where public views of the Delta are afforded is SR 160, which is a raised highway. Other existing roadways nearby, such as Bridgehead Road do not afford views of the Delta due to the low elevation of such roadways and intervening vegetation or development. The City of Oakley General Plan allows a maximum building height of 50-feet for industrial uses; however, the proposed buildings would not exceed 36-feet. Considering the limited height of proposed structures and the existing height of SR 160, the proposed project would not be built to a height to obstruct potential views of the Delta from the public roadway. Therefore, consistency with the General Plan would ensure scenic views would not be affected. Additionally, the project is not located in close proximity to development whose views would be obstructed by buildout of the proposed project. Because the proposed project is not in an area designated as a scenic vista by the City of Oakley and would not adversely affect a scenic vista, the project would result in a ***less-than-significant*** impact related to such.

b. According to the California Scenic Highway Mapping System, administered by Caltrans, the eastern portion of SR 4 is eligible for State Scenic Highway designation[1]. The proposed project is located approximately 1.5 miles north of SR 4 within the section of the roadway eligible for state designation. However, the project is removed enough from SR 4 that visibility from the highway is not possible. Because the project site is not visible from SR 4, the proposed project would not damage scenic resources within a State Scenic Highway and would result in a ***less-than-significant*** impact.

c. The project site is located within an urbanized area of the City. Industrial and commercial land uses surround the project site. The site is surrounded by vacant land to the east. A harbor is currently located directly north of the project. The visual character of the site would be consistent with the existing character, as the project would remain industrial. The zoning amendment to Planned Unit Development would be consistent with the proposed uses of the project.

Additionally, the project site is currently highly disturbed and vacant. The project site was occupied by a chemical manufacturer for over 42 years and is now undergoing remediation activities under supervision of the Department of Toxic Substances Control. Development of the proposed project would alter the existing setting and possibly improve the aesthetics of the site by changing the vacant site to construct state of the art industrial buildings. Therefore, the proposed project would not substantially degrade the existing visual character or quality of public views of the site nor would the project conflict with applicable zoning regulations. As such, the impact would be considered ***less than significant***.

d. Currently, the proposed project site consists of vacant land and some unoccupied buildings. The development of the proposed project would add new sources of light and glare to the site; however, as previously discussed, the General Plan designates the site for Business Park/Light Industrial/Utility Energy uses. The General Plan Amendment to Light Industrial on the entire project site and development of seven warehouses for light industrial and manufacturing uses would be consistent with development anticipated in the General Plan. In addition, the development would be subject to review by the Planning Commission under Section 9.1.1604, Design Review, which would ensure that the proposed project would not result in light trespass onto adjacent properties or result in the addition of a substantial source of light or glare. Therefore, any creation of new sources of light and glare by the future project would be considered a ***less-than-significant*** impact.

1 California Department of Transportation. *California Scenic Highway Mapping System Contra Costa County*. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/. Accessed January 2019.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
II. AGRICULTURE RESOURCES. *In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:*				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	✖
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	✖
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	✖
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	✖
e. Involve other changes in the existing environment which, due to their location or nature, could individually or cumulatively result in loss of Farmland to non-agricultural use?	☐	☐	☐	✖

Discussion

a,e. The proposed project site is designated as "Urban and Built-Up Land" on the Contra Costa County Important Farmland Map 2016, published by the Department of Conservation.[2] Given the designation of the site as Urban and Built-Up Land, development of the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use, or otherwise result in the loss of Farmland to non-agricultural use.

Additionally, the project site is currently highly disturbed and vacant. The site is now undergoing remediation activities under supervision of the DTSC. Remediation activities will protect human health and the health of the environment by eliminating or reducing the potential for exposures to constituents of concern (COC). The proposed project would also preserve 195 acres of Delta Recreation on the property, leaving the area undisturbed. Therefore, ***no impact*** would occur related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance or other changes in the existing environment which could individually or cumulatively result in loss of Farmland to non-agricultural use.

b. The project site is currently zoned as Specific Plan. The proposed project includes request for rezoning to Planned Unit Development. Consequently, the project would not conflict with any agricultural zoning use for the project site. Additionally, the site is not under a Williamson Act contract. Thus, the proposed project would not conflict with existing zoning for agricultural use and would not conflict with a Williamson Act contract, and ***no impact*** would occur.

c,d. The project site is not considered forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526) and is not zoned Timberland Production (as defined by Government Code section 51104[g]). Therefore, the proposed project would have ***no impact*** with regard to conversion of forest land or any potential conflict with forest land, timberland, or Timberland Production zoning.

2 California Department of Conservation. *Contra Costa County Important Farmland 2016.* Published August 2018.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
III. AIR QUALITY.				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	✖	☐	☐	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	✖	☐	☐	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	✖	☐	☐	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	✖	☐

<u>Discussion</u>

a-c. The City of Oakley is located in the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The SFBAAB area is currently designated as a nonattainment area for the State and federal ozone, State and federal fine particulate matter 2.5 microns in diameter ($PM_{2.5}$), and State respirable particulate matter 10 microns in diameter (PM_{10}) ambient air quality standards (AAQS). The SFBAAB is designated attainment or unclassified for all other AAQS. It should be noted that on January 9, 2013, the U.S. Environmental Protection Agency (USEPA) issued a final rule to determine that the Bay Area has attained the 24-hour $PM_{2.5}$ federal AAQS. Nonetheless, the Bay Area must continue to be designated as nonattainment for the federal $PM_{2.5}$ AAQS until such time as the BAAQMD submits a redesignation request and a maintenance plan to the USEPA, and the USEPA approves the proposed redesignation. The USEPA has not yet approved a request for redesignation of the SFBAAB; therefore, the SFBAAB remains in nonattainment for 24-hour $PM_{2.5}$.

In compliance with regulations, due to the nonattainment designations of the area, the BAAQMD periodically prepares and updates air quality plans that provide emission reduction strategies to achieve attainment of the AAQS, including control strategies to reduce air pollutant emissions through regulations, incentive programs, public education, and partnerships with other agencies. The current air quality plans are prepared in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG).

During construction of the project, various types of equipment and vehicles would temporarily operate on the project site. Construction exhaust emissions would be generated from construction equipment, demolition, grading, construction worker commutes, and construction material hauling for the entire construction period. The aforementioned activities would involve the use of diesel and gasoline powered equipment that would generate emissions of criteria pollutants. Project construction activities also represent sources of fugitive dust, which includes PM emissions. As construction of the proposed project would generate air pollutant emissions intermittently within the site, and the vicinity of the site, until all construction has been completed, construction is a potential concern because the proposed project is in a non-attainment zone for ozone and PM.

Furthermore, development of the proposed project would result in an increased number of vehicle trips associated with traffic to and from the proposed project site. Operation of the proposed project would result in emissions associated with area sources such as natural gas combustion from heating mechanisms, landscape maintenance, and potential equipment emissions, such as propane powered forklifts. The additional traffic and operations associated with the proposed project could result in increases in criteria pollutant emissions above thresholds established by the BAAQMD. Therefore, the proposed project could violate an air quality standard or result in a cumulatively considerable net increase of any criteria pollutant, and thus, may conflict with or obstruct implementation of the applicable air quality plan.

The major pollutants of concern are localized carbon monoxide (CO) emissions and toxic air contaminant (TAC) emissions. Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. Implementation of the proposed project could increase traffic volumes on streets near the project site, including the nearby Lauritzen Yacht Harbor to the north and mobile home park to the south. Because the proposed project could cause an increase in the localized CO concentrations in the project vicinity, and would involve temporary TAC emissions associated with construction, as well as operational emissions of delivery trucks, the proposed project could expose sensitive receptors to substantial pollutant concentrations.

Accordingly, the proposed project could result in a ***potentially significant*** impact related to air quality.

Further analysis of this impact will be discussed in the Air Quality and GHG Emissions chapter of the Oakley Logistics Center EIR being prepared for the project.

d. Typical odor-generating land uses include, but are not limited to, wastewater treatment plants, landfills, and composting facilities. The proposed project would not introduce any such land uses and is not located in the vicinity of any such existing or planned land uses.

Operation of the proposed project would be typical of other industrial and manufacturing spaces. Any waste or recyclables generated by use of the project would be properly contained and handled in order to reduce any objectionable odors. Additionally, BAAQMD regulates objectionable odors through Regulation 7, Odorous Substances, which does not become applicable until the Air Pollution Control Officer (APCO) receives odor complaints from ten or more complainants within a 90-day period. Once effective, Regulation 7 places general limitation on odorous substances and specific emission limitations on certain odorous compounds, which remain effective until such time that citizen complaints have been received by the APCO for one year.

Based on the above, construction and operation of the proposed project would have a ***less-than-significant*** impact related to creation of objectionable odors affecting a substantial number of people.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES. *Would the project:*				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	✖	☐	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	✖	☐	☐	☐
c. Have a substantial adverse effect on state or federally protected (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	✖	☐	☐	☐
d. Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	✖	☐	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	✖	☐	☐	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	✖	☐

Discussion

a-d. Special-status species are plants and animals that are legally protected under the State and/or Federal Endangered Species Act (FESA) or other regulations. The FESA of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

The East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECCCHCP) was approved in August 2007 and the City of Oakley approved the implementing ordinance on November 13, 2007. The project site is located in the City of Oakley and covered by the ECCCHCP. The ECCCHCP establishes mitigation required in order to avoid direct impacts on fully protected wildlife species, covered migratory birds, wetlands, and hydrologic conditions. The majority of the project site is located within the ECCCHCP Permit Area, with a small area located outside the Permit Area. The ECCCHCP authorizes take coverage pursuant to FESA and CESA and provides compensatory mitigation for 28 special-status plant and animal species. The proposed project would participate in the ECCCHCP, and would provide compensatory mitigation for the entire project through coordination with the United States Fish and Wildlife Service and California Department of Fish and Wildlife (CDFW).

According to the ECCCHCP Planning Survey Report conducted by Moore Biological Consultants[3], three special-status animals covered under the ECCCHCP have the potential to occur on the project site: Western burrowing owl, Swainson's hawk, and Golden Eagle. The project site does not provide habitat for special-status plants covered under the ECCCHCP and provides low quality habitat for a few non-covered special-status plant species. According to a technical memorandum prepared by Moore Biological Consultants and various CEQA documents and associated technical reports, only a few special-status animals not covered under the ECCCHCP have the potential to occur on the project site. The project site contains suitable habitat for a few special-status species, and thus the project could have a substantial adverse effect on a species identified as a candidate, sensitive, or special-status species.

Wildlife movement corridors are areas in which regional wildlife populations regularly and predictably move during dispersal or migration. Many other areas provide habitat for migratory species, such as nesting birds, during parts of the year. White-tailed kite, a "fully protected species," per California Fish and Game Code Section 3511 could potentially nest in trees in or near the site. On-site grasslands, trees, and shrubs could be used by other species of nesting birds protected by the Migratory Bird Treaty Act and Game Code of California. Thus, the project has the possibility to impact migratory wildlife corridors.

Waters of the U.S., including wetlands, are broadly defined under 33 Code of Federal Regulations (CFR) 328 to include navigable waterways, their tributaries, and adjacent wetlands. State and federal agencies regulate wetland habitat and Section 404 of the Clean Water Act requires that a permit be secured prior to the discharge of dredged or fill materials into any waters of the U.S., including wetlands. Both CDFW and the U.S. Army Corps of Engineers have jurisdiction over modifications to riverbanks, lakes, stream channels and other wetland features.

---

3 Moore Biological Consultants. *Planning Survey Report for Oakley Logistics Center*. December 2018.

Potentially jurisdictional waters of the U.S. and wetlands on site would be avoided to the maximum extent practicable. The project would be constructed in the southwest part of the overall property, fully avoiding Big Break and the expansive alkali wetlands associated with the San Joaquin River. While a seasonal wetland in the southwest portion of the project site would be avoided and preserved, a few seasonal wetlands would be filled for construction of the proposed project. Due to site topography and location in the preferred development parts of the project site, impacts to the wetlands may be unavoidable.

According to the Planning Survey Report conducted for the project, the project site consists of the following land cover types: ruderal grassland, seasonal wetlands, alkali wetland, slough/channel, and urban/developed. Because of construction and buildout of the project and infill of seasonal wetlands, the project could impact a riparian or sensitive natural community.

The site is now undergoing remediation activities under supervision of the DTSC. Remediation activities will protect human health and the health of the environment by eliminating or reducing the potential for exposures to COCs.

Based on the studies conducted for the proposed project, a ***potentially significant*** impact could occur related to special-status species, federally protected wetlands, sensitive natural communities, and wildlife movement corridors.

Further analysis of this impact will be discussed in the Biological Resources chapter of the Oakley Logistics Center EIR being prepared for the project.

e. As part of a biological assessment for the proposed project, an Arborist Report was conducted in compliance with the City of Oakley Heritage and Protected Trees Ordinance 9.1.1112. As part of the evaluation, 662 trees were measured in the project site. Trunk diameter of the trees ranged from 6.7 inches to 199.7 inches, averaging 29.2 inches. Tree health averaged poor to fair. Structural quality ranged from very poor to good, averaging poor.

Development of the proposed project would require the removal of all trees in the development area. Upon site review, 130 trees were identified as heritage and are protected on site. Thus, the proposed project could have a ***potentially significant*** impact related to conflict with local policies or ordinances, such as a tree preservation policy.

Further analysis of this impact will be discussed in the Biological Resources chapter of the Oakley Logistics Center EIR being prepared for the project.

f. The proposed project would adhere to the ECCCHCP and would not conflict with the provisions of an adopted Habitat Conservation Plan. Thus, a ***less-than-significant*** impact would occur.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
V. CULTURAL RESOURCES. *Would the project:*				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	✖	☐
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	☐	✖	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	✖	☐	☐

Discussion

a. The Oakley General Plan EIR on page 3-149 states that "while there are no officially designated historic structures in Oakley, there are numerous buildings, primarily in the old town area, eligible for such designation or listing […] Oakley's historic resources are generally in need of official recognition." Historical resources are features that are associated with the lives of historically-important persons and/or historically-significant events, or that embody the distinctive characteristics of a type, period, region, or method of construction. As the General Plan EIR states, most historical structures are located in Old Town Oakley. Historical structures outside in the outlying area of the City are generally farm structures built in the 1930s. The project site does not contain any farm structures which would be eligible for historical consideration by the City. Additionally, the proposed project site does not contain any historical structures listed by the California Register of Historical Resources, National Register of Historic Places, or the California Register of Historical Landmarks. Therefore, the project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5, and a ***less-than-significant*** impact would occur.

b,c. According to the Oakley General Plan EIR (p. 3-148), few archeological finds have occurred in the City of Oakley. However, the City's General Plan EIR states that given the rich history of the region, the City will continue to require procedures if artifacts are unearthed during construction. The project area was heavily disturbed during historical filling/grading activities and former manufacturing operations, as well as current remediation efforts. As a result, the project would be unlikely to unearth cultural resources in the previously disturbed areas where soil and debris would be excavated.

A search of cultural and historical resources at the project site and within a half-mile radius of the project site boundary was conducted in 2016. One resource was identified within the site boundary. The resource is described as the breached levee system which runs along San Joaquin River on the northern boundary. The levee system was recorded by USACE in 2014 and was determined to be lacking in integrity. The levee is located outside of the project boundary and would not be affected by construction and operation of the proposed project.

Due to the disturbed nature of the site and the surrounding area, the discovery of archeological resources is not expected. However, unknown archaeological resources, including human bone, have the potential to be uncovered during ground-disturbing construction activities. As a result, a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the potential construction-related impact to a *less-than-significant* level.

V-1. *If buried archaeological, paleontological, and/or cultural resources are encountered during site grading or other site work, all such work shall be halted immediately within 100 feet of the discovery and the developer shall immediately notify the Planning Division of the discovery. In such case, the developer shall be required, at their own expense, to retain the services of a qualified archaeologist for the purpose of recording, protecting, or curating the discovery, as appropriate. The archaeologist shall be required to submit to the City of Oakley Planning Division for review and approval a report of the findings and method of curation or protection of the resources. Further grading or site work within the area of discovery would not be allowed until the preceding work has occurred.*

V-2. *Pursuant to State Health and Safety Code §7050.5 (c) State Public Resources Code §5097.98, if human bone or bone of unknown origin is found during construction, all work shall stop within 100 feet of the find and the Contra Costa County Coroner shall be contacted immediately. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission, who shall notify the person believed to be the most likely descendant. The most likely descendant shall work with the contractor to develop a program for re-internment of the human remains and any associated artifacts. Additional work is not to take place within 100 feet of the find until the identified appropriate actions have been implemented.*

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VI. ENERGY. *Would the project:*				
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	✖	☐	☐	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	✖	☐	☐	☐

Discussion

a,b. The main forms of available energy supply are electricity, natural gas, and oil. A description of the 2016 California Green Building Standards Code (CBSC), with which the proposed project would be required to comply, as well as discussions regarding the proposed project's potential effects related to energy demand during construction and operations is provided below.

The 2016 CBSC, otherwise known as the CAL Green Code (CCR Title 24, Part 11), became effective on January 1, 2017. The purpose of the CAL Green Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices.

Construction of the proposed project would involve on-site energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling and materials delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary on-site lighting, welding, and for supplying energy to areas of the sites where energy supply cannot be met via a hookup to the existing electricity grid.

Following implementation of the proposed project, PG&E would provide electricity and natural gas to the project site. Energy use associated with operation of the proposed project would be typical of industrial and manufacturing uses, requiring electricity and natural gas for interior and exterior building lighting, heating, ventilation, and air conditioning (HVAC), electronic equipment, machinery, appliances, security systems, and more. Maintenance activities during operations, such as landscape maintenance, could involve the use of electric or gas-powered equipment. In addition to on-site energy use, the proposed project would result in transportation energy use associated with employee vehicle trips generated by the proposed project.

Based on the increased vehicle trips generated as well as the potential increase in energy usage, the project could result in a significant environmental impact due to wasteful or inefficient energy as well as conflict with a state or local plan for renewable energy. Thus, a ***potentially significant*** impact could occur.

Further analysis of this impact will be discussed in the Statutorily Required Sections chapter of the Oakley Logistics Center EIR being prepared for the project.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VII. GEOLOGY AND SOILS. *Would the project:*				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist - Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault?	☐	☐	✖	☐
ii. Strong seismic ground shaking?	☐	✖	☐	☐
iii. Seismic-related ground failure, including liquefaction?	☐	✖	☐	☐
iv. Landslides?	☐	☐	✖	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	✖	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	✖	☐	☐
d. Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code?	☐	☐	✖	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	✖
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	✖	☐	☐

Discussion

ai,aiv. The site is located in an area of moderate to high seismicity. Known active faults are not mapped across the property and the site is not located within an Alquist-Priolo Earthquake Fault Zone; however, the Oakley 2020 General Plan Background Report states that the San Francisco Bay area is an area of high seismic risk. As shown in Figure 8-1 of the City's General Plan, *Faults and Seismic Stability*, three active faults are in the Oakley area, with the Brentwood Fault directly underlying the City, and the Davis and Antioch Faults to the west of the

City. Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. The common secondary seismic hazards include ground shaking, liquefaction, landslides, and ground lurching. Issues related to ground rupture and landslides are discussed below.

Ground Rupture

Figure 8-1 of the City's General Plan shows fault traces for all known and inferred faults in the area. The proposed project is not underlain by any faults known to the City and as a result, ground rupture is unlikely at the project site.

Landslides

The project area is relatively flat; therefore, landslides do not represent a likely hazard. According to the Association of Bay Area Governments (ABAG), the proposed project site is not in an area susceptible to landslides.[4]

Conclusion

Thus, based on the above, the propose project would not expose people or structures to potential substantial adverse effects including the risk of loss, injury, or death involving ground rupture or landslides, and a ***less-than-significant*** impact would occur.

aii,aiii, c. The City of Oakley is located in an area of moderate to high seismicity. While the project site is not located in an Alquist-Priolo Earthquake zone, the San Francisco Bay Area is considered an area of high seismic risk, and an earthquake at a nearby fault could result in impacts to the project site related to ground shaking and liquefaction.

Ground Shaking

An earthquake of moderate to high magnitude generated within the region could cause considerable ground shaking at the site, similar to that which has occurred in the past. To mitigate the shaking effects, structures should be designed using sound engineering judgment and the California Building Code (CBC) requirements, as a minimum. Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces. The code-prescribed lateral forces are generally considered to be substantially smaller than the comparable forces that would be associated with a major earthquake. Therefore, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major

[4] Association of Bay Area Governments. *Resilience Program*. Available at: http://gis.abag.ca.gov/website/Hazards/. Accessed January 7, 2019.

earthquakes without collapse but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, a well-designed and well-constructed structure can be reasonably expected to resist collapse thus reducing loss of life in a major earthquake.

Ground Lurching

Ground lurching is a result of the rolling motion imparted to the ground surface during energy released by an earthquake. Such rolling motion can cause ground cracks to form in weaker soils. The potential for the formation of cracks is considered greater at contacts between deep alluvium and bedrock. Figure 8-1 of the City's General Plan indicates the project site is designated as being comprised of Younger Alluvium. According to the Oakley 2020 General Plan EIR, Younger Alluvium is susceptible to moderate damage during ground shaking. As a result, foundation and pavement must be designed to reduce the potential for adverse impacts from possible lurch cracking.

Liquefaction

Soil liquefaction results from loss of strength during cyclic loading, such as that imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded and fine-grained sands. As shown in Figure 8-2, of the City of Oakley General Plan 2020, *Estimated Liquefaction Potential*, most of the City's planning area is within an area of generally high liquefaction potential, which includes the project site. The City of Oakley General Plan (p. 8-3) Policy 8.1.9 requires any structures permitted in areas of high liquefaction potential be sited, designed, and constructed to minimize the dangers from damage due to earthquake-induced liquefaction. A geologic engineering study must be performed which defines and delineates potential hazardous geologic and/or soils conditions, recommends means of mitigating any adverse conditions, and provides implementation of the mitigation measures. Because the proposed project would be sited in an area of generally high liquefaction potential, the project would be subject to Policy 8.1.9, and would require a design-level geologic engineering study. Without completion of a design-level geotechnical report and implementation of relevant recommendations therein, the proposed project could expose people or structures to potential risk of loss, injury, or death by the project's location on an unstable geologic or soil unit.

Conclusion

The project site is not within an Alquist-Priolo Special Studies Zone; however, the City of Oakley General Plan, General Plan Background Report, and General Plan EIR indicate that the Oakley area is located in a seismically active zone. Development of the proposed project in this seismically active zone could expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking, ground lurching, liquefaction, or the location of the project on an unstable geologic unit or soil. Therefore, a ***potentially significant*** impact could result.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impacts related to liquefiable soils, and ground lurching to a *less-than-significant* level.

VII-1. *Prior to issuance of a grading permit, the applicant/developer shall incorporate the recommendations of a design-level geotechnical report into the Improvement Plans for approval by the City Engineer. The following measures include, but are not limited to, the options available to reduce site liquefaction potential and expansive soils, and/or adverse effects to structures located above potentially liquefiable soils. Once final grading plans are designed, the project's geotechnical engineers shall determine the appropriate methods of mitigating the effects of liquefaction, such as:*

- *Remove and replace potentially liquefiable soils and/or expansive and corrosive soils;*
- *Strengthen foundations (e.g., post-tensioned slab, reinforced mat or grid foundation, or other similar system) to resist excessive differential settlement associated with seismically-induced liquefaction;*
- *Support the proposed structures on an engineered fill pad (minimum of 5 feet thick) in order to reduce differential settlement resulting from seismically-induced liquefaction and post-seismic pore pressure dissipation; and/or*
- *Densify potentially liquefiable soils with an in-situ ground improvement technique such as deep dynamic compaction, vibro-compaction, vibro-replacement, compaction grouting, or other similar methods.*

VII-2. *All grading and foundation plans for the development shall be designed by a Civil and Structural Engineer and reviewed and approved by the Director of Public Works/City Engineer, Chief Building Official, and a qualified Geotechnical Engineer prior to issuance of grading and building permits to ensure that all geotechnical recommendations specified in the geotechnical report required by Mitigation Measure VI-1 are properly incorporated and utilized in the project design.*

b. Soil found on site is mapped as Delhi sand. Delhi sand is a somewhat excessively drained soil with rapid permeability and is negligible to slow runoff. According to soil mapping by the U.S. Department of Agriculture Natural Resources Conservation Service, the project area does not contain soil with high susceptibility to erosion.[5] Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Values of K range from 0.02 to 0.69. Soil at the project site has a rating of 0.05. Thus, the proposed project would not result in substantial soil erosion or loss of topsoil and a ***less-than-significant*** impact would occur.

d. Delhi sand, the soil predominately found on the project site, is not known to be expansive, and would not risk the proposed project be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code. Thus, a ***less-than-significant*** impact would occur.

e. The proposed project would be serviced by ISD for sanitary sewer collection and treatment. Construction of the proposed buildings would include a sewage line connection to existing sewer pump stations and would not include construction or usage of a septic tank. Thus, the project would have ***no impact*** related to soils incapable of adequately supporting septic tanks.

f. As discussed in Section V, Cultural Resources, according to the Oakley General Plan EIR (page 3-148), few paleontological finds have been discovered in the City of Oakley. Additionally, the project area was heavily disturbed during past filling/grading activities, former manufacturing operations, and ongoing remediation activities. As a result, the project would be unlikely to directly or indirectly destroy a unique paleontological resource or unique geologic feature. However, construction activities involving grading, paving, and excavation could result in the discovery of a paleontological feature, and ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impacts related to liquefiable soils, and ground lurching to a *less-than-significant* level.

VII-3. Implement Mitigation Measures V-1 and V-2.

[5] USDA Natural Resources Conservation Service. *Web Soil Survey*. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed January 3, 2019.

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS. *Would the project:*				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	✖	☐	☐	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	✖	☐	☐	☐

Discussion

a,b. Emissions of greenhouse gases (GHGs) contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on earth. An individual project's GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

A number of regulations currently exist related to GHG emissions, predominantly Assembly Bill (AB 32), Executive Order S-3-05, and Senate Bill (32). AB 32 sets forth a statewide GHG emissions reduction target of 1990 levels by 2020. Executive Order S-3-05 sets forth a transitional reduction target of 2000 levels by 2010, the same target as AB 32 of 1990 levels by 2020, and further builds upon the AB 32 target by requiring a reduction to 80 percent below 1990 levels by 2050. SB 32 also builds upon AB 32 and sets forth a transitional reduction target of 40 percent below 1990 levels by 2030. In order to implement the statewide GHG emissions reduction targets, local jurisdictions are encouraged to prepare and adopt area-specific GHG reduction plans and/or thresholds of significance for GHG emissions.

Estimated GHG emissions attributable to future development would be primarily associated with increases of carbon dioxide (CO_2) and, to a lesser extent, other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O) associated with area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste. Buildout of the proposed project would contribute to increases of GHG emissions that are associated with global climate change during construction and operations. As such, the proposed project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, impacts related to GHG emissions and global climate change could be cumulatively considerable and considered ***potentially significant***.

Further analysis of this impact will be discussed in the Air Quality and GHG Emissions chapter of the Oakley Logistics Center EIR being prepared for the project.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS. *Would the project:*				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	✖	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	☐	☐	✖	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	✖
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	✖	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	✖
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	✖	☐
g. Expose people or structures, either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?	☐	☐	✖	☐

Discussion

a,b,d. The proposed project site is the location of a former DuPont chemical manufacturing facility that produced chlorofluorocarbons, fuel additive anti-knock compounds, and titanium oxide. All manufacturing activities ceased by 1999 and the manufacturing facilities at the site have been demolished. The site is undergoing corrective action under the Resource Conservation and Recovery Act. DTSC certified an Initial Study on June 29, 2018, which approved three corrective measures studies to address the release of COC.[6] Remediation activities will remove and/or treat impacted sediment, soil, and groundwater at the site in order to eliminate or reduce potential exposures and hazards at the site. All generated waste will be handled, treated, and transported in accordance with federal, State, and local statutes and regulations. The project will be conducted under supervision of the DTSC and will protect human health and the environment.

As the remediation is completed, the remediated areas will be ready for development. During construction, the proposed project could involve use of various products such as concrete, paints, and adhesives, as well as operation of heavy equipment, which could contain fuels and oils. Small quantities of potentially toxic substances would be used at the project site and transported to and from the site during construction. However, the project contractor would be required to comply with all California Health and Safety Codes and local City and County ordinances regulating the handling, storage, and transportation of hazardous and toxic materials. Compliance with such regulations would ensure that the proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment during construction activities.

Operations associated with the proposed project would be typical of other warehouses in the City, and would be governed by the uses permitted for the site per the City's Municipal Code and General Plan. Upon approval of the General Plan amendment, the proposed project would be developed according to the designation, which allows for uses such as processing, distribution, warehousing, and storage. While not currently anticipated, in the event that future operations associated with the proposed project would involve the routine use, transport, or disposal of hazardous materials, such materials would be safely managed in accordance with the applicable regulations.

While the project site is currently listed as a corrective action facility on a list of DTSC cleanup sites, the project site is not on the Cortese List pursuant to Government Code Section 65962.5.[7] Additionally, upon completion of the remediation, the project site will no longer be under corrective action.

Because the project site will be fully remediated prior to construction of the proposed project and the operation of the proposed project is not expected to require the use of hazardous materials, the project would have a ***less-than-significant*** impact related to creation of significant hazards to the public or the

---

6 Department of Toxic Substances Control. *Initial Study Chemours Oakley Site Sediment, Soil and Groundwater Corrective Measure Studies*. June 29, 2018.

7 California Department of Toxic Substances Control. EnviroStor. Available at: http://www.envirostor.dtsc.ca.gov. Accessed January 2019.

environment through transport, use, disposal, or accidental release of hazardous materials.

c. The proposed project would not be located within one-quarter mile of a school. Therefore, the project would have ***no impact*** related to hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

e. The proposed project is not located in the within an airport land use plan. The closest airport to the project site is the Byron Airport, located 14 miles from the project site. As such, the proposed project site is not located within two miles of any public airports and does not fall within an airport land use plan area. Therefore, ***no impact*** related to a safety hazard for people residing or working in the project area would occur.

f. Sufficient emergency access is determined by factors such as number of access points, roadway width, and proximity to fire stations. The proposed project would include three entrances to the project site. All lane widths within the project would meet the minimum width that can accommodate an emergency vehicle. As a result, the proposed project would not impair or physically interfere with an adopted emergency response plan and a ***less-than-significant*** impact would occur.

g. According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program, the proposed project site is not located within a Very High Fire Hazard Severity Zone.[8] In addition, the site is surrounded by existing development to the north, and south. The site is not located adjacent to wildlands. Therefore, the proposed project would not expose people or structures to the risk of loss, injury or death involving wildland fires, and a ***less-than-significant*** impact would occur.

8 California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. June 12, 2018.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY. *Would the project:*				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	✖	☐	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	✖	☐	☐	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	✖	☐	☐	☐
i. Result in substantial erosion or siltation on- or off-site;	✖	☐	☐	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	✖	☐	☐	☐
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	✖	☐	☐	☐
iv. Impede or redirect flood flows?	✖	☐	☐	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	✖	☐	☐	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	✖	☐	☐	☐

<u>Discussion</u>

a-c. During project construction, topsoil would be exposed due to grading of the site. After grading and prior to overlaying the ground surface with impervious surfaces and structures, the potential exists for wind and water erosion to discharge sediment and/or urban pollutants into stormwater runoff, which could adversely affect water quality. The proposed project would be regulated by the San Francisco

Bay Regional Water Quality Control Board (SFBRWQCB) in order to not result in construction related degradation of water quality.

Stormwater and runoff from impervious buildings would be conveyed to biofiltration basins located throughout the site, as required by Provision C.3 of the Municipal Regional permit. Water from the basins would then be conveyed to the Central Slough. Flows would circulate through Central Slough and discharge to the Delta. Since the site is immediately adjacent to the Delta, on-site detention will likely not be necessary. Biofiltration basins would be privately maintained.

The City's National Pollutant Discharge Elimination System (NPDES) permit requires that any projects that would create or replace 10,000 square feet or more of impervious surfaces must submit a Stormwater Control Plan (SWCP) with their development permit. The City of Oakley's Municipal Code Section 6.11, Stormwater Management and Discharge Control, requires that the SWCP include appropriate design measures to treat runoff from all proposed impervious surfaces. Because the proposed project would meet the above stipulations, a SWCP would be necessary.

The site is now undergoing remediation activities under supervision of the DTSC. Remediation activities will protect human health and the health of the environment by eliminating or reducing the potential for exposures to COCs.

Based on the above, the project could have ***potentially significant*** impacts related to water quality standards, drainage patterns, or increase in runoff which would result in substantial erosion or runoff which would exceed the capacity of existing or planned stormwater drainage systems.

Further analysis of this impact will be discussed in the Hydrology and Water Quality chapter of the Oakley Logistics Center EIR being prepared for the project.

d. The project site is located on a FEMA Flood Insurance Rate Maps (FIRMs). Based on the FEMA FIRMs (Map Number ID 06013C0163G), the majority of the project site is within Zone X, which is described by FEMA as an area having a moderate or minimal risk of flooding (see Figure 5). However, FEMA identifies Zone AE, which is defined as a 100-year flood plain, present on the perimeter of the project site. A small portion of the northwest corner of Building 3 is most likely located in Zone AE. Development of the proposed project could place structures in flood hazard zone.

Tsunamis are defined as sea waves created by undersea fault movement and pose little danger away from shorelines. A seiche is a long-wavelength, large-scale wave action set up in a closed body of water such as a lake or reservoir, whose destructive capacity is not as great as that of tsunamis. Seiches are known to have occurred during earthquakes, but none have been recorded in the Bay Area. The proposed project is located approximately 35 miles from the Pacific Ocean and

San Francisco Bay. The ABAG does not list the project area at risk for tsunami or seiche inundation.[9] However, because the proposed project is located in a flood hazard zone, a ***potentially significant*** impact could occur related to risk of release of pollutants due to project inundation.

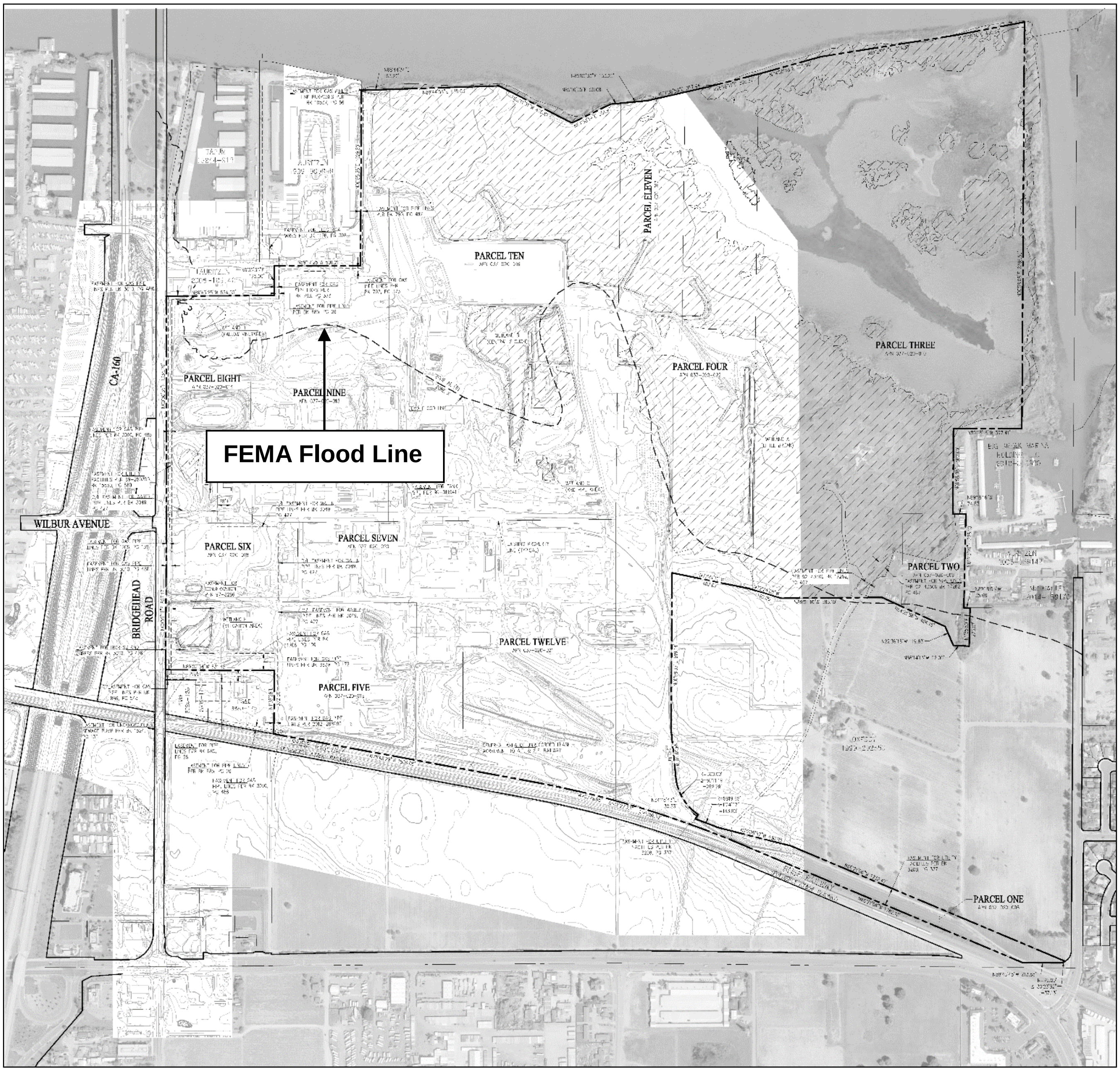
Further analysis of this impact will be discussed in the Hydrology and Water Quality chapter of the Oakley Logistics Center EIR being prepared for the project.

e. Water is supplied to the project site by the Diablo Water District (DWD). As stated in the DWD Groundwater Management Plan, water supply currently includes both surface water and groundwater sources. Groundwater supplies have not historically accounted for a large portion of water supply in the City. However, the Groundwater Management Plan projects an increase in groundwater usage to supply the DWD service areas. In addition, the proposed project would require an NPDES permit and a SWCP as the project would create over 10,000 square feet in impervious surfaces, and require treatment of stormwater before discharging in to the Delta. Thus, because the proposed project could demand water above the projected supply and would require a SWCP, the proposed project could conflict with or obstruct implementation of a sustainable groundwater management plan or a water quality control plan and a ***potentially significant*** impact could occur.

Further analysis of this impact will be discussed in the Hydrology and Water Quality chapter of the Oakley Logistics Center EIR being prepared for the project.

9 Association of Bay Area Governments. *Resilience Program*. Available at: http://gis.abag.ca.gov/website/Hazards/. Accessed January 4, 2019.

Figure 5
FEMA Flood Line Site Plan



Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XI. LAND USE AND PLANNING. *Would the project:*				
a. Physically divide an established community?	☐	☐	✖	☐
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating on environmental effect?	☐	☐	✖	☐

Discussion

a. The proposed project includes requests for a General Plan Amendment to remove the Utility Energy and Business Park designation and expand the Light Industrial use to the entire project site. The project also requests a rezone from Specific Plan to Planned Unit Development, which would allow for flexibility to develop industrial and manufacturing-related uses. The approximately 150-acre project site is located on Bridgehead Road north of Main Street and the BNSF Railroad. The proposed project would be built out on a vacant property, and would not physically divide an established community, resulting in a ***less-than-significant*** impact.

b. The proposed project includes a request for a General Plan Amendment to remove the Utility Energy and Business Park designation and expand the Light Industrial use to the entire project site. The proposed project also requests a rezone from Specific Plan to Planned Unit Development. Upon approval of both amendments, the proposed project would develop warehouses for light industrial purposes. The development of such would promote Program 5.1L of the General Plan, which is to continue to recognize the importance of making an adequate supply of land available for economic development through development of the property to a Planned Unit Development. In addition, the General Plan has accounted for development of the project site as an industrial center and planned for development of the area.

The proposed project would also include an amendment to the Circulation Diagram in the General Plan, which could alter the expected circulation throughout the City. However, the Traffic Impact Analysis performed for the proposed project assumed removal of the proposed extension of Live Oak Avenue, and found that the removal of such would not interfere with projected buildout of the City. Thus, based on the above, the proposed project would have a ***less-than-significant*** impact related to creation of a significant environmental impact due to a conflict with any land use plan, policy, or regulation.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XII. MINERAL RESOURCES. *Would the project:*				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	✖
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	✖

Discussion

a,b. The City of Oakley General Plan Background Report states that the only viable mineral resource currently mined in the City of Oakley is sand. Currently mining of sand does not occur at the project site and much of the adjacent land is developed for commercial uses. Due to the previously disturbed nature of the project site, the area would likely not be a source of minerals Additionally, the nearest active mine in California is the Kennedy Mine, located approximately 57 miles from the project site. Thus, proposed project would not result in the loss of availability of a known mineral resource or a locally important mineral recovery site; therefore, the proposed project would have ***no impact*** to mineral resources.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIII. NOISE.				
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	✖	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	✖	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	✖

Discussion

a. The proposed project would involve sources of noise that would be similar to the surrounding area, such as vehicle noise from employee trips, large-scale delivery trucks, and other limited sources of noise. The nearest existing sensitive receptor is a mobile home park located approximately 1,000 feet southwest of the project site.

Construction Noise

During construction of the proposed project, heavy equipment would be used for grading, excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how the equipment is operated, and how well the equipment is maintained. In addition, noise exposure at any single point outside the project site would vary depending on the proximity of construction activities to that point. Standard construction equipment, such as graders, backhoes, loaders, and trucks, would be used on-site.

Table 1 shows maximum noise levels associated with typical construction equipment. Based on the table, activities involved in typical construction would generate maximum noise levels up to 85 dB at a distance of 50 feet.

Table 1 Construction Equipment Noise	
Type of Equipment	**Maximum Level, dB at 50 feet**
Backhoe	78
Compactor	83
Compressor (air)	78
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Pneumatic Tools	85
Source: Federal Highway Administration, Roadway Construction Noise Model User's Guide, January 2006.	

As one increases the distance between equipment, or increases separation of areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of combining separate noise sources. The noise levels from a source will decrease at a rate of approximately 6 dB per every doubling of distance from the noise source. Therefore, construction of the proposed project would expose the nearest sensitive receptor, located 1,000 feet southwest of the proposed project, to 61dB of construction noise at most. Therefore, the level of noise that would reach the nearest sensitive receptor would be below the 65 dB threshold for residences.[10]

Operational Noise

The primary existing source of noise in the project vicinity is traffic along Bridgehead Road. Operations of the proposed project would likely involve delivery truck noise and employee vehicle trips to the proposed project. According to the California Department of Transportation (Caltrans) noise level estimates,[11] a diesel truck is likely to produce 85 dB at 50 feet. However, the nearest sensitive receptor is located approximately 1,000 feet from the southern border of the project site, and thus, would only be exposed to a maximum of 61 dB of truck noise, which is below the 65 dB threshold for residences. The General Plan Noise Element predicts that the segment of Bridgehead Road north of Main Street will experience traffic noise levels of 60.4 dB at 100 feet from the roadway centerline upon buildout of the City. Because the General Plan designates light industrial buildout at the project site, traffic noise associated with the proposed project is accounted for in the City's noise level predictions. Additionally, because the nearest sensitive receptor is 200 feet from the Bridgehead Road centerline, the levels of noise experienced would be below 60.4 dB expected, and thus, would not be impacted by increased vehicle noise along Bridgehead Road.

[10] City of Oakley. *City of Oakley 2020 General Plan* [Table 9-3]. Amended February 2, 2016.
[11] California Department of Transportation Division of Environmental Analysis. *Technical Noise Supplement to the Traffic Noise Analysis Protocol.* September 2013.

Furthermore, the City of Oakley Municipal Code Section 9.1.1002(4)(b)(x) prohibits the use of buildings by operations which involve noise levels incompatible with present or potential development of surrounding property. Because the surrounding area is industrial and commercial, the proposed project would remain consistent with the Municipal Code.

Thus, because the nearest sensitive receptor would be located 1,000 feet away from the project and 200 feet from the Bridgehead Road centerline, the proposed project would not produce noise which would generate temporary or permanent increases in ambient noise levels in the vicinity in excess of standards established by the General Plan, resulting in a ***less-than-significant*** impact.

b. Groundborne vibration would be generated during construction of the proposed project. Residential land uses surrounding the project site would be sensitive to excessive vibrations caused by construction. For structural damage, Caltrans uses a vibration limit of 0.5 inches/second, peak particle velocity (in/sec, PPV), for buildings structurally sound and designed to modern engineering standards; 0.2 in/sec PPV for buildings that are found to be structurally sound but where structural damage is a major concern; and a conservative limit of 0.08 in/sec PPV for historic buildings or buildings that are documented to be structurally weakened. All surrounding structures are assumed to be structurally sound, but damage would be a concern so the 0.2 in/sec PPV will be used as a threshold of significance for structural damage. The threshold of 0.2 in/sec PPV is also used by Caltrans as the threshold for human annoyance caused by vibration. Therefore, activities creating vibrations exceeding 0.2 in/sec PPV would impact sensitive receptors in nearby residences.[12] Table 2 presents typical vibration levels that could be expected from construction equipment at a distance of 25 feet.

Potential future construction activities, such as drilling, the use of jackhammers, and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.), may generate groundborne vibration in the immediate vicinity. As shown in Table 2, jackhammers typically generate vibration levels of 0.035 in/sec PPV, while drilling typically generates vibration levels of 0.09 in/sec PPV, and the strongest source of vibrations, vibratory rollers, generates vibration levels of 0.21 in/sec PPV all at a distance of 25 feet.

Vibration levels would vary depending on soil conditions, construction methods, and equipment used. It should be noted that groundborne vibrations dissipate with distance. The closest residential structure is approximately 1,000 feet away. Because the closest residence is not in the project vicinity, the PPV experienced would be reduced well below the PPVs reported in Table 2.

[12] Caltrans. *Transportation and Construction Vibration Guidance Manual*. September 2013.

Table 2 Vibration Source Levels for Construction Equipment	
Equipment	**PPV at 25 ft (in/sec)**
Vibratory Roller	0.210
Large Bulldozer	0.089
Caisson drilling	0.089
Loaded trucks	0.076
Jackhammer	0.035
Small bulldozer	0.003
Source: Caltrans, Transportation and Construction Vibration: Guidance Manual. September 2013.	

The Caltrans *Transportation and Construction Vibration Guidance Manual* provides a formula for estimating vibration dissipation with distance.[13] Calculations were completed to determine the maximum vibration caused by the construction activities using the Caltrans formula. Because the Vibratory Roller would be the most intense possible source of vibrations, the reference PPV of 0.210 in/sec was used for the calculations. At a distance of 300 feet from the project site, any sensitive receptors would receive 0.012 in/sec PPV from the use of a Vibratory Roller, which is well below the 0.2 in/sec PPV significance threshold used for the analysis. The nearest residence is 1,000 feet away and would receive 0.004 in/sec PPV from the use of a Vibratory Roller. Consequently, vibration generated by construction activities associated with the proposed project are not expected to be perceptible at nearby structures or residences, and the construction-generated vibrations would not be expected to result in structural damage to such residences. Furthermore, construction is temporary and construction equipment would operate intermittently throughout the course of a day, would be restricted to daytime hours per the City of Oakley Municipal Code Section 4.2.208, and would likely only occur over portions of the improvement area at a time.

Therefore, the project would not involve the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels resulting in a ***less-than-significant*** impact.

c. The proposed project is not located in the vicinity of a private airstrip or within an airport land use plan. The closest airports to the project site are the Buchanan Field and Byron Airport, located 16 miles and 14 miles from the project site, respectively. As such, the proposed project site is not located within two miles of any public airports or private airstrips and does not fall within an airport land use plan area. Therefore, the project would not expose people working or residing in the project area to excessive noise produced by an airport and a ***less-than-significant*** impact would occur.

---

13 $PPV_{Equipment}=PPV_{Reference}(25/D)^{1.1}$
Where: D = distance from equipment to the receiver in feet (assumed to be 35 feet)
PPV_{Ref} = reference PPV at 25 feet (from Table 2)
Source: California Department of Transportation. *Transportation and Construction Vibration Guidance Manual*. [pg. 37]. September 2013.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIV. POPULATION AND HOUSING. *Would the project:*				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	☐	☐	✖	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	✖	☐

Discussion

a. The proposed project would include development of a logistics center to be used for light industrial and manufacturing purposes. The proposed project requests a General Plan Amendment to remove the Business Park and Utility Energy designation and expand Light Industrial to the entire project site. Additionally, the project requests a Rezone (RZ 08-19) from Specific Plan to Planned Unit Development. The zoning amendment would allow for greater flexibility within the project and would bring economic and employment boosts. While the project would provide space for new business, development would not necessarily induce population growth. According to General Plan Draft EIR, light industrial land uses should be developed to minimize travel and transport for goods and service and reduce regional commute traffic by providing employment opportunity for residents currently residing within the City limits. The proposed project would be compatible with the land use designation. Thus, the project would have a ***less-than-significant*** impact related to such.

b. The proposed project would be developed on a mostly vacant project site formerly used as a manufacturing facility. Demolition of the existing on-site structures would not result in a loss of housing. Therefore, the project would not displace substantial numbers of existing housing or people, and a ***less-than-significant*** impact would occur.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XV. PUBLIC SERVICES. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:*				
a. Fire protection?	☐	☐	✖	☐
b. Police protection?	☐	☐	✖	☐
c. Schools?	☐	☐	✖	☐
d. Parks?	☐	☐	✖	☐
e. Other Public Facilities?	☐	☐	✖	☐

Discussion

a-e. Fire protection is currently provided to the City of Oakley by the East Contra Costa Fire Protection District. The proposed project would be subject to the fire facilities impact fees established by the City of Oakley Municipal Code Section 9.2.502. Payment of the required impact fee would mitigate any potential impacts caused by increased demands on fire services that may result from the proposed project, as well as ensure that the project conforms with the City of Oakley's General Plan Policy 4.4.2.

Police protection is currently provided to the City of Oakley by the Oakley Police Department and the Contra Costa County Sheriff's Office. The proposed project site is currently under jurisdiction of, and adequately protected by, the Oakley Policy Department.

The proposed project would be used for light industrial and manufacturing purposes. Residences would not be developed as part of the project, and thus, an increase in schools, parks, or other public facilities would not be necessary. Based on the above, the project would not result in substantial adverse physical impacts associated with the provision of new or altered governmental facilities, and thus, a ***less-than-significant*** impact would occur.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XVI.RECREATION.				
Would the project:				
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	✖	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	✖	☐

<u>Discussion</u>

a-b. The proposed project would result in development of a logistics center to be used for light industrial and manufacturing spaces. The project would not create housing which would induce population growth in the area, and thus, would not create increased usage of existing neighborhood and regional parks or recreational facilities. Therefore, the project would have a ***less-than-significant*** impact related to recreational requirements.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XVII. TRANSPORTATION.				
Would the project:				
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	✖	☐	☐	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	✖	☐	☐	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	✖	☐	☐	☐
d. Result in inadequate emergency access?	☐	☐	✖	☐

Discussion

a. The proposed project would include a Rezone and a General Plan Amendment for development of seven warehouses to be used for light industrial and manufacturing purposes. The proposed project would have a main entrance at the intersection of Wilbur Avenue and Bridgehead Road. Two secondary access points would also be provided on Bridgehead Road. One access point would be located to the north of the Wilbur Avenue entrance and another would be located to the south. SR 4, SR 160, Wilbur Avenue, E. 18th Street, and Main Street are all identified as routes of regional significance to the project.

According to the Contra Costa Transportation Authority (CCTA) Congestion Management Plan (CMP), any land development application generating more than 100 peak hour trips is required to prepare a study of the project's traffic impacts on the CMP network. Development and operation of the proposed project would be anticipated to result in 382 vehicle trips in the AM peak hour and 427 vehicle trips during the PM peak hour.

Additionally, the proposed project requests to remove the proposed extension of Live Oak Avenue connecting to Wilbur Avenue from the Circulation Diagram listed in Figure 3-1 of the General Plan. Based on the above, the proposed change to the Circulation Diagram and increased trips could conflict with a program, plan, or ordinance addressing the circulation system, and a ***potentially significant*** impact could occur.

Further analysis of this impact will be provided in the Transportation chapter of the Oakley Logistics Center EIR being prepared for the project.

c. Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Per Section 15064.3, analysis of vehicle miles travelled (VMT) attributable to a project is the most appropriate measure of transportation impacts. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in Section 15064.3 (b)(2) regarding roadway capacity, a project's effect on automobile delay does not constitute a significant environmental impact under CEQA. It should be noted that currently, the provisions of Section 15064.3 apply only prospectively; determination of impacts based on VMT is not required Statewide until July 1, 2020.

Per Section 15064.3(3), a lead agency may analyze a project's VMT qualitatively based on the availability of transit, proximity to destinations, etc. The proposed project would have access to the Tri Delta Transit system and the Bay Area Rapid Transit (BART). Lines 300, 383, 391 and 393 on the Tri Delta System provide the closest service to the project site, with stops at Bridgehead Road and Main Street. While the project could have adequate access to public transit, the expected number of vehicle miles travelled would increase based on the expected number of employee and truck visits to and from the project site. Thus, using a VMT analysis, the project could be inconsistent with CEQA Guidelines Section 15064.3, and a ***potentially significant*** impact could occur.

Further analysis of this impact will be provided in the Transportation chapter of the Oakley Logistics Center EIR being prepared for the project.

c. The proposed project would increase vehicle trips to and from the site, as well as alter the design of the current circulation system. The project would create new entrances to the project site accessible from Bridgehead Road and could possibly increase hazards due to employees and delivery trucks entering and exiting the project site onto Bridgehead Road. Thus, a ***potentially significant*** impact could occur related to increased hazards due to a geometric design feature.

Further analysis of this impact will be provided in the Transportation chapter of the Oakley Logistics Center EIR being prepared for the project.

d. The proposed project would construct internal circulation roads consistent with Title 19 Section 3.05 of the California Code of Regulations, which mandates right of way lanes not be less than 20 feet in width and fire/emergency access lanes be a minimum of 20 feet wide. Lanes would be built out 25 to 30 feet in width. Thus, the proposed project would have a ***less-than-significant*** impact related to inadequate emergency access.

Issues	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:*				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).	☐	☐	✖	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	✖	☐

Discussion

a,b. As discussed in Section V, Cultural Resources, of this IS, per a records search of the California Historical Resources Information System and the California Register of Historical Resources, the project site is not listed or eligible for listing as a historical resource.

In compliance with Assembly Bill (AB) 52 (Public Resources Code Section 21080.3.1), a project notification letter was distributed to the the Amah Mutsin Tribal Band of Mission San Juan Bautista, The Ohlone Indian Tribe, Wilton Rancheria, the Indian Canyon Mutsun Band of Costanoan, the Muwekma Ohlone Indian Tribe of the SF Bay Area, the North Valley Yokuts Tribe, and the Torres Martinez Desert Cahuila Indians. The letters were distributed on January 28, 2019. Requests for consultation have not been received to date.

The potential for unrecorded Native American resources to exist within the project site is relatively low based on the highly-disturbed nature of the site.

Implementation of Mitigation Measure V-2, described in detail in Section V. (Cultural Resources), would reduce any potential impacts related to unknown resources to less-than-significant levels. Based on a record search of the Native American Heritage Commission (NAHC) Sacred Land files, known tribal resources do not exist for the project area or adjacent lands.

Given that the project would be required to comply with the City's standard conditions of approval regarding cultural resources, as well as mitigation measures in Section V, construction of the proposed project would not result in a substantial adverse change in the significance of a tribal cultural resource. Per Public Resource Code sections 5020.1(k) and 5024.1, the project site is not listed as a historical resource nor does the site contain any known resources with significance to a California Native American tribe. Thus, the proposed project would have a ***less-than-significant*** impact related to tribal cultural resources.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS. *Would the project:*				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	✖	☐	☐	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	✖	☐	☐	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	✖	☐	☐	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	✖	☐	☐	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	✖	☐	☐	☐

Discussion

a,c. The proposed project would be served by ISD to provide sanitary sewer collection and treatment for the project area. ISD operates the existing Lauritzen Sewer Pump Station in Lauritzen Lane at the north edge of the site. A sewer force main in Lauritzen and Bridgehead Road connects from the pump station to a short run of gravity pipe starting at the north edge of the Sandy Point 3 Mobile Home Park. Flows continue to the ISD Treatment Plant near downtown Oakley. Other on-site wastewater flows including contaminated groundwater are collected in a central collection area and trucked off-site for disposal. Storm water from impervious building rooves and pavement areas would be conveyed to biofiltration basins located throughout the site as required by Provision C.3 of the Municipal Regional Permit. Water from the basins would then be conveyed to the Central Slough and discharged to the Delta. In the event the Lauritzen Pump Station cannot accommodate the flows generated by the project, a new sewer pump station would be constructed at a central location on the site. Thus, because the impacts of the project on wastewater treatment requirements and expansion of wastewater treatment facilities are not yet known, the impacts are ***potentially significant***.

Further analysis of this impact will be provided in the Utilities and Service Systems chapter of the Oakley Logistics Center EIR being prepared for the project.

b. Water is provided to the project site by the Diablo Water District (DWD). According to the DWD Final 2015 Urban Water Management Plan (2015 UWMP), water demand and connection projections for DWD are based on buildout land uses in current adopted general plans. During the period from 2015 to 2040, DWD's demand is estimated to increase from 1,492 MG per year to 5,349 MG per year. DWD estimates that by 2040, non-industrial water usage will comprise about 18 percent of the total use. As indicated in the Urban Water Management Plan, DWD has adequate supply sources to meet future needs under normal year, single year and multi-year drought conditions.[14]

The proposed project would connect to an existing 24-inch water line in the railroad corridor along the southern boundary of the site and would be managed by DWD. The current private on-site water system would be removed completely. In addition, a portion of the existing 24-inch line would be relocated west into the proposed parking area and drive aisles. Individual water services to the Buildings 1,3,4, and 6 would be served from connections along the main drive aisle. Buildings 2,5, and 7 would be privately operated.

As previously discussed, DWD determined adequate supply sources exist to meet future needs under normal year, single year, and multi-year drought conditions. However, given that the project has not yet calculated potable water service demand requirements, the project could have a ***potentially significant*** impact.

Further analysis of this impact will be provided in the Utilities and Service Systems chapter of the Oakley Logistics Center EIR being prepared for the project.

d,e. Solid waste collected by Oakley Disposal in the City limits of Oakley is hauled to the recycling Center and Transfer Station in Pittsburg, which is operated by Contra Costa Waste Service. Residential, commercial, and industrial waste is processed at the transfer facility and the residual material is hauled to Potrero Hills Landfill outside Suisun City, which has a daily capacity of 3,400 tons.

Given that the proposed project would provide warehousing, manufacturing, and business spaces, the proposed project would not be expected to generate solid waste in excess of what was previously anticipated by the General Plan. However, because number of employees and manufacturing spaces are not yet known, the proposed project could generate solid waste in excess of State or local standards or conflict with management and reduction statuses related to solid waste, and a ***potentially significant*** impact could result.

Further analysis of this impact will be provided in the Utilities and Service Systems chapter of the Oakley Logistics Center EIR being prepared for the project.

---

[14] Diablo Water District. *Diablo Water District Final 2015 Urban Water Management Plan.* June 2016.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XX. WILDFIRE. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:*				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	✖	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	✖	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	✖	☐
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post fire slope instability, or drainage changes?	☐	☐	✖	☐

Discussion

a-d. As noted in Section IX, Hazards and Hazardous Materials, according to the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program, the project site is not located within a Very High Fire Hazard Severity Zone.[15] In addition, the site is located on a relatively flat surface and in an urban area. The surrounding area is commercial and residential land uses. Thus, the proposed project would not experience result in substantial risk or hazards related to wildfires, and a ***less-than-significant*** impact would occur.

[15] California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. June 12, 2018.

Issues	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XXI.MANDATORY FINDINGS OF SIGNIFICANCE.				
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	✖	☐	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	✖	☐	☐	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	✖	☐	☐	☐

Discussion

a. Although relatively unlikely, based upon the current land cover types found on-site, special-status wildlife species and/or federally- or state-protected birds not covered under the ECCCHCP could be occupying the site. In addition, the project is known to contain habitats suitable to three special-status species and some migratory bird populations. Construction and operation of the project could have the potential to degrade the quality of the environment or reduce the habitat of a threatened animal. Therefore, the proposed project would have ***potentially significant*** impact related to degradation of the quality of the environment, reduction of habitat, threatened species, and/or California's history or prehistory.

Further analysis of this impact will be discussed in the Biological Resources chapter of the Oakley Logistics Center EIR being prepared for the project.

b,c. The proposed project in conjunction with other development within the City of Oakley could incrementally contribute to cumulative impacts in the area. As discussed in the Transportation section of this IS, the proposed project would result in an increase in vehicle traffic on the street system surrounding the project area. Additionally, the increased trips generated by the proposed project, could produce air contaminants and greenhouse gas emissions above what is acceptable by the BAAQMD. The project could also have environmental effects on human beings, emission of toxic air contaminants, and hazards which could result in adverse effects on human beings and the natural environment. Therefore, a ***potentially significant*** impact could occur.

Further analysis of this impact will be discussed in the Biological Resources, Transportation, Air Quality and GHG Emissions, and Statutorily Required Sections chapters of the Oakley Logistics Center EIR being prepared for the project.

Appendix B

OAKLEY
CALIFORNIA

DATE: February 20, 2019

TO: California State Clearinghouse
Responsible and Trustee Agencies
Interested Parties and Organizations

FROM: Joshua McMurray, Planning Manager
City of Oakley

SUBJECT: NOTICE OF PREPRARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED OAKLEY LOGISTICS CENTER PROJECT

The City of Oakley is the lead agency for the preparation of an Environmental Impact Report (EIR) for the proposed Oakley Logistics Center (proposed project). The scope of the EIR has been proposed based upon a determination by the City of Oakley. The City of Oakley has directed the preparation of this EIR in compliance with the California Environmental Quality Act (CEQA).

Once a decision is made to prepare an EIR, the lead agency must prepare a NOP to inform all responsible and trustee agencies that an EIR would be prepared (CEQA Guidelines Section 15082). The purpose of the NOP is to provide agencies with sufficient information describing both the proposed project and the potential environmental effects to enable the agencies to make a meaningful response as to the scope and content of the information to be included in the EIR. The City of Oakley is also soliciting comments on the scope of the EIR from the general public.

BACKGROUND

The project area, located at 6000 Bridgehead Road, was once occupied by the chemical manufacturing company DuPont. From 1956 to 1997 the DuPont facility, sometimes referred to as the Chemours site, operated as a manufacturing facility to produce tetraethyl lead, fuel additive anti-knock compounds, and titanium dioxide. DuPont stopped all production activities at the former manufacturing facility in 1998 and demolished many of the buildings in 1999. The project site has been listed as a corrective action site since 2008 by the Department of Toxic Substances Control (DTSC) and is a former interim status Resource Conservation and Recovery Act (RCRA) facility.

On June 29, 2018 DTSC, as the lead agency, certified a Mitigated Negative Declaration for remediation work to be performed in the project area. The DTSC approved three Corrective Measures Studies to address the release of Constituents of Concern (COC). The remedial activities will address the release of COCs in sediment, soil, and groundwater that may pose a risk to human health or the environment. Key COCs that will be remediated include lead, organolead, carbon tetrachloride, CFC-11, CFC-113, 1,2-dichloroethen, tetrachloroethylene, and arsenic. The remediation work at the site began in August 2018 and is expected to be completed by Spring 2020. As the remediation is completed, the affected areas of the site will be ready for development of industrial and commercial use.

PROJECT DESCRIPTION

The following is a discussion of the project location, land use, and components.

Project Location and Setting

The project site is located on the northwest side of the City of Oakley, adjacent to State Route (SR) 160, on Bridgehead Road, north of Main Street and the Burlington Northern Santa Fe (BNSF) Railroad, with entrance provided from Bridgehead Road on to Wilbur Avenue. The site is identified by Assessor's Parcel Numbers (APNs) 037-020-008, -009, -010, -014, -015, -016, -017, -018, -019, -020, -021, and -022. The entire property is approximately 345 acres. However, the proposed project would only develop approximately 150 acres of the property. The remaining 195 acres would be undisturbed. Currently the project site consists of paved and unmaintained urban land and two existing buildings. The site has been previously disturbed during past grading activities, former manufacturing operations, and current remediation work.

The site is bordered by commercial and industrial uses to the west, vacant land to the east and south, a mobile home park southwest, and the San Joaquin River Delta and Lauritzen Yacht Harbor to the north.

Project Entitlements

The entitlements requested with this application include:

- Certification of the Environmental Impact Report;
- Adoption of the Mitigation Monitoring and Reporting Program;
- Approval of a General Plan Amendment (GP 04-18) to amend the land use designation from Light Industrial/Business Park/Utility Energy to Light Industrial;
- Approval of a General Plan Amendment to remove the proposed extension of Live Oak Avenue from General Plan Figure 3-1, Circulation Diagram;
- Approval of a Rezone (RZ 08-18) from Specific Plan (SP-3) to Planned Unit Development (P-1);
- Approval of Preliminary and Final Development Plan;
- Approval of a Design Review (DR 12-18);
- Approval of a Tentative Subdivision Map to create 11 parcels (TM 05-18); and
- Approval of a Development Agreement (DA 01-18).

Existing Land Use and Zoning Designations

The project site is currently designated Light Industrial (LI), Utility Energy (UE), and Business Park (BP), with the remainder of the property designated Delta Recreation (DR) under the City of Oakley 2020 General Plan land use map. The site is zoned Specific Plan (SP-3).

Project Components

The proposed project includes construction of seven buildings across the project site ranging in size from 47,460 square feet (sf) to 567,840 sf, totaling 2,249,544 sf (see Figure 3). The buildings would include front load and cross docked warehouses. The proposed project would include demolition of the existing structures and construction of the proposed buildings. For purposes of the CEQA analysis in the project-level EIR, the project applications reflect the following:

<u>General Plan and Zoning Code Amendment</u>

The project site is currently designated Light Industrial, Business Park, and Utility Energy. The proposed project would include a General Plan Amendment to remove the Business Park and Utility Energy designation and keep only the Light Industrial designation across the development area. The undisturbed areas of the property would remain designated as Delta Recreation. The proposed project would also include an amendment to the General Plan Figure 3-1, Circulation Diagram, in order to remove the proposed extension of Live Oak Avenue through the project site. Additionally, the project would include a proposed zoning amendment from Specific Plan to Planned Unit Development. A Planned Unit

Development designation would allow for flexibility to develop light industrial and related uses consistent with the 2020 General Plan.

Upon rezoning of the project area to Planned Unit Development, the proposed project would have flexibility to develop light industrial and related uses consistent with the General Plan. The diversity of available uses could allow for light manufacturing, warehousing, and business spaces.

Construction

The development of the proposed project would be expected to occur over three years. Development may occur as the respective areas of land are remediated and cleared for construction. Development of the proposed project would include construction of seven buildings with associated parking areas, circulation improvements, and truck court areas. The frontage road on Wilbur Avenue would be improved to provide access to each building, and construction of two additional entrances north and south of Wilbur Avenue off of Bridgehead Road would also improve circulation throughout the project site.

Existing grades within the project site range from a low of about seven feet at the northwest corner of the site to a high of about 23 feet in the southwest corner. Proposed grading would consist of a series of cuts and fills to produce an overland stormwater release path towards the Central Slough and Delta edges. In the process, two existing wetland areas along Bridgehead Road would be filled (See Figure 4).

Elevations for the proposed buildings would be between 19.3 and 23.7 feet with adjacent truck docks being approximately four feet below the finished floors (See Figure 5). A preliminary earthwork model for the grading scheme indicates that approximately 250,000 cubic yards of import would be needed.

Utilities

The following is a discussion of planned utility services of the proposed project.

Water

Diablo Water District (DWD) provides potable water service to the project area. DWD has existing water lines along the southern boundary of the site, extending north and south. The private on-site water system currently used would be removed completely. The project includes a proposed water line in the main private drive aisle extending from Wilbur Avenue to the proposed cul-de-sac, operated by DWD. From that point, services to Buildings 2, 5, and 7 would be privately owned and operated. Buildings 1, 3, 4, and 6 would also be served from connections off the DWD line at connections along the main drive aisle.

Sewer

Iron House Sanitary District (ISD) provides sanitary sewer collection and treatment for the project area. ISD operates the existing Lauritzen Sewer Pump Station in Lauritzen Lane at the north edge of the site. Wastewater flows generated from the buildings would be collected in a pipe network that circulates within the parking and drive aisles of the project area and connects to the Lauritzen Pump Station. In the event the Lauritzen Pump Station cannot accommodate the flows generated by the project, a new sewer pump station will be constructed at a central location on the project site. A new sewer force main would then be constructed to connect to the gravity line that starts on the west side of Bridgehead Road.

Storm Drainage

The City of Oakley operates and maintains the public storm drain system in the vicinity of the project area. The site currently does not contain existing or planned public storm drain facilities. Storm water from impervious building rooves and pavement areas would be conveyed to biofiltration basins located throughout the site. Water from the basins would then be conveyed to the Central Slough. Flows from the site would be conveyed to an existing pipe and discharged to the Delta. On-site piping and biofiltration basins would be privately maintained.

Roadway Improvements

Consistent with the Oakley 2020 General Plan, roadway infrastructure would be constructed to meet the needs of a planned unit development and provide access to the project site. Street widths would be designed in accordance with traffic studies completed for the project as well as the Oakley 2020 General Plan.

Wilbur Avenue would provide the main entrance to the proposed project. Internal circulation roads would be privately maintained. Additionally, the southern entrance to project site from Bridgehead Road would be improved to circulate the project site and provide access to Buildings 1 and 7. The entrance from the northern portion of Bridgehead Road would be constructed to provide access to Building 3 and circulate the entire project site. The primary entrance on Wilbur Avenue would be expanded to 64 feet at the entrance.

Additionally, the proposed project would include an amendment to the General Plan Figure 3-1, Circulation Diagram, in order to remove the extension of Live Oak Avenue through the project site.

ENVIRONMENTAL EFFECTS

The City has reviewed the proposed project and prepared an Initial Study (see attached). Based on the analysis within the Initial Study, the City has determined that the EIR should address the following issues. The initial study will address all of the issues not addressed in the EIR.

Each of the following issue chapters will include a discussion of the existing setting, thresholds of significance, specific impacts, mitigation measures, and monitoring strategies. The environmental impact discussions within the Oakley Logistics Center EIR will tier from the General Plan EIR analysis and conclusions.

Air Quality and GHG Emissions

The air quality and greenhouse gas (GHG) emissions analysis for the proposed project will be performed using the California Emissions Estimator Model (CalEEMOD) software program. Vehicle trip generation data from the project-specific Traffic Impact Analysis will be used as model input data. The air quality impact analysis will include a quantitative assessment of short-term (i.e., construction) and long-term (i.e., operational) increases of criteria air pollutant emissions of primary concern (i.e., ROG, NO_X, and PM_{10}). The project's cumulative contribution to regional air quality will be discussed, based in part on the modeling conducted at the project level.

The GHG emissions analysis will include a quantitative estimate of operational carbon dioxide equivalent emissions from both stationary and mobile sources. Mobile source emissions from passenger cars and light trucks will be based on estimated vehicle miles traveled, as derived from the project-specific Traffic Impact Analysis, and as quantified through the CalEEMod program. Construction and demolition emission from the proposed project will also be quantified using CalEEMod.

The significance of air quality and GHG impacts will be determined in comparison to Bay Area Air Quality Management District (BAAQMD) significance thresholds. BAAQMD-recommended mitigation measures will be incorporated to reduce any significant air quality impacts, and anticipated reductions in emissions associated with proposed mitigation measures will be quantified. Proposed project emissions will also be discussed as pursuant to Assembly Bill 32 and Senate Bill 52.

Biological Resources

The Biological Resources chapter will be based on studies and findings prepared and made as part of the remediation project, the Planning Survey Report for the proposed project, the Arborist Report prepared for the project site, and supporting documentation required by the East Contra Costa County Habitat Conservation Plan (ECCCHCP). The Biological Resources chapter of the EIR will include a description of the potential effects on plant communities, wildlife, and wetlands, including adverse effects on rare, endangered, candidate, sensitive, and special-status species that are identified during site reconnaissance, as well as the impacts related to fill of wetlands during project construction. The section will describe the impact the project would have on biological resources identified by the biologist and assign mitigation measures, if feasible, to limit the impacts to a less-than-significant level. In addition, this chapter will identify the required permits relating to biological resources. Additionally, the Biological Resources chapter will analyze the proposed project's consistency with the ECCCHCP.

Hydrology and Water Quality

The Hydrology and Water Quality chapter of the EIR will summarize setting information and identify potential impacts on stormwater drainage and receiving water quality, groundwater, and flooding. The Hydrology and Water Quality chapter will address the proposed project's projected increase in peak flow and how the increase in peak flow would be attenuated on-site such that post-development flows do not exceed pre-development flows. In addition, the chapter will evaluate any impacts associated with alteration of the 100-year floodplain limits and existing drainage patterns. Furthermore, the chapter will address how stormwater will be treated prior to being discharged in the downstream system. Compliance with the requirements of the San Francisco Bay Regional Water Quality Control Board will be discussed in the chapter. The chapter will primarily be based on a project-specific utilities site plan.

Transportation

The transportation chapter will include evaluation of the operations at 24 study intersections for four different scenarios. Current roadway and intersection capabilities and operating levels of service (LOS) will be quantified. The scenarios include an evaluation of the existing intersection capacity conditions, existing plus project conditions, baseline traffic capacity conditions, and baseline plus project conditions.

The intersections and project driveways to be analyzed include the following:

1. Viera Avenue/Wilbur Avenue
2. Maritime Way/Wilbur Avenue
3. State Route 160 SB Ramps/Wilbur Avenue
4. State Route 160 NB Ramps/Wilbur Avenue
5. Bridgehead Road/Wilbur Avenue
6. Viera Avenue/East 18th Street
7. State Route 160 SB Ramps/East 18th Street
8. State Route 160 NB/Main Street
9. Neroly Road/Bridgehead Road and Main Street
10. Live Oak Avenue/Main Street
11. Big Break Road/Main Street
12. Oakley Road/Neroly Road
13. Oakley Road/Live Oak Avenue
14. Empire Avenue/Main Street
15. Vintage Parkway/Main Street
16. O'Hara Avenue/Main Street
17. Neroly Road/Live Oak Avenue
18. Laurel Road/Live Oak Avenue
19. Laurel Road/Empire Avenue
20. Main Street/Norcross Lane
21. Empire Avenue/Oakley Road
22. O'Hara Avenue/Neroly Road
23. Empire Avenue/Gateway Drive
24. Laurel Road/Arco Driveway

In addition, a detailed site circulation and access review will be conducted to determine the adequacy of the proposed site plan in accordance with generally accepted traffic engineering standards. Emergency access, transit, pedestrian, and bicycle facilities will also be discussed and analyzed to ensure adequacy of the proposed facilities based upon existing City of Oakley plans. This chapter of the EIR will also include a discussion of the existing setting, identification of the thresholds of significance, identification of impacts, and the development of mitigation measures and monitoring strategies. The traffic chapter will be based on a Traffic Impact Analysis prepared for the proposed project, in accordance with the Contra Costa Transportation Authority (CCTA) Implementation Guide adopted June 16, 2010, as well as the Circulation Element of the 2020 General Plan.

Utilities and Service Systems

The Utilities and Service Systems chapter of the EIR will summarize setting information and identify potential new demand for services on water, sewer, and solid waste. The chapter will address the proposed water and sewer demand for the project and the infrastructure improvements needed to provide water and sewer service to the project site, including construction of the proposed sewer pump station, and whether the existing service providers can accommodate the project within their existing systems. If existing water, sewer, or solid waste facilities would be impacted, mitigation measures will be identified to ensure that the project's demand can be adequately accommodated.

Statutorily Required Sections

Pursuant to CEQA Guidelines Section 21100(B)(5), the Statutorily Required Sections chapter of the EIR will address the potential for growth-inducing impacts of the proposed project, focusing on whether removal of any impediments to growth would occur with the project. In addition, the chapter will include a discussion of potential energy impacts due to the project and any proposed energy efficiency and/or conservation measures. A summary of the significant and unavoidable impacts identified within the EIR will be included in this chapter, as well as a discussion of significant irreversible impacts. The chapter will also summarize the cumulative impact analyses, which will be provided in each technical chapter of the EIR.

Alternatives Analysis

In accordance with Section 15126.6(a) of the CEQA Guidelines, the EIR will include an analysis of a range of alternatives, including a No Project Alternative. Consideration will be given to potential off-site locations consistent with CEQA Guidelines, Section 15126.6(f)(2), and such locations will be determined in consultation with City staff. If it is determined that an off-site alternative is not feasible, the EIR will include a discussion describing why such a conclusion was reached. The project alternatives will be selected when more information related to project impacts is available in order to be designed to reduce significant project impacts. The chapter will also include a section of alternatives considered but dismissed, if necessary. The Alternatives Analysis chapter will describe the alternatives and identify the environmentally superior alternative. The alternatives will be analyzed at a level of detail less than that of the proposed project; however, the analyses will include sufficient detail to allow a meaningful comparison of the impacts. Such detail may include conceptual site plans for each alternative, basic quantitative traffic information (e.g., trip generation), as well as a table that will compare the features and the impacts of each alternative.

SUBMITTING COMMENTS

To ensure that the full range of issues related to this proposed project are addressed and all significant issues are identified, written comments are invited from all interested parties. Written comments concerning the proposed EIR for the Oakley Logistics Center project should be directed to the name and address below:

Mr. Joshua McMurray
Planning Manager
3231 Main Street
Oakley, CA 94561

(925) 625-7004

Written comments are due to the City of Oakley at the location addressed above by 5:00 p.m. on March 21, 2019.

SCOPING MEETING

A public scoping meeting will be held on March 6 at 5 p.m. at 3231 Main Street, Oakley, regarding the proposed EIR for the Oakley Logistics Center project.

Figure 1
Regional Location Map

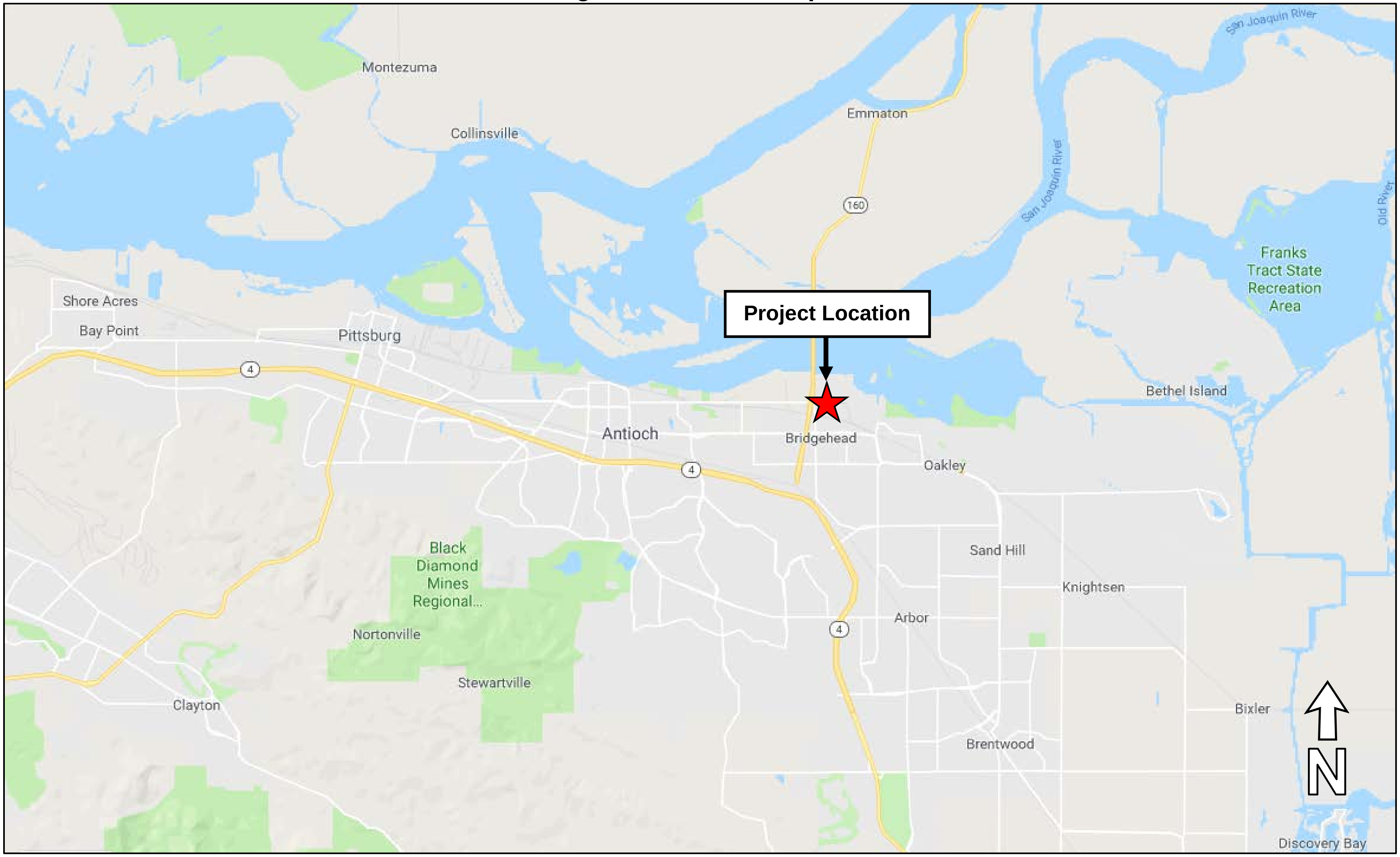


Figure 2
Project Vicinity Map

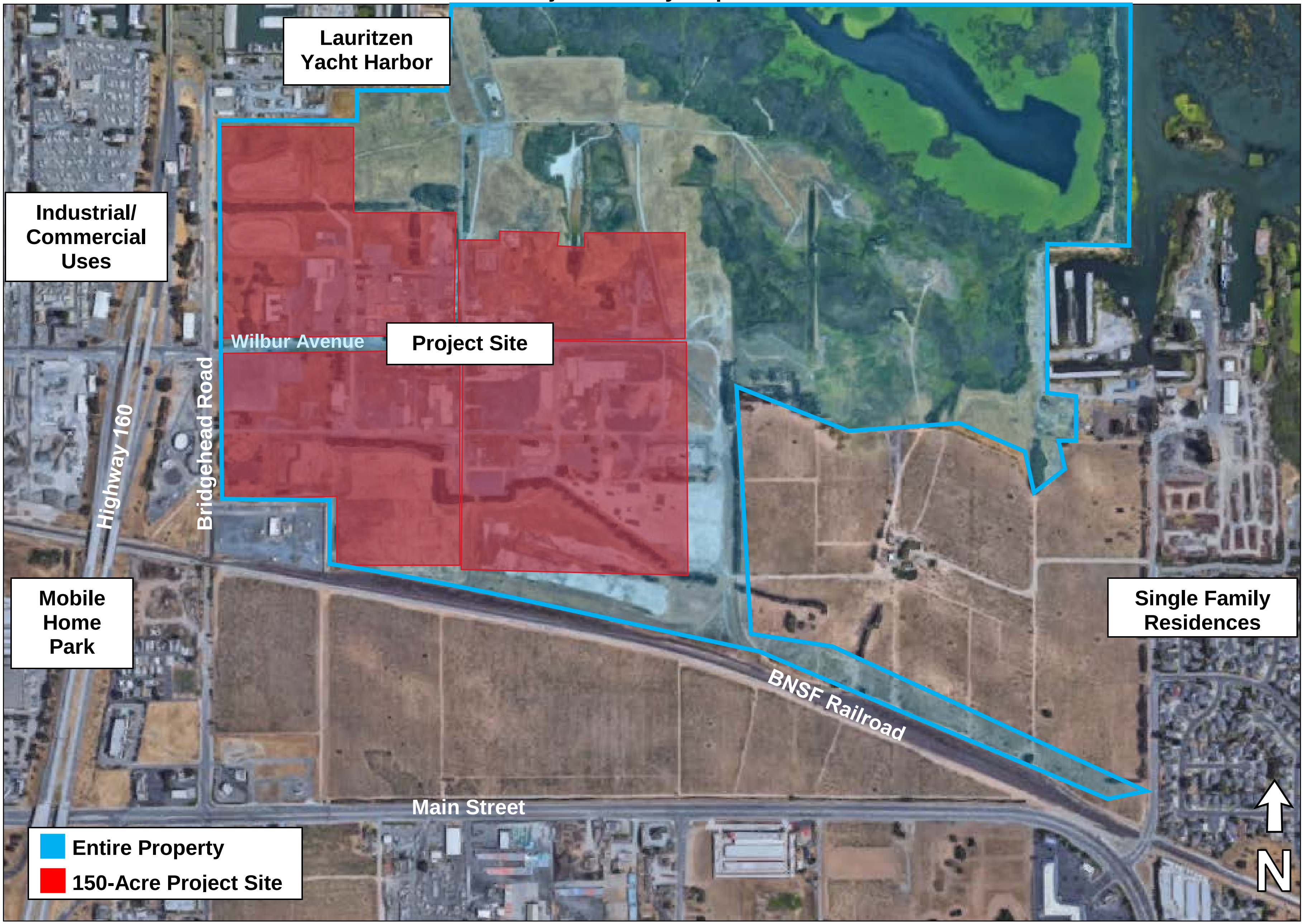


Figure 3
Site Map

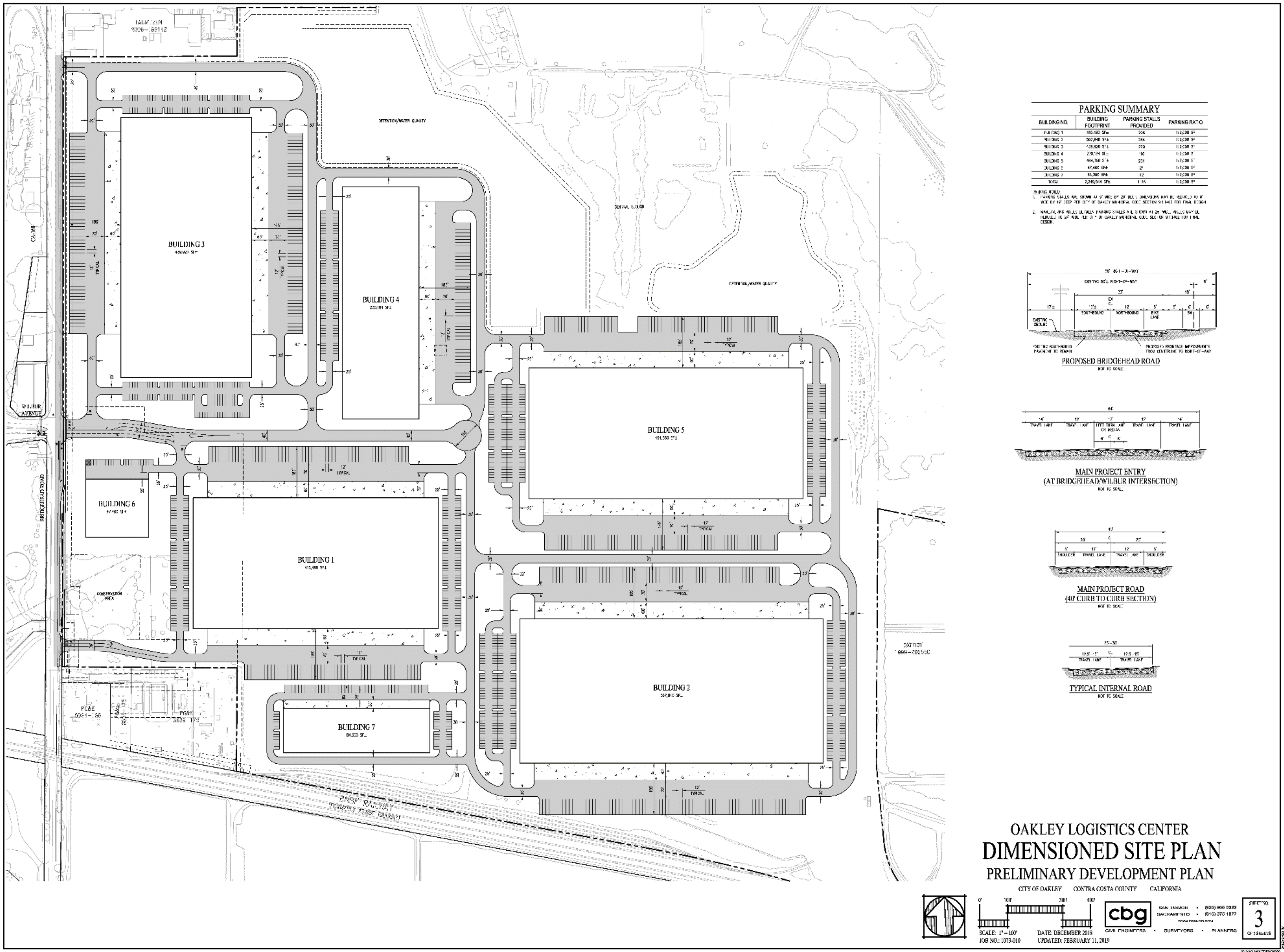


Figure 4
Tentative Grading Plan

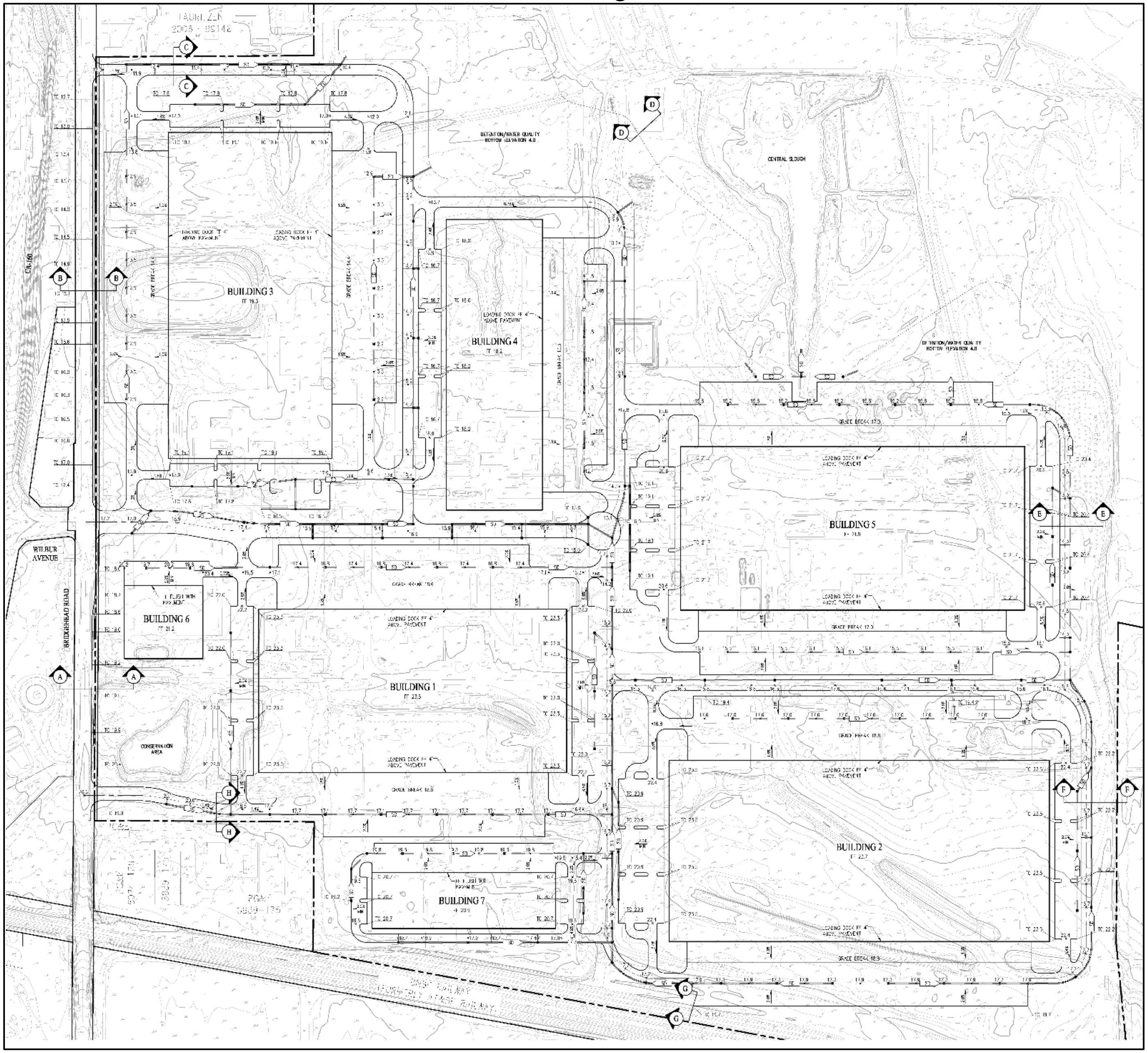
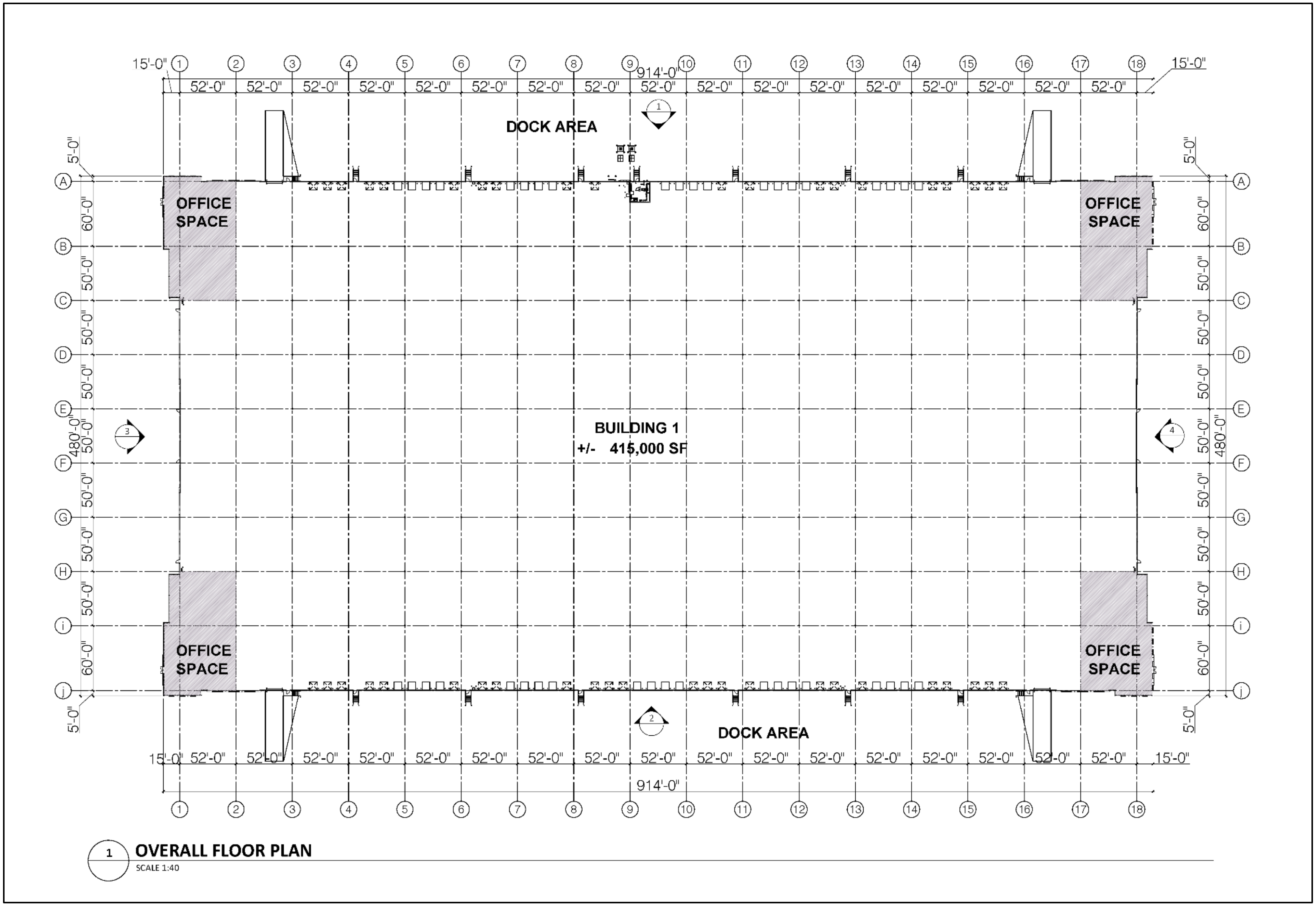


Figure 5
Floor Plan



Appendix C

March 21, 2019

State Clearinghouse
State.Clearinghouse@opr.ca.gov
PO Box 3044
Sacramento, CA 95812-3044

CEQA Project: **SCH #2019029113**
Lead Agency: **Oakley Logistics Center Project**
Project Title: **Oakley Logistics Center Project**

The Division of Oil, Gas, and Geothermal Resources (Division) oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells. Our regulatory program emphasizes the wise development of oil, natural gas, and geothermal resources in the state through sound engineering practices that protect the environment, prevent pollution, and ensure public safety. Northern California is known for its rich gas fields. Division staff have reviewed the documents depicting the proposed project.

The proposed Oakley Logistics Center Project (project) includes seven proposed buildings on a 150-acre parcel in Oakley, California. The project occupies parts of the former DuPont Chemical plant. The locations of the project and buildings provided by the City of Oakley are presented on the attached map which also shows known locations of oil and gas wells. We have made no attempt to verify well locations for accuracy. **Two known wells are located within the project area; neither well is located within the footprint of the proposed buildings. One well was a dry hole (DuPont #1) drilled in 1969. The second was drilled as a water disposal well drilled in 1957. Our records show a history of well construction, but no record of abandonment, though the well is listed as plugged.**

For future reference, you can review wells located on private and public land at the Division's website: **https://secure.conservation.ca.gov/WellSearch**. Based on our review of available data, no impact to known oil or gas wells is likely.

The local permitting agencies and property owner should be aware of, and fully understand, that significant and potentially dangerous issues may be associated with development near oil and gas wells. These issues are non-exhaustively identified in the following comments and are provided by the Division for consideration by the local permitting agency, in conjunction with the property owner and/or developer, on a parcel-by-parcel or well-by-well basis. As stated above, the Division provides the above well review information solely to facilitate decisions made by the local permitting agency regarding potential development near an oil or gas well.

1. It is recommended that access to a well located on the property be maintained in the event re-abandonment of the well becomes necessary in the future. Impeding access to a well could result in the need to remove any structure or obstacle that prevents or impedes access. This includes, but is not limited to, buildings, housing, fencing, landscaping, trees, pools, patios, sidewalks, and decking.

2. Nothing guarantees that a well abandoned to current standards will not start leaking oil, gas, and/or water in the future. It always remains a possibility that any well may start to leak oil, gas, and/or water after abandonment, no matter how thoroughly the well was plugged and abandoned. The Division acknowledges that wells abandoned to current standards have a lower probability of leaking oil, gas, and/or water in the future, but makes no guarantees as to the adequacy of this well's abandonment or the potential need for future re-abandonment.

3. Based on comments **1** and **2** above, the Division makes the following general recommendations:

a. Maintain physical access to any oil or gas well encountered.

b. Ensure that the abandonment of oil or gas wells is to current standards.

If the local permitting agency, property owner, and/or developer chooses not to follow recommendation "**b**" for a well located on the development site property, the Division believes that the importance of following recommendation "**a**" for the well located on the subject property increases. If recommendation "**a**" cannot be followed for the well located on the subject property, then the Division advises the local permitting agency, property owner, and/or developer to consider any and all alternatives to proposed construction or development on the site (see comment **4** below).

4. Sections 3208 and 3255(a)(3) of the Public Resources Code give the Division the authority to order the re-abandonment of any well that is hazardous, or that poses a danger to life, health, or natural resources. Responsibility for re-abandonment costs for any well may be affected by the choices made by the local permitting agency, property owner, and/or developer in considering the general recommendations set forth in this letter. (Cal. Public Res. Code, § 3208.1.)

5. Maintaining sufficient access to a gas well may be generally described as maintaining "rig access" to the well. Rig access allows a well servicing rig and associated necessary equipment to reach the well from a public street or access way, solely over the parcel on which the well is located. A well servicing rig, and any necessary equipment, should be able to pass unimpeded along and over the route, and should be able to access the well without disturbing the integrity of surrounding infrastructure.

6. If, during the course of development of this proposed project, **any unknown well(s) is/are discovered**, the Division should be notified immediately so that the newly-discovered well(s) can be incorporated into the records and investigated. The Division recommends that any wells found in the course of this project, and any pertinent information obtained after the issuance of this letter, be communicated to the appropriate county recorder for inclusion in the title information of the subject real property. This is to ensure that present and future property owners are aware of (1) the wells located on the property, and (2) potentially significant issues associated with any improvements near oil or gas wells.

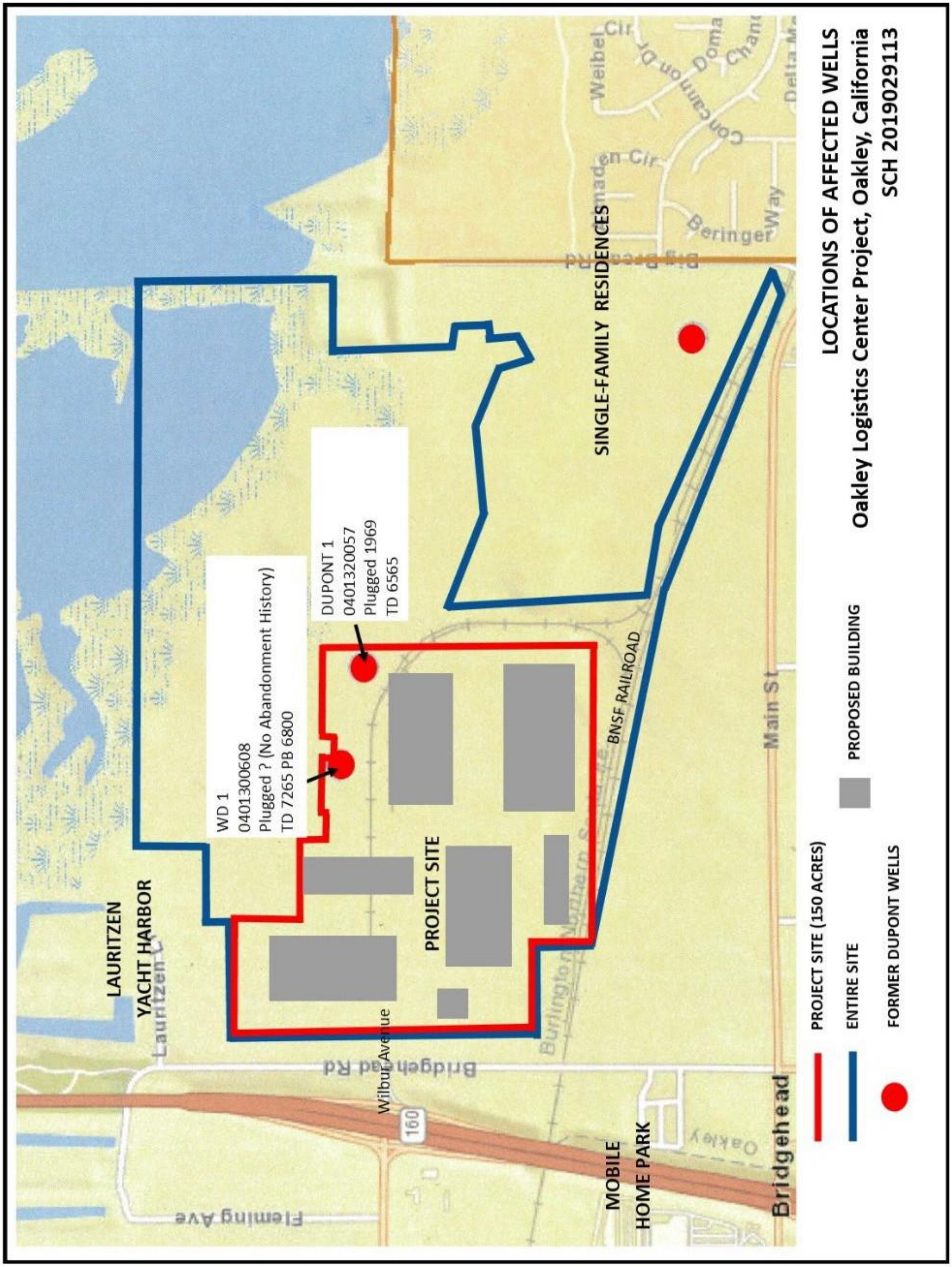
No well work may be performed on any oil or gas well without written approval from the Division in the form of an appropriate permit. This includes, but is not limited to, mitigating leaking fluids or gas from abandoned wells, modifications to well casings, and/or any other re-abandonment work. (NOTE: The Division regulates the depth of any well below final grade (depth below the surface of the ground). Title 14, Section 1723.5 of the California Code of Regulations states that all well casings shall be cut off at least 5 feet but no more than 10 feet below grade. If any well needs to be lowered or raised (i.e. casing cut down or casing riser added) to meet this grade regulation, a permit from the Division is required before work can start.)

DocuSigned by:
Charlene L Wardlow
067E7BD5EA114A7...
Charlene L. Wardlow
Northern District Deputy

Attachment: Locations of Affected Wells

cc: Joshua McMurray
City of Oakley
mcmurray@ci.oakley.ca.us

CEQA Project: SCH #2019029113
Project Title: Oakley Logistics Center Project
Locations of Affected Wells



DEPARTMENT OF TRANSPORTATION
DISTRICT 4
P.O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5528
FAX (510) 286-5559
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life!

March 20, 2019

SCH# 2019029113
04-CC-2019-00308
GTS ID # 14580
PM:CC-04-0.486

Joshua McMurray, Planning Manager
City of Oakley
Community Development Department
3231 Main Street
Oakley, CA 94561

Dear Joshua McMurray:

Oakley Logistics Center Project—Notice of Preparation (NOP)

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. In tandem with the Metropolitan Transportation Commission's (MTC) Sustainable Communities Strategy (SCS), Caltrans' mission signals a modernization of our approach to evaluate and mitigate impacts to the State Transportation Network (STN). Caltrans' Strategic Management Plan 2015-2020 aims to reduce Vehicle Miles Traveled (VMT) in part, by tripling bicycle and doubling both pedestrian and transit travel by 2020. Our comments are based on the NOP. Additional comments pending final review.

Project Understanding

The proposed project includes the construction of seven warehouse buildings across the site ranging in size from 47,460 square feet (sf) to 567,840 sf. The buildings would include front load and cross docked warehouses. The entire property is approximately 345 acres. The proposed project would only develop approximately 150 acres of the property. The remaining 195 acres would be undisturbed. Roadway improvements would be constructed to meet the needs of a planned unit development and provide access to the project site. Street widths would be designed in accordance with traffic studies completed for the project as well as the Oakley 2020 General Plan.

Wilbur Avenue would provide the main entrance to the proposed project. Additionally, the southern entrance to project site from Bridgehead Road would be improved to circulate the project site and provide access to Buildings 1 and 7. The entrance from the northern portion of Bridgehead Road would be constructed to provide access to Building 3 and circulate the entire project site. The primary entrance to project site through Wilbur Avenue would be expanded to 64 feet at the entrance. Existing grades within the project site range from low of about seven feet at the northwest corner of the site to a high of 23 feet in the southwest corner. Proposed grading would consist of a series of cuts and fills to produce an overland storm water release path towards the Central Slough and Delta edges. In the process, two existing wetlands areas along Bridgehead Road would be filled. The proposed project site is located on the eastern edge of State Route (SR) 160. Regional Access is located 350 feet from the site at SR 160 and Wilbur Avenue interchange. Please specify number of proposed parking spaces.

Regional Significance
Since this project meets the criteria to be deemed of statewide, regional or areawide significance per CEQA Section 15206(b), the DEIR should be submitted to both the Contra Costa County Transportation Authority and the Metropolitan Transportation Commission for review and comment.

Vehicle Trip Reduction
From Caltrans' Smart Mobility 2010: A Call to Action for the New Decade, the project site is identified as Place Type 4c: Dedicated Use Area, that consists of large tract land used for commercial purposes such as business park or warehousing. Given the project's intensification of vehicle and freight truck use, the project should include a robust Transportation Demand Management (TDM) Program to reduce VMT and greenhouse gas emissions. Such measures will be critical in order to facilitate efficient transportation access to and from the project site and reduce transportation impacts associated with the project. Suggested TDM Strategies include working with the Tri Delta Transit to decrease headway times and improve way-findings on bus lines to provide a better connection between the project site and Antioch Bart Station and regional transit destinations by providing:

- Membership in a transportation management association;
- Transit subsidies and/or annual passes to all employees;
- Design project to encourage walking, bicycling and convenient transit access;
- Carpool and clean-fuel parking spaces conveniently located to encourage carpooling and clean-fuel vehicles;
- Lower parking ratios;
- Charging stations and designated parking spaces for electric vehicles;
- Secured bicycle storage facilities;
- Fix-it bicycle repair station(s);
- Subsidize transit passes on an ongoing basis;
- Transportation and commute information kiosk;
- Outdoor areas with patios, furniture, pedestrian pathways, picnic and recreational areas;
- Showers, changing rooms and clothing lockers for bike commuters;
- Bicycle route mapping resources and bicycle parking incentives;
- Employee transportation coordinator;
- Emergency Ride Home program;

- Participation/Formation in/of a Transportation Management Association (TMA) in partnership with other developments in the area; and
- Aggressive trip reduction targets with annual Lead Agency monitoring and enforcement.

Transportation Demand Management programs should be documented with annual monitoring reports by an onsite TDM coordinator to demonstrate effectiveness. If the project does not achieve the VMT reduction goals, the reports should also include next steps to take in order to achieve those targets. Also, reducing parking supply can encourage active forms of transportation, reduce regional VMT, and lessen future transportation impacts on SR 160 and SR 4 and other nearby State facilities. These smart growth approaches are consistent with the MTC's Regional Transportation Plan/SCS goals and would meet Caltrans Strategic Management Plan sustainability goals.

For additional TDM options, please refer to the Federal Highway Administration's Integrating Demand Management into the Transportation Planning Process: A Desk Reference (Chapter 8). The reference is available online at:
http://www.ops.fhwa.dot.gov/publications/fhwahop12035/fhwahop12035.pdf.

Travel Demand Analysis
Please submit a travel demand analysis that provides VMT analysis resulting from the proposed project. With the enactment of Senate Bill (SB) 743, Caltrans is focusing on transportation infrastructure that supports smart growth and efficient development to ensure alignment with State policies through the use of efficient development patterns, innovative travel demand reduction strategies, multimodal improvements, and VMT as the primary transportation impact metric. Please ensure that the travel demand analysis includes:

- A vicinity map, regional location map, and site plan clearly showing project access in relation to the STN. Ingress and egress for all project components should be clearly identified. Clearly identify the State right-of-way (ROW). Project driveways, local roads and intersections, car/bike parking, and transit facilities should be mapped.

- A VMT analysis pursuant to the Lead Agency's guidelines or, if the Lead Agency has no guidelines, the Office of Planning and Research's Draft Guidelines. Projects that result in automobile VMT per capita greater than 15% below existing (i.e. baseline) city-wide or regional values for similar land use types may indicate a significant impact. If necessary, mitigation for increasing VMT should be identified. Mitigation should support the use of transit and active transportation modes. Potential mitigation measures that include the requirements of other agencies such as Caltrans are fully enforceable through permit conditions, agreements, or other legally-binding instruments under the control of the City.

- A schematic illustration of walking, biking and auto conditions at the project site and study area roadways. Potential issues for all road users should be identified and fully mitigated.

- The project's primary and secondary effects on pedestrians, bicycles, disabled travelers and transit performance should be evaluated, including countermeasures and trade-offs resulting from mitigating VMT increases. Access to pedestrians, bicycle, and transit facilities must be maintained.

Multimodal Planning
The project should be conditioned to ensure connections to existing bike lanes and multi-use trails to facilitate walking and biking to nearby jobs. Connections to the proposed low-stress bikeway within the planned project area should be completed to ensure connection at Bridgehead Road, and Wilbur Avenue, bikeways since the proposed project is adjacent to Tri Delta's 383 bus stop, which provides connection to Antioch's BART station. Please see *Contra Costa Countywide Bicycle and Pedestrian Plan:* http://keepcontracostamoving.net/interactive-map/

Transportation Impact Fees
Please identify project travel demand or VMT and estimate the costs of public transportation improvements necessitated by the proposed project; viable funding sources such as development and/or transportation impact fees should also be identified. We encourage a sufficient allocation of fair share contributions toward multi-modal and regional transit improvements to fully mitigate cumulative impacts to regional transportation. We also strongly support measures to increase sustainable mode shares, thereby reducing VMT.

Transportation Management Plan
A Caltrans-approved Transportation Management Plan (TMP) is required to avoid project-related impacts to the STN, if it is anticipated that vehicular, bicycle, and pedestrian traffic will be impacted during the construction of the proposed project requiring traffic restrictions and detours. The TMP must also comply with the requirements of corresponding jurisdictions.

In addition, pedestrian access through the construction zone must be in accordance with the Americans with Disabilities Act (ADA) regulations (see Caltrans *Temporary Pedestrian Facilities Handbook)* for maintaining pedestrian access and meeting ADA requirements during construction at: www.dot.ca.gov/hq/construc/safety/Temporary_Pedestrian_Facilities_Handbook.pdf

Also see Caltrans Traffic Operations Policy Directive 11-01 "Accommodating Bicyclists in Temporary Traffic Control Zones" at: www.dot.ca.gov/trafficops/policy/11-01.pdf. All curb ramps and pedestrian facilities located within the limits of the project are required to be brought up to current ADA standards as part of this project.

For further TMP assistance, please contact the Caltrans District 4 Office of Traffic Management Operations at (510) 286-4579. Further transportation management information is available at the following website: www.dot.ca.gov/hq/traffops/trafmgmt/tmp_lcs/index.htm.

Lead Agency

As the Lead Agency, the City of Oakley is responsible for all project mitigation, including any needed improvements to the STN. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures.

Encroachment Permit

Please be advised that any work or traffic control that encroaches onto the State ROW requires an Encroachment Permit that is issued by Caltrans. Traffic-related mitigation measures should be incorporated into the construction plans prior to the encroachment permit process. To apply, a completed Encroachment Permit application, the adopted environmental document, and five (5) sets of plans clearly indicating State ROW must be submitted to: Office of Permits, California DOT, District 4, P.O. Box 23660, Oakland, CA 94623-0660. Traffic-related mitigation measures should be incorporated into the construction plans prior to the encroachment permit process. See the website link below for more information.
http://www.dot.ca.gov/hq/traffops/developserv/permits/

Should you have any questions regarding this letter, please contact Michael Casas at 510-286-5614 or michael.casas@dot.ca.gov.

Sincerely,

PATRICIA MAURICE
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

Department of Toxic Substances Control

Jared Blumenfeld
Secretary for
Environmental Protection

Meredith Williams, Ph.D.
Acting Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Gavin Newsom
Governor

March 28, 2019

Mr. Joshua McMurray, Planning Manager
(sent via *McMurray@ci.oakley.ca.us*)
City of Oakley
3231 Main Street
Oakley, CA 94561

Subject: Response to Comments regarding the Notice of Preparation for the Oakley Logistics Center Project Draft Environmental Impact Report

Dear Mr. McMurray,

Thank you for granting the Department of Toxic Substances Control (DTSC) an extension to comment on the Notice of Preparation (NOP) for the Oakley Logistics Center Project draft Environmental Impact Report (EIR). DTSC submits the following comments on the NOP to be considered in the preparation of the EIR:

1. Portions of the project site may not be fully remediated by Chemours prior to construction of the proposed project. Although most of Chemours remediation is expected to be completed by Spring 2020, there will be ongoing operation and maintenance of the groundwater remedy for many years, including a phyto-remediation area and extensive monitoring well network. Per DTSC's final remedy decision document (Statement of Basis, dated June 2018), land use controls (e.g. land use covenant (LUC)) are required to ensure that any future redevelopment activities on site do not interfere with remedy features. These features include tree planting areas for the phyto-remediation in addition to monitoring wells or other remedy features.

    a. Please provide an analysis of the future redevelopment activity impacts on ongoing operation and maintenance of the groundwater remedy and how those impacts, if any, may be addressed in the Draft EIR.

    b. Please delineate the monitoring well and phyto-remediation locations within the proposed project on maps in the Draft EIR.

2. As stated in #1 above, portions of the project site may not be fully remediated by Chemours prior to construction of the proposed project. Vapor mitigation is required by DTSC for areas with subsurface VOC soil contamination, which will need to be considered in the building design and construction. Please provide an analysis of these future redevelopment activities to assess any impacts on implementation of the VOC contamination remedies and how those impacts, if any, may be addressed in the Draft EIR.

3. As stated in #1 above, portions of the project site may not be fully remediated by Chemours prior to construction of the proposed project. Per the final remedy, the Soil and Materials Management Plan must be implemented to ensure that contaminated soil handled at the site is properly managed in accordance with applicable laws, regulations, and best management practices. According to the NOP, excavation and grading are included the future redevelopment activities. Please provide an analysis to identify and assess potential impacts from the movement of contaminated soil and how those impacts, if any, may be addressed in the Draft EIR.

4. The existing hazardous waste post-closure permit is not discussed in the NOP nor delineated in any figures provided with either the NOP or Initial Study. A section of the post-closure area appears to be within, or adjacent to, this project's Detention/Water Quality pond.

    a. Please delineate the post-closure area on the proposed project maps in the Draft EIR.

    b. Provide discussion on the long-term maintenance that is required and analyze the compatibility of project activities with the LUC in the Draft EIR.

5. DTSC is concerned that the grading work for the proposed project, including the Detention/Water Quality pond adjacent to the post-closure area, may impact the integrity of the existing containment systems. Please provide analysis of how project activities may impact the post-closure containment on water quality and how those impacts, if any, may be addressed in the Draft EIR.

Thank you for considering the Department of Toxic Substances Control's comments in the preparation of the Draft EIR. If you have any questions or would like any clarification on DTSC's comments, please contact me at (916) 255-3988 or email at robert.irving@dtsc.ca.gov or Candace Hill, Senior Environmental Planner at (916) 255-6681 or candace.hill@dtsc.ca.gov. We look forward to receiving the Draft EIR. Thank you for your assistance in protecting California's people and environment from harmful effects of toxic substances.

Sincerely,

Robert Irving

Robert Irving
CEQA Unit Supervisor, Permitting Division
Department of Toxic Substances Control

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

March 6, 2019

Joshua McMurray
City of Oakley
3231 Main Street
Oakley, CA 94561

RE: SCH# 2019029113 Oakley Logistics Center Project, Contra Costa County

Dear Mr. McMurray:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
   - **a.** A brief description of the project.
   - **b.** The lead agency contact information.
   - **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
   - **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
   - **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
   - **a.** Alternatives to the project.
   - **b.** Recommended mitigation measures.
   - **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
   - **a.** Type of environmental review necessary.
   - **b.** Significance of the tribal cultural resources.
   - **c.** Significance of the project's impacts on tribal cultural resources.
   - **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
   - **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
   - **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
   a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
   b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
       i. Planning and construction to avoid the resources and protect the cultural and natural context.
       ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
       i. Protecting the cultural character and integrity of the resource.
       ii. Protecting the traditional use of the resource.
       iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Gayle.Totton@nahc.ca.gov.

Sincerely,

Nancy Gonzalez

for
Gayle Totton
Associate Governmental Program Analyst

cc: State Clearinghouse

March 21, 2019

Joshua McMurray
Planning Manager
3231 Main Street
Oakley, CA 94561

RE: Oakley Logistics Center Project

Dear Mr. McMurray,

Bay Area Air Quality Management District (Air District) staff have reviewed the initial study and notice of preparation (NOP) for a draft environmental impact report (DEIR) on the Oakley Logistics Center (Project). The proposed Project is a distribution center consisting of up to seven buildings and 2.5 million square feet of warehouse space on a former industrial site in the northwest corner of the City of Oakley (City). Some changes to Bridgehead Road and Wilbur Avenue are also included in the Project.

The initial study contains preliminary details about the Project. As the Project undergoes more detailed review in a DEIR, we encourage the City to develop a detailed description of the distribution center that includes a reasonable estimation of the tenants and on-site equipment for goods movement associated with a fully constructed, fully operational site. If there is a possibility of intensive warehouse types, such as refrigerated buildings, we encourage the DEIR to include them when estimating potential impacts.

We likewise encourage the DEIR to include a detailed description of all truck types and truck routes for goods entering and leaving the distribution center. The transportation impacts section proposes an assessment of the vehicle miles traveled (VMT), and we encourage the Project to break this down by truck type and route.

We encourage the City to conduct a health risk assessment (HRA) to evaluate potential health risks from criteria and toxic pollutants. This HRA should consider impacts for sensitive land uses near the project site and along principal access routes for vehicles entering or leaving the logistics center. Unless it is no longer occupied, the mobile home park near the project site should be included. The Air District recommends that City use AERMOD to evaluate individual and cumulative health impacts.

The Air District encourages the City to make a significance determination for greenhouse gas impacts based on the most recent State greenhouse gas targets and CEQA guidance. The Air District's 2010 CEQA guidelines are based on the State's 2020 greenhouse gas targets. These targets have been superseded by the State's 2030 and 2050 climate stabilization goals and by the most recent draft of the AB 32 Scoping Plan written by the California Air Resources Board.

To minimize environmental impacts, we recommend that the City consider the following mitigation measures for the Project:

- Dust mitigation measures during construction, as listed in the Air District's CEQA guidelines,
- A requirement that construction vehicles use electric or Tier IV engines,
- Design and buildout of the distribution center to support next-generation vehicles, such as electrified, hybrid, fuel cell, or hydrogen-fueled heavy-duty trucks,
- Design and buildout of the distribution center with electrified loading docks that eliminate the need for on-site idling of vehicles (e.g., refrigerated vehicles),
- Use of renewable diesel if diesel vehicles or equipment is anticipated,
- A requirement that on-site vehicles for goods movement are zero-emission or electric,
- A requirement that backup power at the site is zero-emission or electric, if practicable,
- Inclusion of charging stations for light-duty vehicles (e.g., for employee or customer travel),
- Buffer zones and vegetative barriers around the site,
- Consistency determination with the State's sustainable freight strategy, and
- Consideration of off-site mitigation options, should there be any construction or operational phase impacts that cannot be mitigated on site.

Recognizing and complimenting the City on its decision to apply VMT as a criterion for evaluating transportation impacts, we make the following analysis recommendations:

- Inclusion of a thorough breakdown of VMT and potential mitigation options by vehicle type, and
- Inclusion of evidence to justify any assumptions about reductions in VMT related to new employment options at the distribution center and reduction in local commutes.

Air District staff are available to assist the City in addressing these comments. If you have questions or wish to discuss our comments further, please feel free to contact Chad White, Senior Environmental Planner, at 415-749-8619 or cwhite@baaqmd.gov.

Sincerely,

for Greg Nudd
Deputy Air Pollution Control Officer

cc BAAQMD Director John Gioia
BAAQMD Director David Hudson
BAAQMD Director Karen Mitchoff
BAAQMD Director Mark Ross

2950 PERALTA OAKS COURT • OAKLAND • CALIFORNIA • 94605-0381 • T: 1-888-EBPARKS • F: 510-569-4319 • TRS RELAY: 711 • EBPARKS.ORG

March 20, 2019

Josh McMurray, Project Planner
City of Oakley
3231 Main Street
Oakley, CA 94561

Sent via e-mail to
McMurray@ci.oakley.ca.us
March 20, 2019............

RE: Notice of Preparation of an Environmental Impact Report for the Oakley Logistics Center Project

Dear Mr. McMurray:

The East Bay Regional Park District (Park District) appreciates the opportunity to provide comments on the Notice of Preparation of an Environmental Impact Report for the proposed Oakley Logistics Center Project (project). The property is approximately 345 acres with a development footprint of approximately 150-acres. The project is located just east of the Wilbur Avenue and Bridgehead Road intersection, between the Park District's Antioch/Oakley Regional Shoreline and the Big Break Regional Shoreline. The project proposes up to 2,249,544 square feet of space for light industrial, warehousing and manufacturing uses, in seven buildings across the project site.

The project provides the opportunity for a future Big Break to Antioch Pier Trail connection, as included in the Oakley 2020 General Plan[1] and as identified as a potential regional trail in the Park District's 2013 Master Plan. As the project is now being evaluated for environmental impacts under CEQA, the Park District requests that the planned regional trail connection be added into the design of the project, included in the CEQA project description, and fully addressed in the Draft EIR. As with other similar projects in the region, the Park District requests that this trail connection be built at the time of project construction by the developer.

The Park District previously provided comments on the preliminary development plan of this proposed project on January 16, 2019, with strong encouragement that the zoning and project design include dedication of a public access easement for development of a key portion of the Big Break Shoreline Regional Trail/Big Break to Antioch Pier Trail. This would provide a connection from Big Break Regional Shoreline to Antioch/Oakley Regional Shoreline through the Oakley Logistics Center site. This trail, in addition to being included in the Park District's Master Plan and the Oakley 2020 General Plan and Parks, Trails and Recreation Master Plan 2020, is also designated by the Delta Protection Commission as the Great California Delta Trail, a hiking and biking trail connecting all five counties in the Delta region.

The current regional trail ends to the east of the project at Big Break Road. The Park District requests that the project design and CEQA project description of the Draft EIR be revised to

[1] Oakley 2020 General Plan, Park and Recreation Element, pgs. 7-32

include the construction of the trail within a designated public access easement. The trail should be designed to Caltrans standards to provide a safe recreational and transportation corridor that meets ADA requirements. The alignment should traverse the entire project site east to west and intersect with Bridgehead Road, where the Caltrans District 4 Bike Plan proposes development of Class II bike lanes on State Highway 160 across the Antioch Bridge to Sacramento County.

The proposed trail would eventually provide a critical link west to the San Francisco Bay Trail in Martinez, offering shoreline access at strategic locations, and south to the Marsh Creek Regional Trail. The project offers an opportunity to construct this trail segment near a severely disadvantaged community, identified by the California Department of Water Resources. As proposed, the project will prevent local and regional efforts to complete this important regional trail link for the residents of Oakley and surrounding communities, unless a public trail access easement is included in the conditions of approval and made an allowable use in the Planned Development zoning designation of this site.

The Initial Study project description includes the fill of two existing wetlands near Bridgehead Road, and the removal of 130 heritage trees in the development area. As the Draft EIR studies the impact and required permitting of these actions, the Park District would like to discuss with the City, the East Contra Costa Habitat Conservancy and the developer the mitigations for this loss of habitat.

As roadway infrastructure improvements are planned for Bridgehead Road, to meet the project's needs and the specifications of the Oakley 2020 General Plan, the Park District would like the opportunity to work with the City to improve access to the Antioch-Oakley Shoreline, which will likely be used as an amenity by future employees of the new logistics center, given its proximity to the project, less than a half mile from the Wilbur Avenue entrance.

Section 16 "Recreation" of the Initial Study finds that the development of the logistics center would not induce population growth that would increase the use of regional parks or recreational facilities. However, the Park District requests that for the draft EIR, the project description be revised to include an easement and construction of a future regional trail connecting Big Break to the Antioch Pier. If so revised, this future trail would be considered a "recreational facility" and should be evaluated under CEQA.

Thank you for the opportunity to provide comments on the Initial Study and Notice of Preparation of an Environmental Impact Report for this project. The Park District looks forward to continuing to participate and providing additional comments to the City on the project. If you have any questions or concerns, please contact me at (510) 544-2325, or by e-mail at DReiff@ebparks.org.

Respectfully,

Devan Reiff, AICP
Principal Planner

Cc: Colin Coffey, Director
Robert Doyle, General Manager
Brian Holt, Chief of Planning/GIS

TRANSPLAN COMMITTEE
EAST COUNTY TRANSPORTATION PLANNING
Antioch • Brentwood • Oakley • Pittsburg • Contra Costa County
30 Muir Road, Martinez, CA 94553

March 21, 2019

Joshua McMurray
Planning Manager
City of Oakley
3231 Main Street
Oakley, CA 94561

RE: Notice of Preparation of a Draft Environmental Impact Report – Oakley Logistics Center Project

Dear Mr. McMurray:

On behalf of the TRANSPLAN Committee, thank you for the opportunity to provide comments on the City of Oakley's ("City") proposed Oakley Logistics Center ("proposed project") Notice of Preparation ("NOP"). TRANSPLAN is the sub-regional transportation planning committee ("RTPC") in eastern Contra Costa County and includes five member agencies (cities of Antioch, Brentwood, Oakley and Pittsburg, and Contra Costa County), and includes partner agencies such as Tri-Delta Transit and 511 Contra Costa. TRANSPLAN coordinates the transportation interests of the communities in eastern Contra Costa County and administers the East County Action Plan for Routes of Regional Significance ("Action Plan"). The Action Plan facilitates establishment of goals, performance measures (called Multimodal Transportation Service Objectives, or "MTSOs") for designated Routes of Regional Significance ("RRS"), and outlines a set of projects, programs, measures, and actions that will support achievement of the MTSOs. TRANSPLAN recommends the Draft Environmental Impact Report ("DEIR") consider the following comments:

Transportation Impacts

1. TRANSPLAN staff recommends the DEIR's transportation impact analysis evaluate signalized intersections (or freeway ramps) to which at least 50 net new peak hour vehicle trips would be added by the proposed project. The DEIR should also analyze impacts to existing freeway ramp metering operations (e.g. ramp queues). Warehouse facilities also typically induce higher amounts of heavy truck traffic. The transportation impact analysis should also evaluate the impact of heavy truck trips on the local transportation network.

   The MTSOs for freeways and arterial routes are as follows:

MTSOs on Freeways:
• The Delay Index should not exceed 2.5 during the AM or PM peak period.

• HOV lane utilization should exceed 600 vehicles per lane in the peak direction during the peak hour.
MTSOs on Suburban Arterial Routes:
• Maintain LOS D or better at all signalized intersections, except:
• Within Priority Development Areas, any physical improvement identified as a result of applying the above standard shall be evaluated for its effects on all intersection users, including pedestrians, cyclists, and transit users.

Transit Service

2. Transit productivity is an east county area-wide objective of the Action Plan. Therefore, the DEIR's transportation impact analysis should consider the proposed project's potential impacts on transit service. The Action Plan's measures for the purpose of monitoring this objective include:

Bus Riders per Service Hour:
• The average number of riders boarding a fixed-route bus during an hour of scheduled bus service when persons may board with a fare or pass.
BART Ridership:
• The average number of weekday riders on all BART trains between Bay Point and North Concord Stations. (Note: this MTSO was established prior to the completion of the eBART extension to Antioch. Evaluation should consider trains between the Antioch Station and North Concord.)

Several Tri-Delta Transit bus routes as well as BART serve areas at or near the proposed project site. The proposed project will likely induce demand on existing transit systems. The DEIR's transportation impact analysis should determine if existing transit service from the aforementioned providers is adequate, would need augmentation or new service to accommodate transit demand from the proposed project.

Bicycle and Pedestrian Facilities

3. The Action Plan encourages active transportation to improve multi-modal mobility and decrease single-occupant vehicle travel. The DEIR's transportation impact analysis should identify opportunities to provide appropriate infrastructure to eliminate physical barriers (i.e. freeway interchanges, lengthy street crossings, expansive parking lot driveways, etc.) to bicycle and pedestrian travel to, from and within the project area.

Transportation Demand Management

4. TRANSPLAN staff would encourage the proposed project implement transportation demand management ("TDM") strategies, which can benefit the region by promoting the use of travel modes that are more efficient and environmentally friendly. TDM strategies can potentially decrease the number of single-occupant auto trips, and therefore the proposed project's impact on roadway network congestion.

Thank you for your consideration, TRANSPLAN appreciates the opportunity to participate in the environmental review process for the proposed project. If you have any questions, please do not hesitate to contact TRANSPLAN staff at jamar.stamps@dcd.cccounty.us or (925) 674-7832.

Sincerely,

Jamar Stamps, AICP
TRANSPLAN staff

cc: TRANSPLAN TAC

Phone: 925.674.7832 Fax: 925.674.7258 jamar.stamps@dcd.cccounty.us www.transplan.us

Performance Marine Specialties

March 21, 2019

Joshua McMurray, Planning Manager

City of Oakley

Re:Oakley Logistics Center NOP/IS

We are the owners of Performance Marine Specialties, Inc. We currently and for the last 20 years have rented a building in Lauritzen's Yacht Harbor. We have been recently been made aware of the project that is in planning for the property that is adjacent to our building. As we have just recently been made aware of this project, we have not had the opportunity to research the effects that this may have on our business.

The major concerns are traffic, dirt and dust, noise, security and general interruption to our business. We would like the opportunity to be able to learn more and be aware of progress of this project. We would also like to give you more specifics about our business and how this project will have a financial and customer relationship consequences to our business.

Karen E Abbadie

Henri and Karen Abbadie

135 Lauritzen Ln
Oakley, CA 94561
USA
925-757-8285 TEL
925-756-7169 FAX

March 15, 2019

Joshua McMurray, Planning Manager
City of Oakley
3231 Main Street
Oakley, CA 94561

Re: Oakley Logistics Center NOP/IS

Dear Mr. McMurray,

I appreciate the opportunity to review and provide comments on the Notice of Preparation (NOP) and Initial Study (IS) for the Oakley Logistics Center. I am a co-owner and partner with my sister, Margaret Lauritzen, of the Lauritzen Yacht Harbor at 115 Lauritzen Lane, which is adjacent to the proposed project site. The Lauritzen Yacht Harbor was constructed in 1959 and has been in continuous operation as a marina for 60 years. The marina includes a residence, boat storage, berths, launch ramp and fuel. The Lauritzen Yacht Harbor is also home to Performance Marine, Canvas Factory, and the Marine Patrol. My southerly property line is the northerly property line of the logistics center project site.

When DuPont was in full operation, it had three different processes at the plant. TEL was the anti knock compound in lead gas, FREON F11, F12 the CFC's, and TI02 the paint pigment. Most of the finished products at least for the TEL went out by rail. There is railroad siding (railroad spur lines) just south of the plant between the plant and Main Street. That was all for DuPont. The last plant to get shut down was the pigments plant when the plant closed in 1999.

It should be noted that during full operation of the plant, DuPont also had farming, wetlands, and trees that were buffers for the adjoining properties and the community. The northern wind row of 100-year old Tamarack trees were a visual barrier such that the buildings of the DuPont plant were not visible from the Lauritzen Yacht Harbor. Between the Tamarack trees and the Lauritzen property, there were vineyards and wetlands that provided a beautiful setting and a sizeable separation of industrial and recreational uses. There was over 500 feet of buffer between the DuPont plant and the marina. There were also vineyards to the south and east of the plant that are still in existence today that buffer the view and operations of the plant from the community. When the City incorporated and adopted its General Plan, it designated DuPont's land along Bridgehead Road as Business Park, which is a regulatory type of buffer between industrial and recreational uses. My point is that the Lauritzen's land has always had a buffer from the industrial uses on the DuPont property. The proposed project seems to eliminate the buffer and place industrial use right up to the boundary of Commercial Recreation land.

My comments on the scope and content of the pending EIR are as follows:

Transportation

The initial study indicates there are potentially significant impacts that will require further analysis in the EIR. In addition to the factors identified in the initial study, the EIR should include an analysis to determine if the project will substantially increase hazards due to incompatible uses. The project is proposing to develop a 2.25 million square foot logistics center with all of its access points on Bridgehead Road. All of the truck trips to and from the logistics center will be on Bridgehead Road. The issue is not just the number of trips during peak hours. It is the substantial increase of truck traffic throughout the day and night on Bridgehead Road due to the project.

The truck traffic raises a number of questions and concerns:

- Is there adequate truck queuing on-site, or will trucks back up on Bridgehead Road?
- Is there adequate truck and trailer parking on-site, or will trucks and trailers park on Bridgehead Road?
- Trucks and trailers take longer to accelerate and get off the line from a stop to get across the intersection. Two or three cars can get across the intersection much faster than a single truck and trailer rig. Will the traffic study take this into account for the timing and capacity of the road?
- Truck and trailers are longer in length than passenger vehicles. They occupy more space than a passenger car. Will the traffic study take the length of trucks and trailers into account for the capacity of the road?
- Warehouse and distribution facilities often use the large trucks, referred to as STAA trucks. Will this project use STAA trucks?
- Is Bridgehead Road designated as a STAA truck route?
- The under pass on Bridgehead Road frequently floods because mud gets in the sump pump and plugs up the pump. The City closes the road from the mobile home park to Wilbur Avenue. Will this be taken into account in the traffic study?

Bridgehead Road is the primary access to the Antioch/Oakley Regional Shoreline Park, Lauritzen Yacht Harbor, Driftwood Marina, Bridge Marina, and Jim's Holiday Harbor. The traffic associated with these uses includes people seeking outdoor recreation at the regional park and waterfront. There are families, children, and pets. There are tourists and fishermen. Cars, boats, watercraft, strollers and bicycles are all in the mix. People come to experience the park and waterfront on mornings, afternoons, evenings, weekends, and holidays. There are numerous recreational events held at the park and shoreline. The EIR should analyze if the increase in truck trips throughout the day and night creates unacceptable traffic congestion on Bridgehead Road, and if the co-mingling of truck traffic with recreational traffic creates an incompatible land use.

In addition to truck and vehicle traffic impacts, the EIR should address pedestrian, bicycle, and multi-use trails. There are existing trails at the Antioch/Oakley Regional Shoreline Park and Big Break Marina Regional Shoreline Park. In years past, there were public discussions about a "bridge to bridge" trail and an expansion of the De Anza historical trail on Bridgehead Road and specifically, on the DuPont property. At the scoping meeting, we were told that the City does not have a bicycle or trails master plan. Since there is no master plan to guide the location and connectivity of trails, this should be considered a potentially significant impact.

The initial study checklist includes the question: Will the project result in inadequate emergency access? The initial study indicates this will be a less than significant impact. However, all truck traffic must use Bridgehead Road to access the site. What would happen if there was a disaster on Bridgehead Road that blocked access? How would people at the project site get out? Bridgehead Road is a dead end road at the Antioch bridge. How would people at the marinas get out? What emergency access is available? This impact should be reclassified as a potentially significant impact to be addressed in the EIR.

Land Use and Planning

The Initial Study checklist includes the question:

> Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The project includes a General Plan Amendment to remove the Business Park and Utility Energy designations and expand the Light Industrial use to the entire project site. The initial study indicates the development would promote Program 5.1L of the General Plan, which is to promote economic development. The environmental analysis should be expanded to include a discussion of the economic benefits, such as jobs and projected revenues, that are relied upon to make this conclusion. If the project generates jobs, how many would be temporary construction jobs, truck driving jobs, and permanent jobs onsite? How would the traffic associated with the temporary construction and truck driving jobs impact the adjacent harbor and the future development of its land within the Commercial Recreation designation? The change in land use in the Bridgehead Road corridor from Business Park to Light Industrial is change of direction for the City in its planning policies. Light Industrial is not conducive to commercial recreation, tourism, restaurants, residential and other waterfront development envisioned for the Commercial Recreation area along Oakley's shoreline.

The General Plan has numerous policies that may be applicable to the project. Given the proximity of the site to the Delta, I suggest the environmental analysis include information on the project's consistency with the General Plan policies:

> Policy 2.1.6 Ensure a strong physical connection to the Delta and the waterfront, including convenient public access and recreational opportunities.
>
> Policy 2.4.5 Incorporate design buffers between potentially incompatible land uses and avoid, to the extent feasible, new land uses that compromise existing businesses and operations.
>
> Policy 2.6.1 Provide public access to the Delta and the waterfront wherever appropriate and feasible. Typically, such access should be unobstructed to the public by foot or bicycle, and where appropriate by horse, automobile and/or boat.

Furthermore, the General Plan Land Use Element includes Special Planning Areas, which highlights there are distinct geographic areas within the City that merit special consideration. One of the special planning areas is the Northwest Oakley Planning Area. The Northwest Oakley Planning Area specifically includes the former DuPont facility, the Lauritzen Yacht Harbor, and the Driftwood Marina. It articulates a development vision, that includes the following statements:

- The City envisions this Area as the primary employment center within Oakley.
- Development within the Business Park designation is anticipated to be of a campus character, providing attractive architecture within a landscaped setting.
- This General Plan allows for up to 30 acres to be developed at a high density involving multi-story office buildings and related facilities.
- The proximity to the Delta is considered a further opportunity to enhance the overall quality of this Area, including the intensive urban development of the Business Park designation. As such, all development located north of the BNSF Railroad must consider the Delta context through site design and architecture, strengthen the relationship between the built and nature environments, and provide significant public access to the waterfront through such remedies as trail and riparian easements and land dedication to the City of Oakley where appropriate.

There is no information regarding what impact the proposed project might have on the Special Planning Area vision in the General Plan. The EIR should provide additional analysis on this topic.

The Project includes a rezone from Specific Plan to Planned Unit Development (PUD), which would allow flexibility to develop light industrial uses consistent with the 2020 General Plan. However, the 2020 General Plan will reach the end of its planning horizon next year. The City has launched a General Plan Update, but a PUD cannot be tied to a General Plan that has not yet been adopted.

This raises some interesting questions and scenarios. The 2020 General Plan may be out of date when the DTSC remediation work is expected to be completed and the site is ready for development. The PUD (zoning) might be tied to an outdated General Plan. The adoption of a PUD might impair the General Plan Update and the City's ability to develop new policies applicable to the Northwest Oakley Planning Area. For these reasons, Land Use and Planning impacts should be evaluated as "potentially significant impacts" in the EIR.

<u>Aesthetics</u>

The Initial Study states that 50-foot high buildings are allowed in the zone and the proposed buildings are only 36 feet. However, this approach does not take into account (a) how high the building pads will be elevated (perhaps as much as 12 feet on the northern pads), (b) the massive, overall size of the buildings (hundreds of thousands of square feet!), and (c) how the visual appearance of development will be changed from what is intended to be a Business Park in the General Plan & Zoning to the proposed Light Industrial logistics center. The building elevations in the project application shows truck parking and dock doors facing Bridgehead Road.

The aesthetics of a Business Park are considerably different from the aesthetics of a Light Industrial logistics center. A Business Park has landscaped areas, architecturally-enhanced buildings, and a campus-like environment which is pedestrian and bicycle friendly, with potential views of the Delta from multi-story office buildings. A Light Industrial logistics center will consist of massive warehouse and distribution structures, expansive asphalt parking lots and access drives, building walls full of loading docks, rows of trucks and tractor trailers, security gates, walls, fences, and few visual amenities for those traveling past the site to get to other destinations, such as the Antioch/Oakley Regional Shoreline Park and Lauritzen Yacht Harbor. The change of character from a campus-like setting to a warehouse and distribution center will have an impact on the aesthetics of Bridgehead Road from the project site to the San Joaquin River. It is not just the height of the buildings that matters, it is the visual impact and the change of character of the area that needs to be considered. There may be a need to include graphic representations of the building elevations along Bridgehead Road with building pad/street elevations to demonstrate the size and visual character of the buildings.

The Initial Study states the visual character of the site would be consistent with its surroundings and the existing character, as the project would remain industrial. This makes no sense. Along Bridgehead Road, the project site has a General Plan designation of Business Park. The project site is not designated Industrial along Bridgehead Road. How would a logistics center be consistent with the visual character of a regional shoreline park, a yacht harbor, and the marine-related commercial uses?

North of the project site, our property is zoned Commercial Recreation Aquatic (CR-A). The CR-A Zone allows hotels, restaurants, and residential uses with a conditional use permit. There is an existing residence at the marine now. The EIR should take into consideration the aesthetic impacts to the existing and potential land uses in the vicinity.

A logistics center has a completely different purpose and aesthetic connotation than a business park. There will be an impact to the aesthetics of the area, and it will likely be significant. This topic should be evaluated as a "potentially significant impact" in the EIR.

<u>Noise</u>

The Initial Study states the proposed project would involve sources of noise that are similar to the surrounding area and the impacts are less than significant. However, a major noise source related to the project is the noise of trucks that would use Bridgehead Road to access the site day and night. The noise generated by this volume and duration of trucks does not exist on Bridgehead Road at this time. The environmental analysis should be expanded to determine if the project would generate a substantial, permanent increase in the ambient noise levels in the vicinity due to the truck traffic impacts on Bridgehead Road. The operational characteristics should be disclosed, such as if the logistics center will be operational 24 hours a day, 365 days a year.

North of the project site, our property is zoned Commercial Recreation Aquatic (CR-A). The CR-A Zone allows hotels, restaurants, and residential uses with a conditional use permit. There is an existing residence at the marine now. The existing residence is less than 500 feet from the project site. The EIR should take into consideration the noise impacts to the existing and potential land uses in the vicinity.

The noise impacts are related to the traffic impacts in the Transportation section, which has already been identified as a potentially significant impact to be studied further in the EIR. Accordingly, noise should be evaluated as a "potentially significant impact" in the EIR.

Light and Glare

When DuPont was in operation, there was a 500-foot buffer of vineyards and wetlands that shielded us from light and glare associated with the plant. The proposed logistics center comes right up to the northern property line. There will be light and glare associated with the parking lots, access drives, truck headlights, and security measures. If the logistics center includes 24-hour operations, it may cause light pollution that affects the commercial and residential nature of our property. As noted earlier, our property in the CR-A Zone allows hotels, restaurants, and residential uses with a conditional use permit. The existing residence at the marine is less than 500 feet from the project site. The EIR should take into consideration the light and glare impacts to the existing and potential land uses in the vicinity.

Public Services

Based upon the earlier comments regarding traffic, land use, and planning, the proposed project may have potentially significant impacts on the regional shoreline park and the response times for the Marine Patrol located on Bridgehead Road. The Initial Study should be amended to reflect these factors as Potentially Significant Impacts to parks and other public services.

Recreation

There are four marina's that provide boating access to the Delta that would be affected by the proposed project. Impacts to the boating community should be considered in the EIR. Lauritzen Yacht Harbor provides roughly 137 berths and 300 boats in dry storage. We launch about 4,000 boats a year at our launching ramp for day use, not just from the Oakley area. Driftwood Marina has roughly 200 boat berths. Bridge Marina has roughly 200 boat berths plus the yacht club. Jim's Holiday Harbor has roughly 110 berths plus the dry dock.

In addition to the boat facilities, there are major recreational events, such as the bass tournaments, that draw people from the region to Oakley's shoreline.

Based upon the earlier comments regarding traffic, land use, and planning, the proposed project may have a potentially significant impact on the regional shoreline park and boating community. The Initial Study should be amended to reflect these factors as Potentially Significant Impacts on the regional park, trails, and other recreational facilities.

Hydrology and Water Quality

The existing drainage pattern for stormwater runoff needs to be evaluated as part of development proposal on the site. Under existing conditions, there is some stormwater that naturally flows from Lauritzen Yacht Harbor south to the project site. The EIR should address impacts on adjacent properties in the EIR regarding the proposed changes to the existing drainage patterns.

The EIR should include a discussion of the California 200-year flood zone if applicable to the subject site.

The EIR should include a discussion of sea level rise if applicable to the subject site.

Utilities

The Initial Study indicates the utilities and service systems are all potentially significant impacts to be studied in the EIR. As part of the analysis, it would be appropriate to identify if the proposed utilities will be sized for the service area and if the utilities will be extended to the property line.

The initial study identifies the existing Lauritzen Sewer Pump Station in Lauritzen Lane. A sewer force main in Lauritzen and Bridgehead Road connects the pump station to a short run of gravity pipe. In the event the Lauritzen Pump Station cannot accommodate the flows generated by the project, a new sewer pump station would be constructed. To expand on this topic, the EIR should disclose how much of the available capacity would be used and how much would remain before a new pump station is required.

The EIR should also provide information on the adequacy of the water, electrical, and gas service to serve the project site and to accommodate future development in the service area.

Air Quality

Even with diligent watering of the construction site during the grading and dirt hauling phases, there may be dust impacting the boats stored in the vicinity and dust issues for the canvas shop and marine repair businesses adjacent to the site. Mitigation measures should be included to address off-site dust-related impacts that cannot be reduced with on-site efforts alone.

Thank you for considering these factors in the environmental process. Please feel free to contact me if there are any questions.

Warm regards,

Chris Lauritzen
Lauritzen Yacht Harbor

Margaret Lauritzen
Lauritzen Yacht Harbor

cc: Raney Planning and Management

Oakley Logistics Center Project

SCH# 2019029113

Draft Environmental Impact Report

Volume II of II (Appendices D through I)

Prepared for
City of Oakley

OAKLEY
CALIFORNIA

October 2019

Prepared by

RANEY PLANNING & MANAGEMENT, INC. 20 years
1501 Sports Drive, Suite A, Sacramento, CA 95834

Appendix D

Unmitigated Project Emissions Modeling

Oakley Logistics Center

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	1,835.30	1000sqft	121.35	1,835,304.00	0
Unrefrigerated Warehouse-No Rail	150.00	1000sqft	3.44	150,000.00	0
Parking Lot	1,358.00	Space	17.01	543,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	245.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - questionnaire and site plan

Construction Phase - applicant provided

Demolition -

Grading - applicant provided

Vehicle Trips - TIA trip rate

Energy Use -

Mobile Land Use Mitigation - applicant provided

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	153.00
tblConstructionPhase	NumDays	220.00	612.00
tblConstructionPhase	NumDays	3,100.00	153.00
tblConstructionPhase	NumDays	3,100.00	612.00
tblConstructionPhase	NumDays	200.00	46.00
tblConstructionPhase	NumDays	310.00	31.00
tblConstructionPhase	NumDays	310.00	124.00
tblConstructionPhase	NumDays	220.00	11.00
tblConstructionPhase	NumDays	220.00	44.00
tblGrading	AcresOfGrading	77.50	40.08
tblGrading	AcresOfGrading	310.00	126.34
tblLandUse	LandUseSquareFeet	1,835,300.00	1,835,304.00
tblLandUse	LotAcreage	42.13	121.35
tblLandUse	LotAcreage	12.22	17.01
tblProjectCharacteristics	CO2IntensityFactor	641.35	245.88
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	7.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	7.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	7.33

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	9.1821	8.4957	6.5317	0.0205	1.2904	0.2702	1.5606	0.4337	0.2515	0.6852	0.0000	1,870.9991	1,870.9991	0.2186	0.0000	1,876.4639
2021	5.9672	7.6989	6.7431	0.0255	1.4749	0.1742	1.6490	0.4197	0.1633	0.5830	0.0000	2,353.2351	2,353.2351	0.1778	0.0000	2,357.6790
2022	5.3276	7.8514	7.0960	0.0300	1.6616	0.1348	1.7964	0.4502	0.1274	0.5777	0.0000	2,782.3035	2,782.3035	0.1622	0.0000	2,786.3572
2023	3.6400	4.2600	4.4405	0.0194	1.1076	0.0752	1.1828	0.3001	0.0711	0.3712	0.0000	1,795.8799	1,795.8799	0.0991	0.0000	1,798.3576
Maximum	**9.1821**	**8.4957**	**7.0960**	**0.0300**	**1.6616**	**0.2702**	**1.7964**	**0.4502**	**0.2515**	**0.6852**	**0.0000**	**2,782.3035**	**2,782.3035**	**0.2186**	**0.0000**	**2,786.3572**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	9.1821	8.4957	6.5317	0.0205	1.2904	0.2702	1.5606	0.4337	0.2515	0.6852	0.0000	1,870.998 4	1,870.998 4	0.2186	0.0000	1,876.463 2
2021	5.9672	7.6989	6.7431	0.0255	1.4749	0.1742	1.6490	0.4197	0.1633	0.5830	0.0000	2,353.234 6	2,353.234 6	0.1778	0.0000	2,357.678 5
2022	5.3276	7.8514	7.0960	0.0300	1.6616	0.1348	1.7964	0.4502	0.1274	0.5777	0.0000	2,782.303 1	2,782.303 1	0.1622	0.0000	2,786.356 8
2023	3.6400	4.2600	4.4405	0.0194	1.1076	0.0752	1.1828	0.3001	0.0711	0.3712	0.0000	1,795.879 7	1,795.879 7	0.0991	0.0000	1,798.357 4
Maximum	**9.1821**	**8.4957**	**7.0960**	**0.0300**	**1.6616**	**0.2702**	**1.7964**	**0.4502**	**0.2515**	**0.6852**	**0.0000**	**2,782.303 1**	**2,782.303 1**	**0.2186**	**0.0000**	**2,786.356 8**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-2-2020**	**6-1-2020**	1.9385	1.9385
2	**6-2-2020**	**9-1-2020**	4.7724	4.7724
3	**9-2-2020**	**12-1-2020**	8.8297	8.8297
4	**12-2-2020**	**3-1-2021**	7.6198	7.6198
5	**3-2-2021**	**6-1-2021**	1.5781	1.5781
6	**6-2-2021**	**9-1-2021**	3.4775	3.4775
7	**9-2-2021**	**12-1-2021**	3.4674	3.4674
8	**12-2-2021**	**3-1-2022**	3.3322	3.3322

9	**3-2-2022**	**6-1-2022**	3.3253	3.3253
10	**6-2-2022**	**9-1-2022**	3.3133	3.3133
11	**9-2-2022**	**12-1-2022**	3.3021	3.3021
12	**12-2-2022**	**3-1-2023**	3.0268	3.0268
13	**3-2-2023**	**6-1-2023**	2.9462	2.9462
14	**6-2-2023**	**9-1-2023**	2.8801	2.8801
15	**9-2-2023**	**9-30-2023**	0.1438	0.1438
		Highest	8.8297	8.8297

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.8381	2.8000e-004	0.0307	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.6000e-004	0.0000	0.0636
Energy	0.1648	1.4983	1.2585	8.9900e-003		0.1139	0.1139		0.1139	0.1139	0.0000	5,360.9184	5,360.9184	0.4712	0.1209	5,408.7318
Mobile	0.9732	4.5105	11.6626	0.0462	4.3099	0.0374	4.3472	1.1566	0.0349	1.1915	0.0000	4,247.4024	4,247.4024	0.1404	0.0000	4,250.9119
Waste						0.0000	0.0000		0.0000	0.0000	490.5825	0.0000	490.5825	28.9926	0.0000	1,215.3973
Water						0.0000	0.0000		0.0000	0.0000	145.6515	277.0603	422.7118	14.9925	0.3600	904.8020
Total	**9.9761**	**6.0091**	**12.9518**	**0.0552**	**4.3099**	**0.1513**	**4.4612**	**1.1566**	**0.1488**	**1.3054**	**636.2339**	**9,885.4408**	**10,521.6748**	**44.5968**	**0.4809**	**11,779.9066**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.8381	2.8000e-004	0.0307	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.6000e-004	0.0000	0.0636
Energy	0.1156	1.0506	0.8825	6.3000e-003		0.0798	0.0798		0.0798	0.0798	0.0000	4,496.7360	4,496.7360	0.4174	0.1028	4,537.8022
Mobile	0.9467	4.3511	11.0463	0.0432	4.0125	0.0351	4.0476	1.0768	0.0327	1.1095	0.0000	3,973.7260	3,973.7260	0.1331	0.0000	3,977.0525
Waste						0.0000	0.0000		0.0000	0.0000	490.5825	0.0000	490.5825	28.9926	0.0000	1,215.3973
Water						0.0000	0.0000		0.0000	0.0000	145.6515	277.0603	422.7118	14.9925	0.3600	904.8020
Total	**9.9004**	**5.4020**	**11.9594**	**0.0495**	**4.0125**	**0.1150**	**4.1275**	**1.0768**	**0.1127**	**1.1895**	**636.2339**	**8,747.5822**	**9,383.8161**	**44.5357**	**0.4628**	**10,635.1176**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.76**	**10.10**	**7.66**	**10.27**	**6.90**	**24.00**	**7.48**	**6.90**	**24.30**	**8.88**	**0.00**	**11.51**	**10.81**	**0.14**	**3.77**	**9.72**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Paving	Paving	6/17/2020	7/1/2020	5	11	
4	Building Construction	Building Construction	7/2/2020	2/1/2021	5	153	
5	Architectural Coating	Architectural Coating	7/16/2020	2/15/2021	5	153	
6	Grading 2	Grading	9/2/2020	2/22/2021	5	124	
7	Paving 2	Paving	2/23/2021	4/23/2021	5	44	
8	Construction 2	Building Construction	4/24/2021	8/29/2023	5	612	
9	Architectural Coating 2	Architectural Coating	5/8/2021	9/12/2023	5	612	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 40.08

Acres of Paving: 17.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,977,956; Non-Residential Outdoor: 992,652; Striped Parking Area: 32,592 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

Oakley Logistics Center - Bay Area AQMD Air District, Annual

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74
Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9200e-003	0.0000	4.9200e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0762	0.7636	0.5003	8.9000e-004		0.0382	0.0382		0.0355	0.0355	0.0000	78.1968	78.1968	0.0221	0.0000	78.7487
Total	**0.0762**	**0.7636**	**0.5003**	**8.9000e-004**	**4.9200e-003**	**0.0382**	**0.0431**	**7.5000e-004**	**0.0355**	**0.0362**	**0.0000**	**78.1968**	**78.1968**	**0.0221**	**0.0000**	**78.7487**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-004	6.5800e-003	1.3200e-003	2.0000e-005	3.8000e-004	2.0000e-005	4.0000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.7243	1.7243	9.0000e-005	0.0000	1.7266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	8.2000e-004	8.4700e-003	3.0000e-005	2.7300e-003	2.0000e-005	2.7400e-003	7.3000e-004	2.0000e-005	7.4000e-004	0.0000	2.3884	2.3884	6.0000e-005	0.0000	2.3898
Total	**1.3300e-003**	**7.4000e-003**	**9.7900e-003**	**5.0000e-005**	**3.1100e-003**	**4.0000e-005**	**3.1400e-003**	**8.3000e-004**	**4.0000e-005**	**8.6000e-004**	**0.0000**	**4.1127**	**4.1127**	**1.5000e-004**	**0.0000**	**4.1164**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9200e-003	0.0000	4.9200e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0762	0.7636	0.5003	8.9000e-004		0.0382	0.0382		0.0355	0.0355	0.0000	78.1967	78.1967	0.0221	0.0000	78.7486
Total	**0.0762**	**0.7636**	**0.5003**	**8.9000e-004**	**4.9200e-003**	**0.0382**	**0.0431**	**7.5000e-004**	**0.0355**	**0.0362**	**0.0000**	**78.1967**	**78.1967**	**0.0221**	**0.0000**	**78.7486**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-004	6.5800e-003	1.3200e-003	2.0000e-005	3.8000e-004	2.0000e-005	4.0000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.7243	1.7243	9.0000e-005	0.0000	1.7266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	8.2000e-004	8.4700e-003	3.0000e-005	2.7300e-003	2.0000e-005	2.7400e-003	7.3000e-004	2.0000e-005	7.4000e-004	0.0000	2.3884	2.3884	6.0000e-005	0.0000	2.3898
Total	**1.3300e-003**	**7.4000e-003**	**9.7900e-003**	**5.0000e-005**	**3.1100e-003**	**4.0000e-005**	**3.1400e-003**	**8.3000e-004**	**4.0000e-005**	**8.6000e-004**	**0.0000**	**4.1127**	**4.1127**	**1.5000e-004**	**0.0000**	**4.1164**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1146	0.0000	0.1146	0.0536	0.0000	0.0536	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0690	0.7781	0.4954	9.6000e-004		0.0337	0.0337		0.0310	0.0310	0.0000	84.4507	84.4507	0.0273	0.0000	85.1335
Total	**0.0690**	**0.7781**	**0.4954**	**9.6000e-004**	**0.1146**	**0.0337**	**0.1483**	**0.0536**	**0.0310**	**0.0846**	**0.0000**	**84.4507**	**84.4507**	**0.0273**	**0.0000**	**85.1335**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	7.4000e-004	7.6100e-003	2.0000e-005	2.4500e-003	2.0000e-005	2.4700e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.1461	2.1461	5.0000e-005	0.0000	2.1474
Total	**1.0300e-003**	**7.4000e-004**	**7.6100e-003**	**2.0000e-005**	**2.4500e-003**	**2.0000e-005**	**2.4700e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.1461**	**2.1461**	**5.0000e-005**	**0.0000**	**2.1474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1146	0.0000	0.1146	0.0536	0.0000	0.0536	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0690	0.7781	0.4954	9.6000e-004		0.0337	0.0337		0.0310	0.0310	0.0000	84.4506	84.4506	0.0273	0.0000	85.1334
Total	**0.0690**	**0.7781**	**0.4954**	**9.6000e-004**	**0.1146**	**0.0337**	**0.1483**	**0.0536**	**0.0310**	**0.0846**	**0.0000**	**84.4506**	**84.4506**	**0.0273**	**0.0000**	**85.1334**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	7.4000e-004	7.6100e-003	2.0000e-005	2.4500e-003	2.0000e-005	2.4700e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.1461	2.1461	5.0000e-005	0.0000	2.1474
Total	**1.0300e-003**	**7.4000e-004**	**7.6100e-003**	**2.0000e-005**	**2.4500e-003**	**2.0000e-005**	**2.4700e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.1461**	**2.1461**	**5.0000e-005**	**0.0000**	**2.1474**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.4600e-003	0.0774	0.0806	1.3000e-004		4.1400e-003	4.1400e-003		3.8100e-003	3.8100e-003	0.0000	11.0155	11.0155	3.5600e-003	0.0000	11.1046
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0297**	**0.0774**	**0.0806**	**1.3000e-004**		**4.1400e-003**	**4.1400e-003**		**3.8100e-003**	**3.8100e-003**	**0.0000**	**11.0155**	**11.0155**	**3.5600e-003**	**0.0000**	**11.1046**

3.4 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**2.7000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5711**	**0.5711**	**1.0000e-005**	**0.0000**	**0.5715**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.4600e-003	0.0774	0.0806	1.3000e-004		4.1400e-003	4.1400e-003		3.8100e-003	3.8100e-003	0.0000	11.0155	11.0155	3.5600e-003	0.0000	11.1046
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0297**	**0.0774**	**0.0806**	**1.3000e-004**		**4.1400e-003**	**4.1400e-003**		**3.8100e-003**	**3.8100e-003**	**0.0000**	**11.0155**	**11.0155**	**3.5600e-003**	**0.0000**	**11.1046**

3.4 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**2.7000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5711**	**0.5711**	**1.0000e-005**	**0.0000**	**0.5715**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1389	1.2567	1.1036	1.7600e-003		0.0732	0.0732		0.0688	0.0688	0.0000	151.7045	151.7045	0.0370	0.0000	152.6298
Total	**0.1389**	**1.2567**	**1.1036**	**1.7600e-003**		**0.0732**	**0.0732**		**0.0688**	**0.0688**	**0.0000**	**151.7045**	**151.7045**	**0.0370**	**0.0000**	**152.6298**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1049	3.1287	0.7866	7.3900e-003	0.1778	0.0153	0.1931	0.0514	0.0146	0.0660	0.0000	709.9757	709.9757	0.0366	0.0000	710.8912
Worker	0.2306	0.1650	1.7085	5.3300e-003	0.5497	3.7000e-003	0.5534	0.1462	3.4100e-003	0.1496	0.0000	481.5573	481.5573	0.0117	0.0000	481.8487
Total	**0.3355**	**3.2937**	**2.4951**	**0.0127**	**0.7275**	**0.0190**	**0.7464**	**0.1977**	**0.0180**	**0.2157**	**0.0000**	**1,191.5331**	**1,191.5331**	**0.0483**	**0.0000**	**1,192.7399**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1389	1.2567	1.1036	1.7600e-003		0.0732	0.0732		0.0688	0.0688	0.0000	151.7044	151.7044	0.0370	0.0000	152.6296
Total	**0.1389**	**1.2567**	**1.1036**	**1.7600e-003**		**0.0732**	**0.0732**		**0.0688**	**0.0688**	**0.0000**	**151.7044**	**151.7044**	**0.0370**	**0.0000**	**152.6296**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						tons/yr								MT/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1049	3.1287	0.7866	7.3900e-003	0.1778	0.0153	0.1931	0.0514	0.0146	0.0660	0.0000	709.9757	709.9757	0.0366	0.0000	710.8912
Worker	0.2306	0.1650	1.7085	5.3300e-003	0.5497	3.7000e-003	0.5534	0.1462	3.4100e-003	0.1496	0.0000	481.5573	481.5573	0.0117	0.0000	481.8487
Total	**0.3355**	**3.2937**	**2.4951**	**0.0127**	**0.7275**	**0.0190**	**0.7464**	**0.1977**	**0.0180**	**0.2157**	**0.0000**	**1,191.5331**	**1,191.5331**	**0.0483**	**0.0000**	**1,192.7399**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						tons/yr								MT/yr		
Off-Road	0.0209	0.1918	0.1823	3.0000e-004		0.0105	0.0105		9.9100e-003	9.9100e-003	0.0000	25.4801	25.4801	6.1500e-003	0.0000	25.6338
Total	**0.0209**	**0.1918**	**0.1823**	**3.0000e-004**		**0.0105**	**0.0105**		**9.9100e-003**	**9.9100e-003**	**0.0000**	**25.4801**	**25.4801**	**6.1500e-003**	**0.0000**	**25.6338**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0145	0.4757	0.1187	1.2300e-003	0.0299	1.0300e-003	0.0309	8.6400e-003	9.9000e-004	9.6300e-003	0.0000	118.1052	118.1052	5.8100e-003	0.0000	118.2504
Worker	0.0359	0.0247	0.2620	8.6000e-004	0.0923	6.0000e-004	0.0929	0.0246	5.6000e-004	0.0251	0.0000	78.0346	78.0346	1.7500e-003	0.0000	78.0783
Total	**0.0503**	**0.5004**	**0.3807**	**2.0900e-003**	**0.1222**	**1.6300e-003**	**0.1238**	**0.0332**	**1.5500e-003**	**0.0347**	**0.0000**	**196.1398**	**196.1398**	**7.5600e-003**	**0.0000**	**196.3287**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0209	0.1918	0.1823	3.0000e-004		0.0105	0.0105		9.9100e-003	9.9100e-003	0.0000	25.4801	25.4801	6.1500e-003	0.0000	25.6338
Total	**0.0209**	**0.1918**	**0.1823**	**3.0000e-004**		**0.0105**	**0.0105**		**9.9100e-003**	**9.9100e-003**	**0.0000**	**25.4801**	**25.4801**	**6.1500e-003**	**0.0000**	**25.6338**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0145	0.4757	0.1187	1.2300e-003	0.0299	1.0300e-003	0.0309	8.6400e-003	9.9000e-004	9.6300e-003	0.0000	118.1052	118.1052	5.8100e-003	0.0000	118.2504
Worker	0.0359	0.0247	0.2620	8.6000e-004	0.0923	6.0000e-004	0.0929	0.0246	5.6000e-004	0.0251	0.0000	78.0346	78.0346	1.7500e-003	0.0000	78.0783
Total	**0.0503**	**0.5004**	**0.3807**	**2.0900e-003**	**0.1222**	**1.6300e-003**	**0.1238**	**0.0332**	**1.5500e-003**	**0.0347**	**0.0000**	**196.1398**	**196.1398**	**7.5600e-003**	**0.0000**	**196.3287**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.2766					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.1019	0.1108	1.8000e-004		6.7100e-003	6.7100e-003		6.7100e-003	6.7100e-003	0.0000	15.4472	15.4472	1.2000e-003	0.0000	15.4771
Total	**8.2912**	**0.1019**	**0.1108**	**1.8000e-004**		**6.7100e-003**	**6.7100e-003**		**6.7100e-003**	**6.7100e-003**	**0.0000**	**15.4472**	**15.4472**	**1.2000e-003**	**0.0000**	**15.4771**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0425	0.0304	0.3150	9.8000e-004	0.1014	6.8000e-004	0.1020	0.0270	6.3000e-004	0.0276	0.0000	88.7919	88.7919	2.1500e-003	0.0000	88.8456
Total	**0.0425**	**0.0304**	**0.3150**	**9.8000e-004**	**0.1014**	**6.8000e-004**	**0.1020**	**0.0270**	**6.3000e-004**	**0.0276**	**0.0000**	**88.7919**	**88.7919**	**2.1500e-003**	**0.0000**	**88.8456**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.2766					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.1019	0.1108	1.8000e-004		6.7100e-003	6.7100e-003		6.7100e-003	6.7100e-003	0.0000	15.4472	15.4472	1.2000e-003	0.0000	15.4771
Total	**8.2912**	**0.1019**	**0.1108**	**1.8000e-004**		**6.7100e-003**	**6.7100e-003**		**6.7100e-003**	**6.7100e-003**	**0.0000**	**15.4472**	**15.4472**	**1.2000e-003**	**0.0000**	**15.4771**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0425	0.0304	0.3150	9.8000e-004	0.1014	6.8000e-004	0.1020	0.0270	6.3000e-004	0.0276	0.0000	88.7919	88.7919	2.1500e-003	0.0000	88.8456
Total	**0.0425**	**0.0304**	**0.3150**	**9.8000e-004**	**0.1014**	**6.8000e-004**	**0.1020**	**0.0270**	**6.3000e-004**	**0.0276**	**0.0000**	**88.7919**	**88.7919**	**2.1500e-003**	**0.0000**	**88.8456**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.1889					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5000e-003	0.0244	0.0291	5.0000e-005		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	4.0852	4.0852	2.8000e-004	0.0000	4.0922
Total	**2.1924**	**0.0244**	**0.0291**	**5.0000e-005**		**1.5100e-003**	**1.5100e-003**		**1.5100e-003**	**1.5100e-003**	**0.0000**	**4.0852**	**4.0852**	**2.8000e-004**	**0.0000**	**4.0922**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0104	7.1800e-003	0.0761	2.5000e-004	0.0268	1.8000e-004	0.0270	7.1300e-003	1.6000e-004	7.2900e-003	0.0000	22.6582	22.6582	5.1000e-004	0.0000	22.6709
Total	**0.0104**	**7.1800e-003**	**0.0761**	**2.5000e-004**	**0.0268**	**1.8000e-004**	**0.0270**	**7.1300e-003**	**1.6000e-004**	**7.2900e-003**	**0.0000**	**22.6582**	**22.6582**	**5.1000e-004**	**0.0000**	**22.6709**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.1889					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5000e-003	0.0244	0.0291	5.0000e-005		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	4.0852	4.0852	2.8000e-004	0.0000	4.0922
Total	**2.1924**	**0.0244**	**0.0291**	**5.0000e-005**		**1.5100e-003**	**1.5100e-003**		**1.5100e-003**	**1.5100e-003**	**0.0000**	**4.0852**	**4.0852**	**2.8000e-004**	**0.0000**	**4.0922**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0104	7.1800e-003	0.0761	2.5000e-004	0.0268	1.8000e-004	0.0270	7.1300e-003	1.6000e-004	7.2900e-003	0.0000	22.6582	22.6582	5.1000e-004	0.0000	22.6709
Total	**0.0104**	**7.1800e-003**	**0.0761**	**2.5000e-004**	**0.0268**	**1.8000e-004**	**0.0270**	**7.1300e-003**	**1.6000e-004**	**7.2900e-003**	**0.0000**	**22.6582**	**22.6582**	**5.1000e-004**	**0.0000**	**22.6709**

3.7 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3290	0.0000	0.3290	0.1512	0.0000	0.1512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1936	2.1836	1.3902	2.7000e-003		0.0946	0.0946		0.0870	0.0870	0.0000	237.0067	237.0067	0.0767	0.0000	238.9230
Total	**0.1936**	**2.1836**	**1.3902**	**2.7000e-003**	**0.3290**	**0.0946**	**0.4235**	**0.1512**	**0.0870**	**0.2382**	**0.0000**	**237.0067**	**237.0067**	**0.0767**	**0.0000**	**238.9230**

3.7 Grading 2 - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8800e-003	2.0600e-003	0.0214	7.0000e-005	6.8700e-003	5.0000e-005	6.9200e-003	1.8300e-003	4.0000e-005	1.8700e-003	0.0000	6.0228	6.0228	1.5000e-004	0.0000	6.0265
Total	**2.8800e-003**	**2.0600e-003**	**0.0214**	**7.0000e-005**	**6.8700e-003**	**5.0000e-005**	**6.9200e-003**	**1.8300e-003**	**4.0000e-005**	**1.8700e-003**	**0.0000**	**6.0228**	**6.0228**	**1.5000e-004**	**0.0000**	**6.0265**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3290	0.0000	0.3290	0.1512	0.0000	0.1512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1936	2.1836	1.3902	2.7000e-003		0.0946	0.0946		0.0870	0.0870	0.0000	237.0064	237.0064	0.0767	0.0000	238.9227
Total	**0.1936**	**2.1836**	**1.3902**	**2.7000e-003**	**0.3290**	**0.0946**	**0.4235**	**0.1512**	**0.0870**	**0.2382**	**0.0000**	**237.0064**	**237.0064**	**0.0767**	**0.0000**	**238.9227**

3.7 Grading 2 - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8800e-003	2.0600e-003	0.0214	7.0000e-005	6.8700e-003	5.0000e-005	6.9200e-003	1.8300e-003	4.0000e-005	1.8700e-003	0.0000	6.0228	6.0228	1.5000e-004	0.0000	6.0265
Total	**2.8800e-003**	**2.0600e-003**	**0.0214**	**7.0000e-005**	**6.8700e-003**	**5.0000e-005**	**6.9200e-003**	**1.8300e-003**	**4.0000e-005**	**1.8700e-003**	**0.0000**	**6.0228**	**6.0228**	**1.5000e-004**	**0.0000**	**6.0265**

3.7 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1784	0.0000	0.1784	0.0685	0.0000	0.0685	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0775	0.8584	0.5713	1.1500e-003		0.0367	0.0367		0.0338	0.0338	0.0000	100.8157	100.8157	0.0326	0.0000	101.6309
Total	**0.0775**	**0.8584**	**0.5713**	**1.1500e-003**	**0.1784**	**0.0367**	**0.2151**	**0.0685**	**0.0338**	**0.1023**	**0.0000**	**100.8157**	**100.8157**	**0.0326**	**0.0000**	**101.6309**

3.7 Grading 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	7.8000e-004	8.3000e-003	3.0000e-005	2.9200e-003	2.0000e-005	2.9400e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.4716	2.4716	6.0000e-005	0.0000	2.4730
Total	**1.1400e-003**	**7.8000e-004**	**8.3000e-003**	**3.0000e-005**	**2.9200e-003**	**2.0000e-005**	**2.9400e-003**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.4716**	**2.4716**	**6.0000e-005**	**0.0000**	**2.4730**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1784	0.0000	0.1784	0.0685	0.0000	0.0685	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0775	0.8584	0.5713	1.1500e-003		0.0367	0.0367		0.0338	0.0338	0.0000	100.8156	100.8156	0.0326	0.0000	101.6307
Total	**0.0775**	**0.8584**	**0.5713**	**1.1500e-003**	**0.1784**	**0.0367**	**0.2151**	**0.0685**	**0.0338**	**0.1023**	**0.0000**	**100.8156**	**100.8156**	**0.0326**	**0.0000**	**101.6307**

3.7 Grading 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	7.8000e-004	8.3000e-003	3.0000e-005	2.9200e-003	2.0000e-005	2.9400e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.4716	2.4716	6.0000e-005	0.0000	2.4730
Total	**1.1400e-003**	**7.8000e-004**	**8.3000e-003**	**3.0000e-005**	**2.9200e-003**	**2.0000e-005**	**2.9400e-003**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.4716**	**2.4716**	**6.0000e-005**	**0.0000**	**2.4730**

3.8 Paving 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0276	0.2842	0.3224	5.0000e-004		0.0149	0.0149		0.0137	0.0137	0.0000	44.0517	44.0517	0.0143	0.0000	44.4078
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0499**	**0.2842**	**0.3224**	**5.0000e-004**		**0.0149**	**0.0149**		**0.0137**	**0.0137**	**0.0000**	**44.0517**	**44.0517**	**0.0143**	**0.0000**	**44.4078**

3.8 Paving 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	7.0000e-004	7.4000e-003	2.0000e-005	2.6100e-003	2.0000e-005	2.6200e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.2044	2.2044	5.0000e-005	0.0000	2.2056
Total	**1.0100e-003**	**7.0000e-004**	**7.4000e-003**	**2.0000e-005**	**2.6100e-003**	**2.0000e-005**	**2.6200e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.2044**	**2.2044**	**5.0000e-005**	**0.0000**	**2.2056**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0276	0.2842	0.3224	5.0000e-004		0.0149	0.0149		0.0137	0.0137	0.0000	44.0516	44.0516	0.0143	0.0000	44.4078
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0499**	**0.2842**	**0.3224**	**5.0000e-004**		**0.0149**	**0.0149**		**0.0137**	**0.0137**	**0.0000**	**44.0516**	**44.0516**	**0.0143**	**0.0000**	**44.4078**

3.8 Paving 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	7.0000e-004	7.4000e-003	2.0000e-005	2.6100e-003	2.0000e-005	2.6200e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.2044	2.2044	5.0000e-005	0.0000	2.2056
Total	**1.0100e-003**	**7.0000e-004**	**7.4000e-003**	**2.0000e-005**	**2.6100e-003**	**2.0000e-005**	**2.6200e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.2044**	**2.2044**	**5.0000e-005**	**0.0000**	**2.2056**

3.9 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1711	1.5689	1.4918	2.4200e-003		0.0863	0.0863		0.0811	0.0811	0.0000	208.4736	208.4736	0.0503	0.0000	209.7309
Total	**0.1711**	**1.5689**	**1.4918**	**2.4200e-003**		**0.0863**	**0.0863**		**0.0811**	**0.0811**	**0.0000**	**208.4736**	**208.4736**	**0.0503**	**0.0000**	**209.7309**

3.9 Construction 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1183	3.8918	0.9714	0.0101	0.2443	8.4600e-003	0.2528	0.0707	8.0900e-003	0.0788	0.0000	966.3156	966.3156	0.0475	0.0000	967.5032
Worker	0.2933	0.2024	2.1437	7.0600e-003	0.7553	4.9400e-003	0.7602	0.2009	4.5500e-003	0.2055	0.0000	638.4649	638.4649	0.0143	0.0000	638.8228
Total	**0.4116**	**4.0942**	**3.1151**	**0.0171**	**0.9996**	**0.0134**	**1.0130**	**0.2716**	**0.0126**	**0.2842**	**0.0000**	**1,604.7804**	**1,604.7804**	**0.0618**	**0.0000**	**1,606.3260**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1711	1.5689	1.4918	2.4200e-003		0.0863	0.0863		0.0811	0.0811	0.0000	208.4733	208.4733	0.0503	0.0000	209.7307
Total	**0.1711**	**1.5689**	**1.4918**	**2.4200e-003**		**0.0863**	**0.0863**		**0.0811**	**0.0811**	**0.0000**	**208.4733**	**208.4733**	**0.0503**	**0.0000**	**209.7307**

3.9 Construction 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1183	3.8918	0.9714	0.0101	0.2443	8.4600e-003	0.2528	0.0707	8.0900e-003	0.0788	0.0000	966.3156	966.3156	0.0475	0.0000	967.5032
Worker	0.2933	0.2024	2.1437	7.0600e-003	0.7553	4.9400e-003	0.7602	0.2009	4.5500e-003	0.2055	0.0000	638.4649	638.4649	0.0143	0.0000	638.8228
Total	**0.4116**	**4.0942**	**3.1151**	**0.0171**	**0.9996**	**0.0134**	**1.0130**	**0.2716**	**0.0126**	**0.2842**	**0.0000**	**1,604.7804**	**1,604.7804**	**0.0618**	**0.0000**	**1,606.3260**

3.9 Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

3.9 Construction 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1594	5.3239	1.3193	0.0144	0.3529	0.0106	0.3636	0.1021	0.0101	0.1122	0.0000	1,382.1028	1,382.1028	0.0656	0.0000	1,383.7422
Worker	0.3949	0.2621	2.8457	9.8200e-003	1.0909	6.9700e-003	1.0979	0.2902	6.4200e-003	0.2966	0.0000	888.4168	888.4168	0.0185	0.0000	888.8804
Total	**0.5543**	**5.5860**	**4.1650**	**0.0242**	**1.4439**	**0.0176**	**1.4614**	**0.3923**	**0.0166**	**0.4089**	**0.0000**	**2,270.5196**	**2,270.5196**	**0.0841**	**0.0000**	**2,272.6226**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

3.9 Construction 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1594	5.3239	1.3193	0.0144	0.3529	0.0106	0.3636	0.1021	0.0101	0.1122	0.0000	1,382.1028	1,382.1028	0.0656	0.0000	1,383.7422
Worker	0.3949	0.2621	2.8457	9.8200e-003	1.0909	6.9700e-003	1.0979	0.2902	6.4200e-003	0.2966	0.0000	888.4168	888.4168	0.0185	0.0000	888.8804
Total	**0.5543**	**5.5860**	**4.1650**	**0.0242**	**1.4439**	**0.0176**	**1.4614**	**0.3923**	**0.0166**	**0.4089**	**0.0000**	**2,270.5196**	**2,270.5196**	**0.0841**	**0.0000**	**2,272.6226**

3.9 Construction 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1353	1.2371	1.3970	2.3200e-003		0.0602	0.0602		0.0566	0.0566	0.0000	199.3521	199.3521	0.0474	0.0000	200.5377
Total	**0.1353**	**1.2371**	**1.3970**	**2.3200e-003**		**0.0602**	**0.0602**		**0.0566**	**0.0566**	**0.0000**	**199.3521**	**199.3521**	**0.0474**	**0.0000**	**200.5377**

3.9 Construction 2 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0791	2.7155	0.7813	9.2300e-003	0.2335	3.1200e-003	0.2366	0.0675	2.9900e-003	0.0705	0.0000	888.6899	888.6899	0.0370	0.0000	889.6143
Worker	0.2443	0.1559	1.7316	6.2500e-003	0.7217	4.5200e-003	0.7262	0.1920	4.1600e-003	0.1962	0.0000	565.2137	565.2137	0.0110	0.0000	565.4886
Total	**0.3234**	**2.8714**	**2.5129**	**0.0155**	**0.9552**	**7.6400e-003**	**0.9628**	**0.2595**	**7.1500e-003**	**0.2667**	**0.0000**	**1,453.9035**	**1,453.9035**	**0.0480**	**0.0000**	**1,455.1028**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1353	1.2371	1.3970	2.3200e-003		0.0602	0.0602		0.0566	0.0566	0.0000	199.3518	199.3518	0.0474	0.0000	200.5374
Total	**0.1353**	**1.2371**	**1.3970**	**2.3200e-003**		**0.0602**	**0.0602**		**0.0566**	**0.0566**	**0.0000**	**199.3518**	**199.3518**	**0.0474**	**0.0000**	**200.5374**

3.9 Construction 2 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0791	2.7155	0.7813	9.2300e-003	0.2335	3.1200e-003	0.2366	0.0675	2.9900e-003	0.0705	0.0000	888.6899	888.6899	0.0370	0.0000	889.6143
Worker	0.2443	0.1559	1.7316	6.2500e-003	0.7217	4.5200e-003	0.7262	0.1920	4.1600e-003	0.1962	0.0000	565.2137	565.2137	0.0110	0.0000	565.4886
Total	**0.3234**	**2.8714**	**2.5129**	**0.0155**	**0.9552**	**7.6400e-003**	**0.9628**	**0.2595**	**7.1500e-003**	**0.2667**	**0.0000**	**1,453.9035**	**1,453.9035**	**0.0480**	**0.0000**	**1,455.1028**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.9071					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1298	0.1545	2.5000e-004		8.0000e-003	8.0000e-003		8.0000e-003	8.0000e-003	0.0000	21.7027	21.7027	1.4900e-003	0.0000	21.7399
Total	**2.9257**	**0.1298**	**0.1545**	**2.5000e-004**		**8.0000e-003**	**8.0000e-003**		**8.0000e-003**	**8.0000e-003**	**0.0000**	**21.7027**	**21.7027**	**1.4900e-003**	**0.0000**	**21.7399**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0553	0.0382	0.4042	1.3300e-003	0.1424	9.3000e-004	0.1433	0.0379	8.6000e-004	0.0387	0.0000	120.3718	120.3718	2.7000e-003	0.0000	120.4393
Total	**0.0553**	**0.0382**	**0.4042**	**1.3300e-003**	**0.1424**	**9.3000e-004**	**0.1433**	**0.0379**	**8.6000e-004**	**0.0387**	**0.0000**	**120.3718**	**120.3718**	**2.7000e-003**	**0.0000**	**120.4393**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.9071					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1298	0.1545	2.5000e-004		8.0000e-003	8.0000e-003		8.0000e-003	8.0000e-003	0.0000	21.7026	21.7026	1.4900e-003	0.0000	21.7399
Total	**2.9257**	**0.1298**	**0.1545**	**2.5000e-004**		**8.0000e-003**	**8.0000e-003**		**8.0000e-003**	**8.0000e-003**	**0.0000**	**21.7026**	**21.7026**	**1.4900e-003**	**0.0000**	**21.7399**

3.10 Architectural Coating 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0553	0.0382	0.4042	1.3300e-003	0.1424	9.3000e-004	0.1433	0.0379	8.6000e-004	0.0387	0.0000	120.3718	120.3718	2.7000e-003	0.0000	120.4393
Total	**0.0553**	**0.0382**	**0.4042**	**1.3300e-003**	**0.1424**	**9.3000e-004**	**0.1433**	**0.0379**	**8.6000e-004**	**0.0387**	**0.0000**	**120.3718**	**120.3718**	**2.7000e-003**	**0.0000**	**120.4393**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.4461					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0266	0.1831	0.2358	3.9000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	33.1923	33.1923	2.1600e-003	0.0000	33.2463
Total	**4.4727**	**0.1831**	**0.2358**	**3.9000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**	**0.0000**	**33.1923**	**33.1923**	**2.1600e-003**	**0.0000**	**33.2463**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0788	0.0523	0.5681	1.9600e-003	0.2178	1.3900e-003	0.2192	0.0579	1.2800e-003	0.0592	0.0000	177.3488	177.3488	3.7000e-003	0.0000	177.4413
Total	**0.0788**	**0.0523**	**0.5681**	**1.9600e-003**	**0.2178**	**1.3900e-003**	**0.2192**	**0.0579**	**1.2800e-003**	**0.0592**	**0.0000**	**177.3488**	**177.3488**	**3.7000e-003**	**0.0000**	**177.4413**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.4461					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0266	0.1831	0.2358	3.9000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	33.1923	33.1923	2.1600e-003	0.0000	33.2463
Total	**4.4727**	**0.1831**	**0.2358**	**3.9000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**	**0.0000**	**33.1923**	**33.1923**	**2.1600e-003**	**0.0000**	**33.2463**

3.10 Architectural Coating 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0788	0.0523	0.5681	1.9600e-003	0.2178	1.3900e-003	0.2192	0.0579	1.2800e-003	0.0592	0.0000	177.3488	177.3488	3.7000e-003	0.0000	177.4413
Total	**0.0788**	**0.0523**	**0.5681**	**1.9600e-003**	**0.2178**	**1.3900e-003**	**0.2192**	**0.0579**	**1.2800e-003**	**0.0592**	**0.0000**	**177.3488**	**177.3488**	**3.7000e-003**	**0.0000**	**177.4413**

3.10 Architectural Coating 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.1123					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0174	0.1186	0.1648	2.7000e-004		6.4400e-003	6.4400e-003		6.4400e-003	6.4400e-003	0.0000	23.2346	23.2346	1.3900e-003	0.0000	23.2694
Total	**3.1297**	**0.1186**	**0.1648**	**2.7000e-004**		**6.4400e-003**	**6.4400e-003**		**6.4400e-003**	**6.4400e-003**	**0.0000**	**23.2346**	**23.2346**	**1.3900e-003**	**0.0000**	**23.2694**

3.10 Architectural Coating 2 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0516	0.0329	0.3658	1.3200e-003	0.1524	9.5000e-004	0.1534	0.0406	8.8000e-004	0.0414	0.0000	119.3897	119.3897	2.3200e-003	0.0000	119.4478
Total	**0.0516**	**0.0329**	**0.3658**	**1.3200e-003**	**0.1524**	**9.5000e-004**	**0.1534**	**0.0406**	**8.8000e-004**	**0.0414**	**0.0000**	**119.3897**	**119.3897**	**2.3200e-003**	**0.0000**	**119.4478**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.1123					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0174	0.1186	0.1648	2.7000e-004		6.4400e-003	6.4400e-003		6.4400e-003	6.4400e-003	0.0000	23.2346	23.2346	1.3900e-003	0.0000	23.2693
Total	**3.1297**	**0.1186**	**0.1648**	**2.7000e-004**		**6.4400e-003**	**6.4400e-003**		**6.4400e-003**	**6.4400e-003**	**0.0000**	**23.2346**	**23.2346**	**1.3900e-003**	**0.0000**	**23.2693**

3.10 Architectural Coating 2 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0516	0.0329	0.3658	1.3200e-003	0.1524	9.5000e-004	0.1534	0.0406	8.8000e-004	0.0414	0.0000	119.3897	119.3897	2.3200e-003	0.0000	119.4478
Total	**0.0516**	**0.0329**	**0.3658**	**1.3200e-003**	**0.1524**	**9.5000e-004**	**0.1534**	**0.0406**	**8.8000e-004**	**0.0414**	**0.0000**	**119.3897**	**119.3897**	**2.3200e-003**	**0.0000**	**119.4478**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9467	4.3511	11.0463	0.0432	4.0125	0.0351	4.0476	1.0768	0.0327	1.1095	0.0000	3,973.7260	3,973.7260	0.1331	0.0000	3,977.0525
Unmitigated	0.9732	4.5105	11.6626	0.0462	4.3099	0.0374	4.3472	1.1566	0.0349	1.1915	0.0000	4,247.4024	4,247.4024	0.1404	0.0000	4,250.9119

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	3,193.42	3,193.42	3193.42	8,372,604	7,794,894
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,099.50	1,099.50	1099.50	3,210,002	2,988,512
Total	4,292.92	4,292.92	4,292.92	11,582,607	10,783,407

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unrefrigerated Warehouse-No Rail	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,353.0811	3,353.0811	0.3955	0.0818	3,387.3511
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,729.884 2	3,729.884 2	0.4399	0.0910	3,768.005 2
NaturalGas Mitigated	0.1156	1.0506	0.8825	6.3000e-003		0.0798	0.0798		0.0798	0.0798	0.0000	1,143.654 9	1,143.654 9	0.0219	0.0210	1,150.4511
NaturalGas Unmitigated	0.1648	1.4983	1.2585	8.9900e-003		0.1139	0.1139		0.1139	0.1139	0.0000	1,631.034 2	1,631.034 2	0.0313	0.0299	1,640.726 6

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	3.00439e+007	0.1620	1.4727	1.2371	8.8400e-003		0.1119	0.1119		0.1119	0.1119	0.0000	1,603.2583	1,603.2583	0.0307	0.0294	1,612.7857
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	520500	2.8100e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	27.7759	27.7759	5.3000e-004	5.1000e-004	27.9409
Total		**0.1648**	**1.4983**	**1.2585**	**8.9900e-003**		**0.1139**	**0.1139**		**0.1139**	**0.1139**	**0.0000**	**1,631.0342**	**1,631.0342**	**0.0313**	**0.0299**	**1,640.7266**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	2.10638e+007	0.1136	1.0325	0.8673	6.2000e-003		0.0785	0.0785		0.0785	0.0785	0.0000	1,124.0437	1,124.0437	0.0215	0.0206	1,130.7234
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	367500	1.9800e-003	0.0180	0.0151	1.1000e-004		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	19.6112	19.6112	3.8000e-004	3.6000e-004	19.7277
Total		**0.1156**	**1.0506**	**0.8825**	**6.3100e-003**		**0.0798**	**0.0798**		**0.0798**	**0.0798**	**0.0000**	**1,143.6549**	**1,143.6549**	**0.0219**	**0.0210**	**1,150.4511**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	3.27235e+007	3,649.625 5	0.4305	0.0891	3,686.926 2
Parking Lot	190120	21.2040	2.5000e-003	5.2000e-004	21.4207
Unrefrigerated Warehouse-No Rail	529500	59.0548	6.9700e-003	1.4400e-003	59.6583
Total		**3,729.884 2**	**0.4399**	**0.0910**	**3,768.005 2**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	2.93594e+007	3,274.428 4	0.3862	0.0799	3,307.894 5
Parking Lot	190120	21.2040	2.5000e-003	5.2000e-004	21.4207
Unrefrigerated Warehouse-No Rail	515100	57.4487	6.7800e-003	1.4000e-003	58.0359
Total		**3,353.081 1**	**0.3955**	**0.0818**	**3,387.351 0**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.8381	2.8000e-004	0.0307	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.6000e-004	0.0000	0.0636
Unmitigated	8.8381	2.8000e-004	0.0307	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.6000e-004	0.0000	0.0636

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.0465					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.7887					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8300e-003	2.8000e-004	0.0307	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.6000e-004	0.0000	0.0636
Total	**8.8381**	**2.8000e-004**	**0.0307**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0597**	**0.0597**	**1.6000e-004**	**0.0000**	**0.0636**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.0465					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.7887					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8300e-003	2.8000e-004	0.0307	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.6000e-004	0.0000	0.0636
Total	**8.8381**	**2.8000e-004**	**0.0307**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0597**	**0.0597**	**1.6000e-004**	**0.0000**	**0.0636**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	422.7118	14.9925	0.3600	904.8020
Unmitigated	422.7118	14.9925	0.3600	904.8020

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	424.413 / 0	390.7737	13.8597	0.3328	836.4394
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	34.6875 / 0	31.9381	1.1328	0.0272	68.3626
Total		**422.7118**	**14.9925**	**0.3600**	**904.8020**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	424.413 / 0	390.7737	13.8597	0.3328	836.4394
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	34.6875 / 0	31.9381	1.1328	0.0272	68.3626
Total		**422.7118**	**14.9925**	**0.3600**	**904.8020**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	490.5825	28.9926	0.0000	1,215.3973
Unmitigated	490.5825	28.9926	0.0000	1,215.3973

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	2275.77	461.9607	27.3011	0.0000	1,144.4882
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	141	28.6217	1.6915	0.0000	70.9091
Total		**490.5825**	**28.9926**	**0.0000**	**1,215.3973**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	2275.77	461.9607	27.3011	0.0000	1,144.488 2
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	141	28.6217	1.6915	0.0000	70.9091
Total		**490.5825**	**28.9926**	**0.0000**	**1,215.397 3**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	1,835.30	1000sqft	121.35	1,835,304.00	0
Unrefrigerated Warehouse-No Rail	150.00	1000sqft	3.44	150,000.00	0
Parking Lot	1,358.00	Space	17.01	543,200.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 64

Climate Zone 4 **Operational Year** 2024

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 245.88 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - questionnaire and site plan

Construction Phase - applicant provided

Demolition -

Grading - applicant provided

Vehicle Trips - TIA trip rate

Energy Use -

Mobile Land Use Mitigation - applicant provided

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	153.00
tblConstructionPhase	NumDays	220.00	612.00
tblConstructionPhase	NumDays	3,100.00	153.00
tblConstructionPhase	NumDays	3,100.00	612.00
tblConstructionPhase	NumDays	200.00	46.00
tblConstructionPhase	NumDays	310.00	31.00
tblConstructionPhase	NumDays	310.00	124.00
tblConstructionPhase	NumDays	220.00	11.00
tblConstructionPhase	NumDays	220.00	44.00
tblGrading	AcresOfGrading	77.50	40.08
tblGrading	AcresOfGrading	310.00	126.34
tblLandUse	LandUseSquareFeet	1,835,300.00	1,835,304.00
tblLandUse	LotAcreage	42.13	121.35
tblLandUse	LotAcreage	12.22	17.01
tblProjectCharacteristics	CO2IntensityFactor	641.35	245.88
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	7.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	7.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	7.33

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	149.6821	120.9708	96.6111	0.3125	20.5348	3.7020	24.2368	7.0531	3.4459	10.4990	0.0000	31,537.9383	31,537.9383	3.4377	0.0000	31,623.8811
2021	148.5585	110.5736	91.1446	0.3076	20.5349	3.1976	23.7326	7.0532	2.9721	10.0253	0.0000	31,052.6952	31,052.6952	3.3687	0.0000	31,136.9122
2022	41.1217	59.7186	56.5002	0.2391	13.2681	1.0354	14.3035	3.5827	0.9789	4.5617	0.0000	24,401.4510	24,401.4510	1.3697	0.0000	24,435.6921
2023	40.4219	48.9536	53.1910	0.2321	13.2682	0.8692	14.1374	3.5827	0.8213	4.4041	0.0000	23,696.4727	23,696.4727	1.2654	0.0000	23,728.1070
Maximum	**149.6821**	**120.9708**	**96.6111**	**0.3125**	**20.5349**	**3.7020**	**24.2368**	**7.0532**	**3.4459**	**10.4990**	**0.0000**	**31,537.9383**	**31,537.9383**	**3.4377**	**0.0000**	**31,623.8811**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	149.6821	120.9708	96.6111	0.3125	20.5348	3.7020	24.2368	7.0531	3.4459	10.4990	0.0000	31,537.9383	31,537.9383	3.4377	0.0000	31,623.8811
2021	148.5585	110.5736	91.1446	0.3076	20.5349	3.1976	23.7326	7.0532	2.9721	10.0253	0.0000	31,052.6952	31,052.6952	3.3687	0.0000	31,136.9122
2022	41.1217	59.7186	56.5002	0.2391	13.2681	1.0354	14.3035	3.5827	0.9789	4.5617	0.0000	24,401.4510	24,401.4510	1.3697	0.0000	24,435.6921
2023	40.4219	48.9536	53.1910	0.2321	13.2682	0.8692	14.1374	3.5827	0.8213	4.4041	0.0000	23,696.4727	23,696.4727	1.2654	0.0000	23,728.1070
Maximum	**149.6821**	**120.9708**	**96.6111**	**0.3125**	**20.5349**	**3.7020**	**24.2368**	**7.0532**	**3.4459**	**10.4990**	**0.0000**	**31,537.9383**	**31,537.9383**	**3.4377**	**0.0000**	**31,623.8811**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	48.4438	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Energy	0.9031	8.2096	6.8961	0.0493		0.6239	0.6239		0.6239	0.6239		9,851.547 6	9,851.547 6	0.1888	0.1806	9,910.090 4
Mobile	6.1177	24.0098	67.4042	0.2686	24.6028	0.2051	24.8079	6.5813	0.1914	6.7727		27,200.16 15	27,200.16 15	0.8580		27,221.61 22
Total	**55.4646**	**32.2225**	**74.6411**	**0.3179**	**24.6028**	**0.8303**	**25.4330**	**6.5813**	**0.8165**	**7.3978**		**37,052.44 08**	**37,052.44 08**	**1.0488**	**0.1806**	**37,132.48 21**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	48.4438	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Energy	0.6332	5.7565	4.8354	0.0345		0.4375	0.4375		0.4375	0.4375		6,907.746 7	6,907.746 7	0.1324	0.1266	6,948.795 9
Mobile	5.9693	23.1883	63.5863	0.2512	22.9052	0.1925	23.0977	6.1272	0.1796	6.3068		25,445.55 49	25,445.55 49	0.8119		25,465.85 10
Total	**55.0464**	**28.9479**	**68.7626**	**0.2858**	**22.9052**	**0.6312**	**23.5364**	**6.1272**	**0.6183**	**6.7455**		**32,354.03 33**	**32,354.03 33**	**0.9462**	**0.1266**	**32,415.42 64**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.75**	**10.16**	**7.88**	**10.09**	**6.90**	**23.97**	**7.46**	**6.90**	**24.27**	**8.82**	**0.00**	**12.68**	**12.68**	**9.78**	**29.88**	**12.70**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Paving	Paving	6/17/2020	7/1/2020	5	11	
4	Building Construction	Building Construction	7/2/2020	2/1/2021	5	153	
5	Architectural Coating	Architectural Coating	7/16/2020	2/15/2021	5	153	
6	Grading 2	Grading	9/2/2020	2/22/2021	5	124	
7	Paving 2	Paving	2/23/2021	4/23/2021	5	44	
8	Construction 2	Building Construction	4/24/2021	8/29/2023	5	612	
9	Architectural Coating 2	Architectural Coating	5/8/2021	9/12/2023	5	612	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 40.08

Acres of Paving: 17.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,977,956; Non-Residential Outdoor: 992,652; Striped Parking Area: 32,592 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73

Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74

Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.2140**	**1.6587**	**1.8727**	**0.0324**	**1.5419**	**1.5743**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.0700e-003	0.2802	0.0557	7.8000e-004	0.0171	9.2000e-004	0.0180	4.6800e-003	8.8000e-004	5.5600e-003		83.2288	83.2288	4.1600e-003		83.3329
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0602**	**0.3118**	**0.4582**	**2.0200e-003**	**0.1403**	**1.7200e-003**	**0.1420**	**0.0374**	**1.6200e-003**	**0.0390**		**206.3453**	**206.3453**	**7.1300e-003**		**206.5236**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.2140**	**1.6587**	**1.8727**	**0.0324**	**1.5419**	**1.5743**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.0700e-003	0.2802	0.0557	7.8000e-004	0.0171	9.2000e-004	0.0180	4.6800e-003	8.8000e-004	5.5600e-003		83.2288	83.2288	4.1600e-003		83.3329
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0602**	**0.3118**	**0.4582**	**2.0200e-003**	**0.1403**	**1.7200e-003**	**0.1420**	**0.0374**	**1.6200e-003**	**0.0390**		**206.3453**	**206.3453**	**7.1300e-003**		**206.5236**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3932	0.0000	7.3932	3.4583	0.0000	3.4583			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.3932**	**2.1739**	**9.5671**	**3.4583**	**2.0000**	**5.4583**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3932	0.0000	7.3932	3.4583	0.0000	3.4583			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.3932**	**2.1739**	**9.5671**	**3.4583**	**2.0000**	**5.4583**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	4.0515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.4080**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0521**	**0.0316**	**0.4025**	**1.2400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**123.1165**	**123.1165**	**2.9700e-003**		**123.1907**

3.4 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	4.0515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.4080**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0521**	**0.0316**	**0.4025**	**1.2400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**123.1165**	**123.1165**	**2.9700e-003**		**123.1907**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.5695	47.1805	11.2543	0.1140	2.8023	0.2313	3.0336	0.8067	0.2213	1.0279		12,076.7133	12,076.7133	0.5947		12,091.5812
Worker	3.6913	2.2348	28.4939	0.0875	8.7241	0.0565	8.7806	2.3140	0.0520	2.3661		8,716.6470	8,716.6470	0.2100		8,721.8981
Total	**5.2608**	**49.4152**	**39.7482**	**0.2015**	**11.5264**	**0.2878**	**11.8142**	**3.1207**	**0.2733**	**3.3940**		**20,793.3603**	**20,793.3603**	**0.8048**		**20,813.4793**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.5695	47.1805	11.2543	0.1140	2.8023	0.2313	3.0336	0.8067	0.2213	1.0279		12,076.7133	12,076.7133	0.5947		12,091.5812
Worker	3.6913	2.2348	28.4939	0.0875	8.7241	0.0565	8.7806	2.3140	0.0520	2.3661		8,716.6470	8,716.6470	0.2100		8,721.8981
Total	**5.2608**	**49.4152**	**39.7482**	**0.2015**	**11.5264**	**0.2878**	**11.8142**	**3.1207**	**0.2733**	**3.3940**		**20,793.3603**	**20,793.3603**	**0.8048**		**20,813.4793**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2839	42.7832	10.0887	0.1129	2.8024	0.0927	2.8951	0.8067	0.0887	0.8954		11,962.8837	11,962.8837	0.5615		11,976.9203
Worker	3.4147	1.9957	26.0861	0.0844	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		8,410.6101	8,410.6101	0.1880		8,415.3104
Total	**4.6987**	**44.7789**	**36.1747**	**0.1973**	**11.5265**	**0.1476**	**11.6741**	**3.1207**	**0.1392**	**3.2599**		**20,373.4938**	**20,373.4938**	**0.7495**		**20,392.2307**

3.5 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.363 9**	**2,553.363 9**	**0.6160**		**2,568.764 3**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2839	42.7832	10.0887	0.1129	2.8024	0.0927	2.8951	0.8067	0.0887	0.8954		11,962.883 7	11,962.883 7	0.5615		11,976.920 3
Worker	3.4147	1.9957	26.0861	0.0844	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		8,410.610 1	8,410.610 1	0.1880		8,415.310 4
Total	**4.6987**	**44.7789**	**36.1747**	**0.1973**	**11.5265**	**0.1476**	**11.6741**	**3.1207**	**0.1392**	**3.2599**		**20,373.49 38**	**20,373.49 38**	**0.7495**		**20,392.23 07**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	136.8028					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**137.0450**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7369	0.4461	5.6881	0.0175	1.7415	0.0113	1.7528	0.4619	0.0104	0.4723		1,740.0463	1,740.0463	0.0419		1,741.0945
Total	**0.7369**	**0.4461**	**5.6881**	**0.0175**	**1.7415**	**0.0113**	**1.7528**	**0.4619**	**0.0104**	**0.4723**		**1,740.0463**	**1,740.0463**	**0.0419**		**1,741.0945**

3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	136.8028					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**137.0450**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7369	0.4461	5.6881	0.0175	1.7415	0.0113	1.7528	0.4619	0.0104	0.4723		1,740.0463	1,740.0463	0.0419		1,741.0945
Total	**0.7369**	**0.4461**	**5.6881**	**0.0175**	**1.7415**	**0.0113**	**1.7528**	**0.4619**	**0.0104**	**0.4723**		**1,740.0463**	**1,740.0463**	**0.0419**		**1,741.0945**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	136.8028					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**137.0217**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6817	0.3984	5.2074	0.0168	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,678.954 2	1,678.954 2	0.0375		1,679.892 5
Total	**0.6817**	**0.3984**	**5.2074**	**0.0168**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,678.954 2**	**1,678.954 2**	**0.0375**		**1,679.892 5**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	136.8028					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**137.0217**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6817	0.3984	5.2074	0.0168	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,678.954 2	1,678.954 2	0.0375		1,679.892 5
Total	**0.6817**	**0.3984**	**5.2074**	**0.0168**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,678.954 2**	**1,678.954 2**	**0.0375**		**1,679.892 5**

3.7 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.1026**	**2.1739**	**9.2765**	**3.4269**	**2.0000**	**5.4269**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.7 Grading 2 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.1026**	**2.1739**	**9.2765**	**3.4269**	**2.0000**	**5.4269**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.7 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**7.1026**	**1.9853**	**9.0879**	**3.4269**	**1.8265**	**5.2534**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0376	0.4913	1.5900e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		158.3919	158.3919	3.5400e-003		158.4804
Total	**0.0643**	**0.0376**	**0.4913**	**1.5900e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**158.3919**	**158.3919**	**3.5400e-003**		**158.4804**

3.7 Grading 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**7.1026**	**1.9853**	**9.0879**	**3.4269**	**1.8265**	**5.2534**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0376	0.4913	1.5900e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		158.3919	158.3919	3.5400e-003		158.4804
Total	**0.0643**	**0.0376**	**0.4913**	**1.5900e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**158.3919**	**158.3919**	**3.5400e-003**		**158.4804**

3.8 Paving 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2684**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0482**	**0.0282**	**0.3685**	**1.1900e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**118.7939**	**118.7939**	**2.6600e-003**		**118.8603**

3.8 Paving 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2684**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0482**	**0.0282**	**0.3685**	**1.1900e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**118.7939**	**118.7939**	**2.6600e-003**		**118.8603**

3.9 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2839	42.7832	10.0887	0.1129	2.8024	0.0927	2.8951	0.8067	0.0887	0.8954		11,962.8837	11,962.8837	0.5615		11,976.9203
Worker	3.4147	1.9957	26.0861	0.0844	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		8,410.6101	8,410.6101	0.1880		8,415.3104
Total	**4.6987**	**44.7789**	**36.1747**	**0.1973**	**11.5265**	**0.1476**	**11.6741**	**3.1207**	**0.1392**	**3.2599**		**20,373.4938**	**20,373.4938**	**0.7495**		**20,392.2307**

3.9 Construction 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2839	42.7832	10.0887	0.1129	2.8024	0.0927	2.8951	0.8067	0.0887	0.8954		11,962.8837	11,962.8837	0.5615		11,976.9203
Worker	3.4147	1.9957	26.0861	0.0844	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		8,410.6101	8,410.6101	0.1880		8,415.3104
Total	**4.6987**	**44.7789**	**36.1747**	**0.1973**	**11.5265**	**0.1476**	**11.6741**	**3.1207**	**0.1392**	**3.2599**		**20,373.4938**	**20,373.4938**	**0.7495**		**20,392.2307**

3.9 Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.1975	40.5473	9.4881	0.1117	2.8025	0.0803	2.8829	0.8068	0.0768	0.8836		11,846.3823	11,846.3823	0.5368		11,859.8033
Worker	3.1783	1.7899	24.0368	0.0813	8.7241	0.0536	8.7777	2.3140	0.0494	2.3634		8,101.9488	8,101.9488	0.1688		8,106.1697
Total	**4.3758**	**42.3372**	**33.5249**	**0.1930**	**11.5266**	**0.1340**	**11.6605**	**3.1208**	**0.1262**	**3.2470**		**19,948.3311**	**19,948.3311**	**0.7057**		**19,965.9730**

3.9 Construction 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.333 6**	**2,554.333 6**	**0.6120**		**2,569.632 2**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.1975	40.5473	9.4881	0.1117	2.8025	0.0803	2.8829	0.8068	0.0768	0.8836		11,846.382 3	11,846.382 3	0.5368		11,859.803 3
Worker	3.1783	1.7899	24.0368	0.0813	8.7241	0.0536	8.7777	2.3140	0.0494	2.3634		8,101.948 8	8,101.948 8	0.1688		8,106.169 7
Total	**4.3758**	**42.3372**	**33.5249**	**0.1930**	**11.5266**	**0.1340**	**11.6605**	**3.1208**	**0.1262**	**3.2470**		**19,948.33 11**	**19,948.33 11**	**0.7057**		**19,965.97 30**

3.9 Construction 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.209 9**	**2,555.209 9**	**0.6079**		**2,570.406 1**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8974	31.3345	8.5417	0.1085	2.8026	0.0357	2.8383	0.8068	0.0341	0.8409		11,513.129 5	11,513.129 5	0.4588		11,524.600 1
Worker	2.9671	1.6099	22.1688	0.0781	8.7241	0.0525	8.7766	2.3140	0.0484	2.3624		7,791.349 9	7,791.349 9	0.1516		7,795.139 9
Total	**3.8645**	**32.9444**	**30.7105**	**0.1866**	**11.5267**	**0.0882**	**11.6148**	**3.1208**	**0.0824**	**3.2032**		**19,304.47 94**	**19,304.47 94**	**0.6104**		**19,319.74 00**

3.9 Construction 2 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8974	31.3345	8.5417	0.1085	2.8026	0.0357	2.8383	0.8068	0.0341	0.8409		11,513.1295	11,513.1295	0.4588		11,524.6001
Worker	2.9671	1.6099	22.1688	0.0781	8.7241	0.0525	8.7766	2.3140	0.0484	2.3624		7,791.3499	7,791.3499	0.1516		7,795.1399
Total	**3.8645**	**32.9444**	**30.7105**	**0.1866**	**11.5267**	**0.0882**	**11.6148**	**3.1208**	**0.0824**	**3.2032**		**19,304.4794**	**19,304.4794**	**0.6104**		**19,319.7400**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	34.2007					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**34.4196**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6817	0.3984	5.2074	0.0168	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,678.954 2	1,678.954 2	0.0375		1,679.892 5
Total	**0.6817**	**0.3984**	**5.2074**	**0.0168**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,678.954 2**	**1,678.954 2**	**0.0375**		**1,679.892 5**

3.10 Architectural Coating 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	34.2007					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**34.4196**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6817	0.3984	5.2074	0.0168	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,678.9542	1,678.9542	0.0375		1,679.8925
Total	**0.6817**	**0.3984**	**5.2074**	**0.0168**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,678.9542**	**1,678.9542**	**0.0375**		**1,679.8925**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	34.2007					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**34.4053**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6345	0.3573	4.7983	0.0162	1.7415	0.0107	1.7522	0.4619	9.8600e-003	0.4718		1,617.3382	1,617.3382	0.0337		1,618.1808
Total	**0.6345**	**0.3573**	**4.7983**	**0.0162**	**1.7415**	**0.0107**	**1.7522**	**0.4619**	**9.8600e-003**	**0.4718**		**1,617.3382**	**1,617.3382**	**0.0337**		**1,618.1808**

3.10 Architectural Coating 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	34.2007					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**34.4053**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6345	0.3573	4.7983	0.0162	1.7415	0.0107	1.7522	0.4619	9.8600e-003	0.4718		1,617.3382	1,617.3382	0.0337		1,618.1808
Total	**0.6345**	**0.3573**	**4.7983**	**0.0162**	**1.7415**	**0.0107**	**1.7522**	**0.4619**	**9.8600e-003**	**0.4718**		**1,617.3382**	**1,617.3382**	**0.0337**		**1,618.1808**

3.10 Architectural Coating 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	34.2007					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**34.3924**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5923	0.3214	4.4254	0.0156	1.7415	0.0105	1.7520	0.4619	9.6500e-003	0.4716		1,555.3354	1,555.3354	0.0303		1,556.0920
Total	**0.5923**	**0.3214**	**4.4254**	**0.0156**	**1.7415**	**0.0105**	**1.7520**	**0.4619**	**9.6500e-003**	**0.4716**		**1,555.3354**	**1,555.3354**	**0.0303**		**1,556.0920**

3.10 Architectural Coating 2 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	34.2007					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**34.3924**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5923	0.3214	4.4254	0.0156	1.7415	0.0105	1.7520	0.4619	9.6500e-003	0.4716		1,555.3354	1,555.3354	0.0303		1,556.0920
Total	**0.5923**	**0.3214**	**4.4254**	**0.0156**	**1.7415**	**0.0105**	**1.7520**	**0.4619**	**9.6500e-003**	**0.4716**		**1,555.3354**	**1,555.3354**	**0.0303**		**1,556.0920**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.9693	23.1883	63.5863	0.2512	22.9052	0.1925	23.0977	6.1272	0.1796	6.3068		25,445.5549	25,445.5549	0.8119		25,465.8510
Unmitigated	6.1177	24.0098	67.4042	0.2686	24.6028	0.2051	24.8079	6.5813	0.1914	6.7727		27,200.1615	27,200.1615	0.8580		27,221.6122

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	3,193.42	3,193.42	3193.42	8,372,604	7,794,894
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,099.50	1,099.50	1099.50	3,210,002	2,988,512
Total	4,292.92	4,292.92	4,292.92	11,582,607	10,783,407

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unrefrigerated Warehouse-No Rail	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.6332	5.7565	4.8354	0.0345		0.4375	0.4375		0.4375	0.4375		6,907.746 7	6,907.746 7	0.1324	0.1266	6,948.795 9
NaturalGas Unmitigated	0.9031	8.2096	6.8961	0.0493		0.6239	0.6239		0.6239	0.6239		9,851.547 6	9,851.547 6	0.1888	0.1806	9,910.090 4

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	82312.1	0.8877	8.0698	6.7787	0.0484		0.6133	0.6133		0.6133	0.6133		9,683.779 7	9,683.779 7	0.1856	0.1775	9,741.325 6
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1426.03	0.0154	0.1398	0.1174	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.7679	167.7679	3.2200e-003	3.0800e-003	168.7649
Total		**0.9031**	**8.2096**	**6.8961**	**0.0493**		**0.6239**	**0.6239**		**0.6239**	**0.6239**		**9,851.547 6**	**9,851.547 6**	**0.1888**	**0.1806**	**9,910.090 4**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	57.709	0.6224	5.6577	4.7525	0.0340		0.4300	0.4300		0.4300	0.4300		6,789.2938	6,789.2938	0.1301	0.1245	6,829.6392
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.00685	0.0109	0.0987	0.0829	5.9000e-004		7.5000e-003	7.5000e-003		7.5000e-003	7.5000e-003		118.4529	118.4529	2.2700e-003	2.1700e-003	119.1568
Total		**0.6332**	**5.7565**	**4.8354**	**0.0345**		**0.4375**	**0.4375**		**0.4375**	**0.4375**		**6,907.7467**	**6,907.7467**	**0.1324**	**0.1266**	**6,948.7960**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	48.4438	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Unmitigated	48.4438	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.7345					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	42.6779					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0315	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Total	**48.4438**	**3.1000e-003**	**0.3408**	**3.0000e-005**		**1.2100e-003**	**1.2100e-003**		**1.2100e-003**	**1.2100e-003**		**0.7317**	**0.7317**	**1.9100e-003**		**0.7795**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.7345					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	42.6779					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0315	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Total	**48.4438**	**3.1000e-003**	**0.3408**	**3.0000e-005**		**1.2100e-003**	**1.2100e-003**		**1.2100e-003**	**1.2100e-003**		**0.7317**	**0.7317**	**1.9100e-003**		**0.7795**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	1,835.30	1000sqft	121.35	1,835,304.00	0
Unrefrigerated Warehouse-No Rail	150.00	1000sqft	3.44	150,000.00	0
Parking Lot	1,358.00	Space	17.01	543,200.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 64

Climate Zone 4 **Operational Year** 2024

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 245.88 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - questionnaire and site plan

Construction Phase - applicant provided

Demolition -

Grading - applicant provided

Vehicle Trips - TIA trip rate

Energy Use -

Mobile Land Use Mitigation - applicant provided

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	153.00
tblConstructionPhase	NumDays	220.00	612.00
tblConstructionPhase	NumDays	3,100.00	153.00
tblConstructionPhase	NumDays	3,100.00	612.00
tblConstructionPhase	NumDays	200.00	46.00
tblConstructionPhase	NumDays	310.00	31.00
tblConstructionPhase	NumDays	310.00	124.00
tblConstructionPhase	NumDays	220.00	11.00
tblConstructionPhase	NumDays	220.00	44.00
tblGrading	AcresOfGrading	77.50	40.08
tblGrading	AcresOfGrading	310.00	126.34
tblLandUse	LandUseSquareFeet	1,835,300.00	1,835,304.00
tblLandUse	LotAcreage	42.13	121.35
tblLandUse	LotAcreage	12.22	17.01
tblProjectCharacteristics	CO2IntensityFactor	641.35	245.88
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	7.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	7.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	7.33

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	150.0239	122.1399	96.1205	0.3013	20.5348	3.7059	24.2407	7.0531	3.4497	10.5028	0.0000	30,395.0106	30,395.0106	3.4696	0.0000	30,481.7513
2021	148.8815	111.5134	90.6047	0.2967	20.5349	3.2009	23.7358	7.0532	2.9752	10.0284	0.0000	29,941.4234	29,941.4234	3.3992	0.0000	30,026.4028
2022	41.4301	60.5286	55.9447	0.2286	13.2681	1.0383	14.3064	3.5827	0.9817	4.5645	0.0000	23,333.2826	23,333.2826	1.3988	0.0000	23,368.2532
2023	40.7126	49.5587	52.4101	0.2220	13.2682	0.8708	14.1390	3.5827	0.8228	4.4056	0.0000	22,669.4796	22,669.4796	1.2858	0.0000	22,701.6244
Maximum	**150.0239**	**122.1399**	**96.1205**	**0.3013**	**20.5349**	**3.7059**	**24.2407**	**7.0532**	**3.4497**	**10.5028**	**0.0000**	**30,395.0106**	**30,395.0106**	**3.4696**	**0.0000**	**30,481.7513**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	150.0239	122.1399	96.1205	0.3013	20.5348	3.7059	24.2407	7.0531	3.4497	10.5028	0.0000	30,395.0106	30,395.0106	3.4696	0.0000	30,481.7513
2021	148.8815	111.5134	90.6047	0.2967	20.5349	3.2009	23.7358	7.0532	2.9752	10.0284	0.0000	29,941.4234	29,941.4234	3.3992	0.0000	30,026.4028
2022	41.4301	60.5286	55.9447	0.2286	13.2681	1.0383	14.3064	3.5827	0.9817	4.5645	0.0000	23,333.2826	23,333.2826	1.3988	0.0000	23,368.2532
2023	40.7126	49.5587	52.4101	0.2220	13.2682	0.8708	14.1390	3.5827	0.8228	4.4056	0.0000	22,669.4796	22,669.4796	1.2858	0.0000	22,701.6243
Maximum	**150.0239**	**122.1399**	**96.1205**	**0.3013**	**20.5349**	**3.7059**	**24.2407**	**7.0532**	**3.4497**	**10.5028**	**0.0000**	**30,395.0106**	**30,395.0106**	**3.4696**	**0.0000**	**30,481.7513**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	48.4438	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Energy	0.9031	8.2096	6.8961	0.0493		0.6239	0.6239		0.6239	0.6239		9,851.5476	9,851.5476	0.1888	0.1806	9,910.0904
Mobile	5.2946	25.2723	66.6925	0.2516	24.6028	0.2059	24.8087	6.5813	0.1922	6.7735		25,494.0042	25,494.0042	0.8690		25,515.7279
Total	**54.6415**	**33.4851**	**73.9294**	**0.3009**	**24.6028**	**0.8311**	**25.4338**	**6.5813**	**0.8173**	**7.3986**		**35,346.2835**	**35,346.2835**	**1.0597**	**0.1806**	**35,426.5978**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	48.4438	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Energy	0.6332	5.7565	4.8354	0.0345		0.4375	0.4375		0.4375	0.4375		6,907.7467	6,907.7467	0.1324	0.1266	6,948.7959
Mobile	5.1480	24.3588	63.2931	0.2353	22.9052	0.1933	23.0985	6.1272	0.1804	6.3076		23,846.1755	23,846.1755	0.8246		23,866.7910
Total	**54.2251**	**30.1183**	**68.4693**	**0.2699**	**22.9052**	**0.6320**	**23.5372**	**6.1272**	**0.6191**	**6.7463**		**30,754.6538**	**30,754.6538**	**0.9589**	**0.1266**	**30,816.3664**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.76**	**10.05**	**7.39**	**10.30**	**6.90**	**23.95**	**7.46**	**6.90**	**24.25**	**8.82**	**0.00**	**12.99**	**12.99**	**9.51**	**29.88**	**13.01**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Paving	Paving	6/17/2020	7/1/2020	5	11	
4	Building Construction	Building Construction	7/2/2020	2/1/2021	5	153	
5	Architectural Coating	Architectural Coating	7/16/2020	2/15/2021	5	153	
6	Grading 2	Grading	9/2/2020	2/22/2021	5	124	
7	Paving 2	Paving	2/23/2021	4/23/2021	5	44	
8	Construction 2	Building Construction	4/24/2021	8/29/2023	5	612	
9	Architectural Coating 2	Architectural Coating	5/8/2021	9/12/2023	5	612	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 40.08

Acres of Paving: 17.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,977,956; Non-Residential Outdoor: 992,652; Striped Parking Area: 32,592 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73

Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74

Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.2140**	**1.6587**	**1.8727**	**0.0324**	**1.5419**	**1.5743**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2900e-003	0.2871	0.0600	7.7000e-004	0.0171	9.3000e-004	0.0180	4.6800e-003	8.9000e-004	5.5700e-003		81.8309	81.8309	4.3700e-003		81.9402
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0634**	**0.3261**	**0.4379**	**1.9100e-003**	**0.1403**	**1.7300e-003**	**0.1420**	**0.0374**	**1.6300e-003**	**0.0390**		**195.2407**	**195.2407**	**7.1400e-003**		**195.4194**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.2140**	**1.6587**	**1.8727**	**0.0324**	**1.5419**	**1.5743**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2900e-003	0.2871	0.0600	7.7000e-004	0.0171	9.3000e-004	0.0180	4.6800e-003	8.9000e-004	5.5700e-003		81.8309	81.8309	4.3700e-003		81.9402
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0634**	**0.3261**	**0.4379**	**1.9100e-003**	**0.1403**	**1.7300e-003**	**0.1420**	**0.0374**	**1.6300e-003**	**0.0390**		**195.2407**	**195.2407**	**7.1400e-003**		**195.4194**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3932	0.0000	7.3932	3.4583	0.0000	3.4583			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.3932**	**2.1739**	**9.5671**	**3.4583**	**2.0000**	**5.4583**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3932	0.0000	7.3932	3.4583	0.0000	3.4583			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.3932**	**2.1739**	**9.5671**	**3.4583**	**2.0000**	**5.4583**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	4.0515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.4080**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0552**	**0.0390**	**0.3780**	**1.1400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**113.4098**	**113.4098**	**2.7700e-003**		**113.4792**

3.4 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	4.0515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.4080**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0552**	**0.0390**	**0.3780**	**1.1400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**113.4098**	**113.4098**	**2.7700e-003**		**113.4792**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.6516	47.7082	12.8750	0.1112	2.8023	0.2352	3.0375	0.8067	0.2250	1.0317		11,771.1478	11,771.1478	0.6433		11,787.2296
Worker	3.9044	2.7612	26.7612	0.0806	8.7241	0.0565	8.7806	2.3140	0.0520	2.3661		8,029.4147	8,029.4147	0.1964		8,034.3244
Total	**5.5560**	**50.4693**	**39.6362**	**0.1918**	**11.5264**	**0.2917**	**11.8181**	**3.1207**	**0.2770**	**3.3977**		**19,800.5625**	**19,800.5625**	**0.8397**		**19,821.5540**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.6516	47.7082	12.8750	0.1112	2.8023	0.2352	3.0375	0.8067	0.2250	1.0317		11,771.1478	11,771.1478	0.6433		11,787.2296
Worker	3.9044	2.7612	26.7612	0.0806	8.7241	0.0565	8.7806	2.3140	0.0520	2.3661		8,029.4147	8,029.4147	0.1964		8,034.3244
Total	**5.5560**	**50.4693**	**39.6362**	**0.1918**	**11.5264**	**0.2917**	**11.8181**	**3.1207**	**0.2770**	**3.3977**		**19,800.5625**	**19,800.5625**	**0.8397**		**19,821.5540**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.3600	43.1512	11.5959	0.1101	2.8024	0.0959	2.8983	0.8067	0.0917	0.8984		11,659.3639	11,659.3639	0.6074		11,674.5499
Worker	3.6174	2.4650	24.4060	0.0777	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		7,747.6791	7,747.6791	0.1753		7,752.0619
Total	**4.9775**	**45.6161**	**36.0019**	**0.1878**	**11.5265**	**0.1508**	**11.6773**	**3.1207**	**0.1423**	**3.2630**		**19,407.0430**	**19,407.0430**	**0.7828**		**19,426.6117**

3.5 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.3600	43.1512	11.5959	0.1101	2.8024	0.0959	2.8983	0.8067	0.0917	0.8984		11,659.3639	11,659.3639	0.6074		11,674.5499
Worker	3.6174	2.4650	24.4060	0.0777	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		7,747.6791	7,747.6791	0.1753		7,752.0619
Total	**4.9775**	**45.6161**	**36.0019**	**0.1878**	**11.5265**	**0.1508**	**11.6773**	**3.1207**	**0.1423**	**3.2630**		**19,407.0430**	**19,407.0430**	**0.7828**		**19,426.6117**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	136.8028					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**137.0450**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7794	0.5512	5.3422	0.0161	1.7415	0.0113	1.7528	0.4619	0.0104	0.4723		1,602.8587	1,602.8587	0.0392		1,603.8388
Total	**0.7794**	**0.5512**	**5.3422**	**0.0161**	**1.7415**	**0.0113**	**1.7528**	**0.4619**	**0.0104**	**0.4723**		**1,602.8587**	**1,602.8587**	**0.0392**		**1,603.8388**

3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	136.8028					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**137.0450**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7794	0.5512	5.3422	0.0161	1.7415	0.0113	1.7528	0.4619	0.0104	0.4723		1,602.8587	1,602.8587	0.0392		1,603.8388
Total	**0.7794**	**0.5512**	**5.3422**	**0.0161**	**1.7415**	**0.0113**	**1.7528**	**0.4619**	**0.0104**	**0.4723**		**1,602.8587**	**1,602.8587**	**0.0392**		**1,603.8388**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	136.8028					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**137.0217**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7221	0.4921	4.8720	0.0155	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,546.6177	1,546.6177	0.0350		1,547.4926
Total	**0.7221**	**0.4921**	**4.8720**	**0.0155**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,546.6177**	**1,546.6177**	**0.0350**		**1,547.4926**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	136.8028					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**137.0217**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7221	0.4921	4.8720	0.0155	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,546.6177	1,546.6177	0.0350		1,547.4926
Total	**0.7221**	**0.4921**	**4.8720**	**0.0155**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,546.6177**	**1,546.6177**	**0.0350**		**1,547.4926**

3.7 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.1026**	**2.1739**	**9.2765**	**3.4269**	**2.0000**	**5.4269**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.7 Grading 2 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.1026**	**2.1739**	**9.2765**	**3.4269**	**2.0000**	**5.4269**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.7 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**7.1026**	**1.9853**	**9.0879**	**3.4269**	**1.8265**	**5.2534**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0681	0.0464	0.4596	1.4600e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		145.9073	145.9073	3.3000e-003		145.9899
Total	**0.0681**	**0.0464**	**0.4596**	**1.4600e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**145.9073**	**145.9073**	**3.3000e-003**		**145.9899**

3.7 Grading 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**7.1026**	**1.9853**	**9.0879**	**3.4269**	**1.8265**	**5.2534**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0681	0.0464	0.4596	1.4600e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		145.9073	145.9073	3.3000e-003		145.9899
Total	**0.0681**	**0.0464**	**0.4596**	**1.4600e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**145.9073**	**145.9073**	**3.3000e-003**		**145.9899**

3.8 Paving 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2684**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0511**	**0.0348**	**0.3447**	**1.1000e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**109.4305**	**109.4305**	**2.4800e-003**		**109.4924**

3.8 Paving 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2684**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0511**	**0.0348**	**0.3447**	**1.1000e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**109.4305**	**109.4305**	**2.4800e-003**		**109.4924**

3.9 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.3600	43.1512	11.5959	0.1101	2.8024	0.0959	2.8983	0.8067	0.0917	0.8984		11,659.3639	11,659.3639	0.6074		11,674.5499
Worker	3.6174	2.4650	24.4060	0.0777	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		7,747.6791	7,747.6791	0.1753		7,752.0619
Total	**4.9775**	**45.6161**	**36.0019**	**0.1878**	**11.5265**	**0.1508**	**11.6773**	**3.1207**	**0.1423**	**3.2630**		**19,407.0430**	**19,407.0430**	**0.7828**		**19,426.6117**

3.9 Construction 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.363 9**	**2,553.363 9**	**0.6160**		**2,568.764 3**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.3600	43.1512	11.5959	0.1101	2.8024	0.0959	2.8983	0.8067	0.0917	0.8984		11,659.363 9	11,659.363 9	0.6074		11,674.549 9
Worker	3.6174	2.4650	24.4060	0.0777	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		7,747.679 1	7,747.679 1	0.1753		7,752.061 9
Total	**4.9775**	**45.6161**	**36.0019**	**0.1878**	**11.5265**	**0.1508**	**11.6773**	**3.1207**	**0.1423**	**3.2630**		**19,407.04 30**	**19,407.04 30**	**0.7828**		**19,426.61 17**

3.9 Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2683	40.8531	10.9007	0.1089	2.8025	0.0833	2.8858	0.8068	0.0796	0.8864		11,543.9307	11,543.9307	0.5803		11,558.4371
Worker	3.3764	2.2102	22.3962	0.0749	8.7241	0.0536	8.7777	2.3140	0.0494	2.3634		7,463.6513	7,463.6513	0.1570		7,467.5754
Total	**4.6446**	**43.0633**	**33.2969**	**0.1838**	**11.5266**	**0.1369**	**11.6635**	**3.1208**	**0.1290**	**3.2498**		**19,007.5819**	**19,007.5819**	**0.7372**		**19,026.0124**

3.9 Construction 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2683	40.8531	10.9007	0.1089	2.8025	0.0833	2.8858	0.8068	0.0796	0.8864		11,543.9307	11,543.9307	0.5803		11,558.4371
Worker	3.3764	2.2102	22.3962	0.0749	8.7241	0.0536	8.7777	2.3140	0.0494	2.3634		7,463.6513	7,463.6513	0.1570		7,467.5754
Total	**4.6446**	**43.0633**	**33.2969**	**0.1838**	**11.5266**	**0.1369**	**11.6635**	**3.1208**	**0.1290**	**3.2498**		**19,007.5819**	**19,007.5819**	**0.7372**		**19,026.0124**

3.9 Construction 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9534	31.4873	9.6796	0.1058	2.8026	0.0372	2.8398	0.8068	0.0356	0.8424		11,222.1340	11,222.1340	0.4926		11,234.4493
Worker	3.1627	1.9869	20.5692	0.0720	8.7241	0.0525	8.7766	2.3140	0.0484	2.3624		7,177.8259	7,177.8259	0.1405		7,181.3373
Total	**4.1161**	**33.4742**	**30.2488**	**0.1778**	**11.5267**	**0.0898**	**11.6164**	**3.1208**	**0.0840**	**3.2048**		**18,399.9600**	**18,399.9600**	**0.6331**		**18,415.7867**

3.9 Construction 2 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9534	31.4873	9.6796	0.1058	2.8026	0.0372	2.8398	0.8068	0.0356	0.8424		11,222.1340	11,222.1340	0.4926		11,234.4493
Worker	3.1627	1.9869	20.5692	0.0720	8.7241	0.0525	8.7766	2.3140	0.0484	2.3624		7,177.8259	7,177.8259	0.1405		7,181.3373
Total	**4.1161**	**33.4742**	**30.2488**	**0.1778**	**11.5267**	**0.0898**	**11.6164**	**3.1208**	**0.0840**	**3.2048**		**18,399.9600**	**18,399.9600**	**0.6331**		**18,415.7867**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	34.2007					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**34.4196**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7221	0.4921	4.8720	0.0155	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,546.6177	1,546.6177	0.0350		1,547.4926
Total	**0.7221**	**0.4921**	**4.8720**	**0.0155**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,546.6177**	**1,546.6177**	**0.0350**		**1,547.4926**

3.10 Architectural Coating 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	34.2007					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**34.4196**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7221	0.4921	4.8720	0.0155	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,546.6177	1,546.6177	0.0350		1,547.4926
Total	**0.7221**	**0.4921**	**4.8720**	**0.0155**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,546.6177**	**1,546.6177**	**0.0350**		**1,547.4926**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	34.2007					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**34.4053**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6740	0.4412	4.4708	0.0149	1.7415	0.0107	1.7522	0.4619	9.8600e-003	0.4718		1,489.9191	1,489.9191	0.0313		1,490.7024
Total	**0.6740**	**0.4412**	**4.4708**	**0.0149**	**1.7415**	**0.0107**	**1.7522**	**0.4619**	**9.8600e-003**	**0.4718**		**1,489.9191**	**1,489.9191**	**0.0313**		**1,490.7024**

3.10 Architectural Coating 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	34.2007					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**34.4053**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6740	0.4412	4.4708	0.0149	1.7415	0.0107	1.7522	0.4619	9.8600e-003	0.4718		1,489.9191	1,489.9191	0.0313		1,490.7024
Total	**0.6740**	**0.4412**	**4.4708**	**0.0149**	**1.7415**	**0.0107**	**1.7522**	**0.4619**	**9.8600e-003**	**0.4718**		**1,489.9191**	**1,489.9191**	**0.0313**		**1,490.7024**

3.10 Architectural Coating 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	34.2007					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**34.3924**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6314	0.3966	4.1061	0.0144	1.7415	0.0105	1.7520	0.4619	9.6500e-003	0.4716		1,432.8617	1,432.8617	0.0280		1,433.5626
Total	**0.6314**	**0.3966**	**4.1061**	**0.0144**	**1.7415**	**0.0105**	**1.7520**	**0.4619**	**9.6500e-003**	**0.4716**		**1,432.8617**	**1,432.8617**	**0.0280**		**1,433.5626**

3.10 Architectural Coating 2 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	34.2007					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**34.3924**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6314	0.3966	4.1061	0.0144	1.7415	0.0105	1.7520	0.4619	9.6500e-003	0.4716		1,432.8617	1,432.8617	0.0280		1,433.5626
Total	**0.6314**	**0.3966**	**4.1061**	**0.0144**	**1.7415**	**0.0105**	**1.7520**	**0.4619**	**9.6500e-003**	**0.4716**		**1,432.8617**	**1,432.8617**	**0.0280**		**1,433.5626**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.1480	24.3588	63.2931	0.2353	22.9052	0.1933	23.0985	6.1272	0.1804	6.3076		23,846.1755	23,846.1755	0.8246		23,866.7910
Unmitigated	5.2946	25.2723	66.6925	0.2516	24.6028	0.2059	24.8087	6.5813	0.1922	6.7735		25,494.0042	25,494.0042	0.8690		25,515.7279

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	3,193.42	3,193.42	3193.42	8,372,604	7,794,894
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,099.50	1,099.50	1099.50	3,210,002	2,988,512
Total	4,292.92	4,292.92	4,292.92	11,582,607	10,783,407

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unrefrigerated Warehouse-No Rail	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.6332	5.7565	4.8354	0.0345		0.4375	0.4375		0.4375	0.4375		6,907.7467	6,907.7467	0.1324	0.1266	6,948.7959
NaturalGas Unmitigated	0.9031	8.2096	6.8961	0.0493		0.6239	0.6239		0.6239	0.6239		9,851.5476	9,851.5476	0.1888	0.1806	9,910.0904

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	82312.1	0.8877	8.0698	6.7787	0.0484		0.6133	0.6133		0.6133	0.6133		9,683.7797	9,683.7797	0.1856	0.1775	9,741.3256
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1426.03	0.0154	0.1398	0.1174	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.7679	167.7679	3.2200e-003	3.0800e-003	168.7649
Total		**0.9031**	**8.2096**	**6.8961**	**0.0493**		**0.6239**	**0.6239**		**0.6239**	**0.6239**		**9,851.5476**	**9,851.5476**	**0.1888**	**0.1806**	**9,910.0904**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	57.709	0.6224	5.6577	4.7525	0.0340		0.4300	0.4300		0.4300	0.4300		6,789.2938	6,789.2938	0.1301	0.1245	6,829.6392
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.00685	0.0109	0.0987	0.0829	5.9000e-004		7.5000e-003	7.5000e-003		7.5000e-003	7.5000e-003		118.4529	118.4529	2.2700e-003	2.1700e-003	119.1568
Total		**0.6332**	**5.7565**	**4.8354**	**0.0345**		**0.4375**	**0.4375**		**0.4375**	**0.4375**		**6,907.7467**	**6,907.7467**	**0.1324**	**0.1266**	**6,948.7960**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	48.4438	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Unmitigated	48.4438	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.7345					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	42.6779					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0315	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Total	**48.4438**	**3.1000e-003**	**0.3408**	**3.0000e-005**		**1.2100e-003**	**1.2100e-003**		**1.2100e-003**	**1.2100e-003**		**0.7317**	**0.7317**	**1.9100e-003**		**0.7795**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.7345					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	42.6779					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0315	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Total	**48.4438**	**3.1000e-003**	**0.3408**	**3.0000e-005**		**1.2100e-003**	**1.2100e-003**		**1.2100e-003**	**1.2100e-003**		**0.7317**	**0.7317**	**1.9100e-003**		**0.7795**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center

Bay Area AQMD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	2	No Change	0.00
Concrete/Industrial Saws	Diesel	No Change	0	1	No Change	0.00
Cranes	Diesel	No Change	0	2	No Change	0.00
Excavators	Diesel	No Change	0	7	No Change	0.00
Forklifts	Diesel	No Change	0	6	No Change	0.00
Generator Sets	Diesel	No Change	0	2	No Change	0.00
Graders	Diesel	No Change	0	2	No Change	0.00
Pavers	Diesel	No Change	0	4	No Change	0.00
Paving Equipment	Diesel	No Change	0	4	No Change	0.00
Rollers	Diesel	No Change	0	4	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	4	No Change	0.00
Scrapers	Diesel	No Change	0	4	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	10	No Change	0.00
Welders	Diesel	No Change	0	2	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr							Unmitigated mt/yr					
Air Compressors	8.07900E-002	5.57760E-001	6.94950E-001	1.14000E-003	3.32800E-002	3.32800E-002	0.00000E+000	9.76620E+001	9.76620E+001	6.52000E-003	0.00000E+000	9.78249E+001
Concrete/Industrial Saws	9.62000E-003	7.58700E-002	8.47900E-002	1.40000E-004	4.56000E-003	4.56000E-003	0.00000E+000	1.23661E+001	1.23661E+001	7.80000E-004	0.00000E+000	1.23857E+001
Cranes	1.31350E-001	1.50064E+000	6.49760E-001	1.93000E-003	6.18900E-002	5.69400E-002	0.00000E+000	1.69664E+002	1.69664E+002	5.48700E-002	0.00000E+000	1.71036E+002
Excavators	5.42900E-002	5.30840E-001	7.32140E-001	1.16000E-003	2.57200E-002	2.36600E-002	0.00000E+000	1.01631E+002	1.01631E+002	3.28700E-002	0.00000E+000	1.02453E+002
Forklifts	1.38240E-001	1.27124E+000	1.33110E+000	1.75000E-003	8.69100E-002	7.99500E-002	0.00000E+000	1.54099E+002	1.54099E+002	4.98400E-002	0.00000E+000	1.55345E+002
Generator Sets	1.31440E-001	1.16184E+000	1.40831E+000	2.52000E-003	5.99200E-002	5.99200E-002	0.00000E+000	2.16192E+002	2.16192E+002	1.06300E-002	0.00000E+000	2.16458E+002
Graders	3.64500E-002	4.82810E-001	1.39750E-001	5.10000E-004	1.54000E-002	1.41700E-002	0.00000E+000	4.51701E+001	4.51701E+001	1.46100E-002	0.00000E+000	4.55354E+001
Pavers	1.37200E-002	1.45090E-001	1.59690E-001	2.60000E-004	7.02000E-003	6.46000E-003	0.00000E+000	2.27074E+001	2.27074E+001	7.34000E-003	0.00000E+000	2.28910E+001
Paving Equipment	1.07300E-002	1.08930E-001	1.39700E-001	2.20000E-004	5.39000E-003	4.96000E-003	0.00000E+000	1.96822E+001	1.96822E+001	6.37000E-003	0.00000E+000	1.98413E+001
Rollers	1.06300E-002	1.07560E-001	1.03570E-001	1.40000E-004	6.64000E-003	6.10000E-003	0.00000E+000	1.26776E+001	1.26776E+001	4.10000E-003	0.00000E+000	1.27801E+001
Rubber Tired Dozers	1.32700E-001	1.39285E+000	5.08520E-001	1.05000E-003	6.81200E-002	6.26700E-002	0.00000E+000	9.26934E+001	9.26934E+001	2.99800E-002	0.00000E+000	9.34429E+001
Scrapers	1.51550E-001	1.78275E+000	1.13929E+000	2.35000E-003	6.94900E-002	6.39300E-002	0.00000E+000	2.06312E+002	2.06312E+002	6.67300E-002	0.00000E+000	2.07981E+002
Tractors/Loaders/Backhoes	2.07700E-001	2.10162E+000	2.61126E+000	3.60000E-003	1.20230E-001	1.10620E-001	0.00000E+000	3.16600E+002	3.16600E+002	1.02390E-001	0.00000E+000	3.19160E+002
Welders	1.10830E-001	5.67660E-001	6.54100E-001	9.80000E-004	2.62200E-002	2.62200E-002	0.00000E+000	7.19944E+001	7.19944E+001	8.99000E-003	0.00000E+000	7.22192E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated tons/yr							Mitigated mt/yr					
Air Compressors	8.07900E-002	5.57760E-001	6.94950E-001	1.14000E-003	3.32800E-002	3.32800E-002	0.00000E+000	9.76618E+001	9.76618E+001	6.52000E-003	0.00000E+000	9.78248E+001
Concrete/Industrial Saws	9.62000E-003	7.58700E-002	8.47900E-002	1.40000E-004	4.56000E-003	4.56000E-003	0.00000E+000	1.23661E+001	1.23661E+001	7.80000E-004	0.00000E+000	1.23857E+001
Cranes	1.31350E-001	1.50064E+000	6.49760E-001	1.93000E-003	6.18900E-002	5.69400E-002	0.00000E+000	1.69664E+002	1.69664E+002	5.48700E-002	0.00000E+000	1.71035E+002
Excavators	5.42900E-002	5.30840E-001	7.32140E-001	1.16000E-003	2.57200E-002	2.36600E-002	0.00000E+000	1.01631E+002	1.01631E+002	3.28700E-002	0.00000E+000	1.02453E+002
Forklifts	1.38240E-001	1.27124E+000	1.33110E+000	1.75000E-003	8.69100E-002	7.99500E-002	0.00000E+000	1.54099E+002	1.54099E+002	4.98400E-002	0.00000E+000	1.55345E+002
Generator Sets	1.31440E-001	1.16184E+000	1.40831E+000	2.52000E-003	5.99200E-002	5.99200E-002	0.00000E+000	2.16192E+002	2.16192E+002	1.06300E-002	0.00000E+000	2.16457E+002
Graders	3.64500E-002	4.82810E-001	1.39750E-001	5.10000E-004	1.54000E-002	1.41700E-002	0.00000E+000	4.51701E+001	4.51701E+001	1.46100E-002	0.00000E+000	4.55353E+001
Pavers	1.37200E-002	1.45090E-001	1.59690E-001	2.60000E-004	7.02000E-003	6.46000E-003	0.00000E+000	2.27074E+001	2.27074E+001	7.34000E-003	0.00000E+000	2.28910E+001
Paving Equipment	1.07300E-002	1.08930E-001	1.39700E-001	2.20000E-004	5.39000E-003	4.96000E-003	0.00000E+000	1.96821E+001	1.96821E+001	6.37000E-003	0.00000E+000	1.98413E+001
Rollers	1.06300E-002	1.07560E-001	1.03570E-001	1.40000E-004	6.64000E-003	6.10000E-003	0.00000E+000	1.26776E+001	1.26776E+001	4.10000E-003	0.00000E+000	1.27801E+001
Rubber Tired Dozers	1.32700E-001	1.39285E+000	5.08520E-001	1.05000E-003	6.81200E-002	6.26700E-002	0.00000E+000	9.26933E+001	9.26933E+001	2.99800E-002	0.00000E+000	9.34428E+001
Scrapers	1.51550E-001	1.78275E+000	1.13929E+000	2.35000E-003	6.94900E-002	6.39300E-002	0.00000E+000	2.06312E+002	2.06312E+002	6.67300E-002	0.00000E+000	2.07980E+002
Tractors/Loaders/Backhoes	2.07700E-001	2.10162E+000	2.61126E+000	3.60000E-003	1.20230E-001	1.10620E-001	0.00000E+000	3.16600E+002	3.16600E+002	1.02390E-001	0.00000E+000	3.19160E+002
Welders	1.10830E-001	5.67660E-001	6.54100E-001	9.80000E-004	2.62200E-002	2.62200E-002	0.00000E+000	7.19943E+001	7.19943E+001	8.99000E-003	0.00000E+000	7.22191E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.22873E-006	1.22873E-006	0.00000E+000	0.00000E+000	1.22668E-006
Concrete/Industrial Saws	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.61732E-006	1.61732E-006	0.00000E+000	0.00000E+000	1.61477E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17880E-006	1.17880E-006	0.00000E+000	0.00000E+000	1.22781E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.18074E-006	1.18074E-006	0.00000E+000	0.00000E+000	1.17127E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.16808E-006	1.16808E-006	0.00000E+000	0.00000E+000	1.22308E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.20264E-006	1.20264E-006	0.00000E+000	0.00000E+000	1.15496E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.10693E-006	1.10693E-006	0.00000E+000	0.00000E+000	1.09805E-006
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	8.80769E-007	8.80769E-007	0.00000E+000	0.00000E+000	8.73704E-007
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.01615E-006	1.01615E-006	0.00000E+000	0.00000E+000	1.00800E-006
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	7.88794E-007	7.88794E-007	0.00000E+000	0.00000E+000	1.56493E-006
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.18671E-006	1.18671E-006	0.00000E+000	0.00000E+000	1.17719E-006
Scrapers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.21175E-006	1.21175E-006	0.00000E+000	0.00000E+000	1.20204E-006
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.20025E-006	1.20025E-006	0.00000E+000	0.00000E+000	1.19062E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.25010E-006	1.25010E-006	0.00000E+000	0.00000E+000	1.24621E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction		PM2.5 Reduction			
No	Replace Ground Cover of Area Disturbed	PM10 Reduction		PM2.5 Reduction			
No	Water Exposed Area	PM10 Reduction		PM2.5 Reduction		Frequency (per day)	

No	Unpaved Road Mitigation	Moisture Content %		Vehicle Speed (mph)			
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.13	0.03	0.13	0.03	0.00	0.00
Architectural Coating 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating 2	Roads	0.51	0.14	0.51	0.14	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.85	0.23	0.85	0.23	0.00	0.00
Construction 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Construction 2	Roads	3.40	0.92	3.40	0.92	0.00	0.00
Demolition	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading	Fugitive Dust	0.11	0.05	0.11	0.05	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading 2	Fugitive Dust	0.51	0.22	0.51	0.22	0.00	0.00
Grading 2	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Percent Reduction											
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.10	10.10	10.10	10.11	10.10
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	2.72	3.53	5.28	6.45	6.13	6.14	0.00	6.44	6.44	5.21	0.00	6.44
Natural Gas	29.88	29.88	29.88	29.81	29.88	29.88	0.00	29.88	29.88	29.88	29.87	29.88
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Low Density Suburban

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.05	0.23		
No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
Yes	Land Use	Increase Transit Accessibility	0.08	0.50		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.05			

Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.02			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
No	Transit Improvements	Expand Transit Network	0.00	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.07			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"	3.00			
No	Commute	Workplace Parking Charge		0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program	5.00			
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.07			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	Use Low VOC Paint (Parking)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	30.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value

Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Mitigated Project Emissions Modeling

Oakley Logistics Center (Mitigated)

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	1,835.30	1000sqft	121.35	1,835,304.00	0
Unrefrigerated Warehouse-No Rail	150.00	1000sqft	3.44	150,000.00	0
Parking Lot	1,358.00	Space	17.01	543,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	245.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - questionnaire and site plan

Construction Phase - applicant provided

Demolition -

Grading - applicant provided

Architectural Coating - Mitigation

Vehicle Trips - TIA trip rate

Energy Use -

Construction Off-road Equipment Mitigation - Mitigation

Mobile Land Use Mitigation - applicant provided

Area Mitigation - Mitigation

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	200.00	46.00
tblConstructionPhase	NumDays	310.00	31.00

tblConstructionPhase	NumDays	220.00	11.00
tblConstructionPhase	NumDays	3,100.00	153.00
tblConstructionPhase	NumDays	220.00	153.00
tblConstructionPhase	NumDays	310.00	124.00
tblConstructionPhase	NumDays	220.00	44.00
tblConstructionPhase	NumDays	3,100.00	612.00
tblConstructionPhase	NumDays	220.00	612.00
tblGrading	AcresOfGrading	77.50	40.08
tblGrading	AcresOfGrading	310.00	126.34
tblLandUse	LandUseSquareFeet	1,835,300.00	1,835,304.00
tblLandUse	LotAcreage	42.13	121.35
tblLandUse	LotAcreage	12.22	17.01
tblProjectCharacteristics	CO2IntensityFactor	641.35	245.88
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	7.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	7.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	7.33

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.9055	8.4957	6.5317	0.0205	1.2904	0.2702	1.5606	0.4337	0.2515	0.6852	0.0000	1,870.999 1	1,870.999 1	0.2186	0.0000	1,876.463 9
2021	0.8713	7.6989	6.7431	0.0255	1.4749	0.1742	1.6490	0.4197	0.1633	0.5830	0.0000	2,353.235 1	2,353.235 1	0.1778	0.0000	2,357.679 0
2022	0.8815	7.8514	7.0960	0.0300	1.6616	0.1348	1.7964	0.4502	0.1274	0.5777	0.0000	2,782.303 5	2,782.303 5	0.1622	0.0000	2,786.357 2
2023	0.5277	4.2600	4.4405	0.0194	1.1076	0.0752	1.1828	0.3001	0.0711	0.3712	0.0000	1,795.879 9	1,795.879 9	0.0991	0.0000	1,798.357 6
Maximum	**0.9055**	**8.4957**	**7.0960**	**0.0300**	**1.6616**	**0.2702**	**1.7964**	**0.4502**	**0.2515**	**0.6852**	**0.0000**	**2,782.303 5**	**2,782.303 5**	**0.2186**	**0.0000**	**2,786.357 2**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.4862	3.7361	6.6829	0.0205	1.2904	0.0303	1.3206	0.4337	0.0293	0.4629	0.0000	1,870.9984	1,870.9984	0.2186	0.0000	1,876.4632
2021	0.6084	4.9679	6.9314	0.0255	1.4749	0.0234	1.4983	0.4197	0.0225	0.4422	0.0000	2,353.2346	2,353.2346	0.1778	0.0000	2,357.6785
2022	0.6796	5.9455	7.2411	0.0300	1.6616	0.0248	1.6864	0.4502	0.0237	0.4739	0.0000	2,782.3031	2,782.3031	0.1622	0.0000	2,786.3568
2023	0.4059	3.1082	4.5470	0.0194	1.1076	0.0125	1.1201	0.3001	0.0119	0.3120	0.0000	1,795.8797	1,795.8797	0.0991	0.0000	1,798.3574
Maximum	**0.6796**	**5.9455**	**7.2411**	**0.0300**	**1.6616**	**0.0303**	**1.6864**	**0.4502**	**0.0293**	**0.4739**	**0.0000**	**2,782.3031**	**2,782.3031**	**0.2186**	**0.0000**	**2,786.3568**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**31.57**	**37.26**	**-2.38**	**0.00**	**0.00**	**86.10**	**9.10**	**0.00**	**85.77**	**23.73**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-2-2020**	**6-1-2020**	1.9385	0.1485
2	**6-2-2020**	**9-1-2020**	2.4272	1.3653
3	**9-2-2020**	**12-1-2020**	4.3836	2.0729
4	**12-2-2020**	**3-1-2021**	3.3447	1.4267
5	**3-2-2021**	**6-1-2021**	1.2727	0.7849
6	**6-2-2021**	**9-1-2021**	2.3538	1.7506
7	**9-2-2021**	**12-1-2021**	2.3559	1.7592
8	**12-2-2021**	**3-1-2022**	2.2329	1.6888

9	**3-2-2022**	**6-1-2022**	2.2016	1.6688
10	**6-2-2022**	**9-1-2022**	2.1896	1.6568
11	**9-2-2022**	**12-1-2022**	2.1906	1.6636
12	**12-2-2022**	**3-1-2023**	1.9275	1.4381
13	**3-2-2023**	**6-1-2023**	1.8225	1.3385
14	**6-2-2023**	**9-1-2023**	1.7564	1.2867
15	**9-2-2023**	**9-30-2023**	0.0095	0.0042
		Highest	4.3836	2.0729

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.8381	2.8000e-004	0.0307	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.6000e-004	0.0000	0.0636
Energy	0.1648	1.4983	1.2585	8.9900e-003		0.1139	0.1139		0.1139	0.1139	0.0000	5,360.9184	5,360.9184	0.4712	0.1209	5,408.7318
Mobile	0.9732	4.5105	11.6626	0.0462	4.3099	0.0374	4.3472	1.1566	0.0349	1.1915	0.0000	4,247.4024	4,247.4024	0.1404	0.0000	4,250.9119
Waste						0.0000	0.0000		0.0000	0.0000	490.5825	0.0000	490.5825	28.9926	0.0000	1,215.3973
Water						0.0000	0.0000		0.0000	0.0000	145.6515	277.0603	422.7118	14.9925	0.3600	904.8020
Total	**9.9761**	**6.0091**	**12.9518**	**0.0552**	**4.3099**	**0.1513**	**4.4612**	**1.1566**	**0.1488**	**1.3054**	**636.2339**	**9,885.4408**	**10,521.6748**	**44.5968**	**0.4809**	**11,779.9066**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	7.7916	2.8000e-004	0.0307	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.6000e-004	0.0000	0.0636
Energy	0.1156	1.0506	0.8825	6.3000e-003		0.0798	0.0798		0.0798	0.0798	0.0000	4,496.7360	4,496.7360	0.4174	0.1028	4,537.8022
Mobile	0.9467	4.3511	11.0463	0.0432	4.0125	0.0351	4.0476	1.0768	0.0327	1.1095	0.0000	3,973.7260	3,973.7260	0.1331	0.0000	3,977.0525
Waste						0.0000	0.0000		0.0000	0.0000	490.5825	0.0000	490.5825	28.9926	0.0000	1,215.3973
Water						0.0000	0.0000		0.0000	0.0000	145.6515	277.0603	422.7118	14.9925	0.3600	904.8020
Total	**8.8539**	**5.4020**	**11.9594**	**0.0495**	**4.0125**	**0.1150**	**4.1275**	**1.0768**	**0.1127**	**1.1895**	**636.2339**	**8,747.5822**	**9,383.8161**	**44.5357**	**0.4628**	**10,635.1176**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**11.25**	**10.10**	**7.66**	**10.27**	**6.90**	**24.00**	**7.48**	**6.90**	**24.30**	**8.88**	**0.00**	**11.51**	**10.81**	**0.14**	**3.77**	**9.72**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Paving	Paving	6/17/2020	7/1/2020	5	11	
4	Building Construction	Building Construction	7/2/2020	2/1/2021	5	153	
5	Architectural Coating	Architectural Coating	7/16/2020	2/15/2021	5	153	
6	Grading 2	Grading	9/2/2020	2/22/2021	5	124	
7	Paving 2	Paving	2/23/2021	4/23/2021	5	44	
8	Construction 2	Building Construction	4/24/2021	8/29/2023	5	612	
9	Architectural Coating 2	Architectural Coating	5/8/2021	9/12/2023	5	612	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 40.08

Acres of Paving: 17.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,977,956; Non-Residential Outdoor: 992,652; Striped Parking Area: 32,592 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74
Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9200e-003	0.0000	4.9200e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0762	0.7636	0.5003	8.9000e-004		0.0382	0.0382		0.0355	0.0355	0.0000	78.1968	78.1968	0.0221	0.0000	78.7487
Total	**0.0762**	**0.7636**	**0.5003**	**8.9000e-004**	**4.9200e-003**	**0.0382**	**0.0431**	**7.5000e-004**	**0.0355**	**0.0362**	**0.0000**	**78.1968**	**78.1968**	**0.0221**	**0.0000**	**78.7487**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-004	6.5800e-003	1.3200e-003	2.0000e-005	3.8000e-004	2.0000e-005	4.0000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.7243	1.7243	9.0000e-005	0.0000	1.7266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	8.2000e-004	8.4700e-003	3.0000e-005	2.7300e-003	2.0000e-005	2.7400e-003	7.3000e-004	2.0000e-005	7.4000e-004	0.0000	2.3884	2.3884	6.0000e-005	0.0000	2.3898
Total	**1.3300e-003**	**7.4000e-003**	**9.7900e-003**	**5.0000e-005**	**3.1100e-003**	**4.0000e-005**	**3.1400e-003**	**8.3000e-004**	**4.0000e-005**	**8.6000e-004**	**0.0000**	**4.1127**	**4.1127**	**1.5000e-004**	**0.0000**	**4.1164**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9200e-003	0.0000	4.9200e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0106	0.0461	0.5354	8.9000e-004		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003	0.0000	78.1967	78.1967	0.0221	0.0000	78.7486
Total	**0.0106**	**0.0461**	**0.5354**	**8.9000e-004**	**4.9200e-003**	**1.4200e-003**	**6.3400e-003**	**7.5000e-004**	**1.4200e-003**	**2.1700e-003**	**0.0000**	**78.1967**	**78.1967**	**0.0221**	**0.0000**	**78.7486**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-004	6.5800e-003	1.3200e-003	2.0000e-005	3.8000e-004	2.0000e-005	4.0000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.7243	1.7243	9.0000e-005	0.0000	1.7266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	8.2000e-004	8.4700e-003	3.0000e-005	2.7300e-003	2.0000e-005	2.7400e-003	7.3000e-004	2.0000e-005	7.4000e-004	0.0000	2.3884	2.3884	6.0000e-005	0.0000	2.3898
Total	**1.3300e-003**	**7.4000e-003**	**9.7900e-003**	**5.0000e-005**	**3.1100e-003**	**4.0000e-005**	**3.1400e-003**	**8.3000e-004**	**4.0000e-005**	**8.6000e-004**	**0.0000**	**4.1127**	**4.1127**	**1.5000e-004**	**0.0000**	**4.1164**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1146	0.0000	0.1146	0.0536	0.0000	0.0536	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0690	0.7781	0.4954	9.6000e-004		0.0337	0.0337		0.0310	0.0310	0.0000	84.4507	84.4507	0.0273	0.0000	85.1335
Total	**0.0690**	**0.7781**	**0.4954**	**9.6000e-004**	**0.1146**	**0.0337**	**0.1483**	**0.0536**	**0.0310**	**0.0846**	**0.0000**	**84.4507**	**84.4507**	**0.0273**	**0.0000**	**85.1335**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	7.4000e-004	7.6100e-003	2.0000e-005	2.4500e-003	2.0000e-005	2.4700e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.1461	2.1461	5.0000e-005	0.0000	2.1474
Total	**1.0300e-003**	**7.4000e-004**	**7.6100e-003**	**2.0000e-005**	**2.4500e-003**	**2.0000e-005**	**2.4700e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.1461**	**2.1461**	**5.0000e-005**	**0.0000**	**2.1474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1146	0.0000	0.1146	0.0536	0.0000	0.0536	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0118	0.0512	0.5115	9.6000e-004		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	84.4506	84.4506	0.0273	0.0000	85.1334
Total	**0.0118**	**0.0512**	**0.5115**	**9.6000e-004**	**0.1146**	**1.5700e-003**	**0.1162**	**0.0536**	**1.5700e-003**	**0.0552**	**0.0000**	**84.4506**	**84.4506**	**0.0273**	**0.0000**	**85.1334**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	7.4000e-004	7.6100e-003	2.0000e-005	2.4500e-003	2.0000e-005	2.4700e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.1461	2.1461	5.0000e-005	0.0000	2.1474
Total	**1.0300e-003**	**7.4000e-004**	**7.6100e-003**	**2.0000e-005**	**2.4500e-003**	**2.0000e-005**	**2.4700e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.1461**	**2.1461**	**5.0000e-005**	**0.0000**	**2.1474**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.4600e-003	0.0774	0.0806	1.3000e-004		4.1400e-003	4.1400e-003		3.8100e-003	3.8100e-003	0.0000	11.0155	11.0155	3.5600e-003	0.0000	11.1046
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0297**	**0.0774**	**0.0806**	**1.3000e-004**		**4.1400e-003**	**4.1400e-003**		**3.8100e-003**	**3.8100e-003**	**0.0000**	**11.0155**	**11.0155**	**3.5600e-003**	**0.0000**	**11.1046**

3.4 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**2.7000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5711**	**0.5711**	**1.0000e-005**	**0.0000**	**0.5715**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5400e-003	6.6800e-003	0.0951	1.3000e-004		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	11.0155	11.0155	3.5600e-003	0.0000	11.1046
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0238**	**6.6800e-003**	**0.0951**	**1.3000e-004**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**	**0.0000**	**11.0155**	**11.0155**	**3.5600e-003**	**0.0000**	**11.1046**

3.4 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**2.7000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5711**	**0.5711**	**1.0000e-005**	**0.0000**	**0.5715**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1389	1.2567	1.1036	1.7600e-003		0.0732	0.0732		0.0688	0.0688	0.0000	151.7045	151.7045	0.0370	0.0000	152.6298
Total	**0.1389**	**1.2567**	**1.1036**	**1.7600e-003**		**0.0732**	**0.0732**		**0.0688**	**0.0688**	**0.0000**	**151.7045**	**151.7045**	**0.0370**	**0.0000**	**152.6298**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1049	3.1287	0.7866	7.3900e-003	0.1778	0.0153	0.1931	0.0514	0.0146	0.0660	0.0000	709.9757	709.9757	0.0366	0.0000	710.8912
Worker	0.2306	0.1650	1.7085	5.3300e-003	0.5497	3.7000e-003	0.5534	0.1462	3.4100e-003	0.1496	0.0000	481.5573	481.5573	0.0117	0.0000	481.8487
Total	**0.3355**	**3.2937**	**2.4951**	**0.0127**	**0.7275**	**0.0190**	**0.7464**	**0.1977**	**0.0180**	**0.2157**	**0.0000**	**1,191.5331**	**1,191.5331**	**0.0483**	**0.0000**	**1,192.7399**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0215	0.1464	1.1436	1.7600e-003		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	151.7044	151.7044	0.0370	0.0000	152.6296
Total	**0.0215**	**0.1464**	**1.1436**	**1.7600e-003**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**151.7044**	**151.7044**	**0.0370**	**0.0000**	**152.6296**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1049	3.1287	0.7866	7.3900e-003	0.1778	0.0153	0.1931	0.0514	0.0146	0.0660	0.0000	709.9757	709.9757	0.0366	0.0000	710.8912
Worker	0.2306	0.1650	1.7085	5.3300e-003	0.5497	3.7000e-003	0.5534	0.1462	3.4100e-003	0.1496	0.0000	481.5573	481.5573	0.0117	0.0000	481.8487
Total	**0.3355**	**3.2937**	**2.4951**	**0.0127**	**0.7275**	**0.0190**	**0.7464**	**0.1977**	**0.0180**	**0.2157**	**0.0000**	**1,191.5331**	**1,191.5331**	**0.0483**	**0.0000**	**1,192.7399**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0209	0.1918	0.1823	3.0000e-004		0.0105	0.0105		9.9100e-003	9.9100e-003	0.0000	25.4801	25.4801	6.1500e-003	0.0000	25.6338
Total	**0.0209**	**0.1918**	**0.1823**	**3.0000e-004**		**0.0105**	**0.0105**		**9.9100e-003**	**9.9100e-003**	**0.0000**	**25.4801**	**25.4801**	**6.1500e-003**	**0.0000**	**25.6338**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0145	0.4757	0.1187	1.2300e-003	0.0299	1.0300e-003	0.0309	8.6400e-003	9.9000e-004	9.6300e-003	0.0000	118.1052	118.1052	5.8100e-003	0.0000	118.2504
Worker	0.0359	0.0247	0.2620	8.6000e-004	0.0923	6.0000e-004	0.0929	0.0246	5.6000e-004	0.0251	0.0000	78.0346	78.0346	1.7500e-003	0.0000	78.0783
Total	**0.0503**	**0.5004**	**0.3807**	**2.0900e-003**	**0.1222**	**1.6300e-003**	**0.1238**	**0.0332**	**1.5500e-003**	**0.0347**	**0.0000**	**196.1398**	**196.1398**	**7.5600e-003**	**0.0000**	**196.3287**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.6100e-003	0.0246	0.1921	3.0000e-004		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	25.4801	25.4801	6.1500e-003	0.0000	25.6338
Total	**3.6100e-003**	**0.0246**	**0.1921**	**3.0000e-004**		**4.5000e-004**	**4.5000e-004**		**4.5000e-004**	**4.5000e-004**	**0.0000**	**25.4801**	**25.4801**	**6.1500e-003**	**0.0000**	**25.6338**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0145	0.4757	0.1187	1.2300e-003	0.0299	1.0300e-003	0.0309	8.6400e-003	9.9000e-004	9.6300e-003	0.0000	118.1052	118.1052	5.8100e-003	0.0000	118.2504
Worker	0.0359	0.0247	0.2620	8.6000e-004	0.0923	6.0000e-004	0.0929	0.0246	5.6000e-004	0.0251	0.0000	78.0346	78.0346	1.7500e-003	0.0000	78.0783
Total	**0.0503**	**0.5004**	**0.3807**	**2.0900e-003**	**0.1222**	**1.6300e-003**	**0.1238**	**0.0332**	**1.5500e-003**	**0.0347**	**0.0000**	**196.1398**	**196.1398**	**7.5600e-003**	**0.0000**	**196.3287**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.1019	0.1108	1.8000e-004		6.7100e-003	6.7100e-003		6.7100e-003	6.7100e-003	0.0000	15.4472	15.4472	1.2000e-003	0.0000	15.4771
Total	**0.0147**	**0.1019**	**0.1108**	**1.8000e-004**		**6.7100e-003**	**6.7100e-003**		**6.7100e-003**	**6.7100e-003**	**0.0000**	**15.4472**	**15.4472**	**1.2000e-003**	**0.0000**	**15.4771**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0425	0.0304	0.3150	9.8000e-004	0.1014	6.8000e-004	0.1020	0.0270	6.3000e-004	0.0276	0.0000	88.7919	88.7919	2.1500e-003	0.0000	88.8456
Total	**0.0425**	**0.0304**	**0.3150**	**9.8000e-004**	**0.1014**	**6.8000e-004**	**0.1020**	**0.0270**	**6.3000e-004**	**0.0276**	**0.0000**	**88.7919**	**88.7919**	**2.1500e-003**	**0.0000**	**88.8456**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-003	7.7900e-003	0.1109	1.8000e-004		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	15.4472	15.4472	1.2000e-003	0.0000	15.4771
Total	**1.8000e-003**	**7.7900e-003**	**0.1109**	**1.8000e-004**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**15.4472**	**15.4472**	**1.2000e-003**	**0.0000**	**15.4771**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0425	0.0304	0.3150	9.8000e-004	0.1014	6.8000e-004	0.1020	0.0270	6.3000e-004	0.0276	0.0000	88.7919	88.7919	2.1500e-003	0.0000	88.8456
Total	**0.0425**	**0.0304**	**0.3150**	**9.8000e-004**	**0.1014**	**6.8000e-004**	**0.1020**	**0.0270**	**6.3000e-004**	**0.0276**	**0.0000**	**88.7919**	**88.7919**	**2.1500e-003**	**0.0000**	**88.8456**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5000e-003	0.0244	0.0291	5.0000e-005		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	4.0852	4.0852	2.8000e-004	0.0000	4.0922
Total	**3.5000e-003**	**0.0244**	**0.0291**	**5.0000e-005**		**1.5100e-003**	**1.5100e-003**		**1.5100e-003**	**1.5100e-003**	**0.0000**	**4.0852**	**4.0852**	**2.8000e-004**	**0.0000**	**4.0922**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0104	7.1800e-003	0.0761	2.5000e-004	0.0268	1.8000e-004	0.0270	7.1300e-003	1.6000e-004	7.2900e-003	0.0000	22.6582	22.6582	5.1000e-004	0.0000	22.6709
Total	**0.0104**	**7.1800e-003**	**0.0761**	**2.5000e-004**	**0.0268**	**1.8000e-004**	**0.0270**	**7.1300e-003**	**1.6000e-004**	**7.2900e-003**	**0.0000**	**22.6582**	**22.6582**	**5.1000e-004**	**0.0000**	**22.6709**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	2.0600e-003	0.0293	5.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	4.0852	4.0852	2.8000e-004	0.0000	4.0922
Total	**4.8000e-004**	**2.0600e-003**	**0.0293**	**5.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**4.0852**	**4.0852**	**2.8000e-004**	**0.0000**	**4.0922**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0104	7.1800e-003	0.0761	2.5000e-004	0.0268	1.8000e-004	0.0270	7.1300e-003	1.6000e-004	7.2900e-003	0.0000	22.6582	22.6582	5.1000e-004	0.0000	22.6709
Total	**0.0104**	**7.1800e-003**	**0.0761**	**2.5000e-004**	**0.0268**	**1.8000e-004**	**0.0270**	**7.1300e-003**	**1.6000e-004**	**7.2900e-003**	**0.0000**	**22.6582**	**22.6582**	**5.1000e-004**	**0.0000**	**22.6709**

3.7 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3290	0.0000	0.3290	0.1512	0.0000	0.1512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1936	2.1836	1.3902	2.7000e-003		0.0946	0.0946		0.0870	0.0870	0.0000	237.0067	237.0067	0.0767	0.0000	238.9230
Total	**0.1936**	**2.1836**	**1.3902**	**2.7000e-003**	**0.3290**	**0.0946**	**0.4235**	**0.1512**	**0.0870**	**0.2382**	**0.0000**	**237.0067**	**237.0067**	**0.0767**	**0.0000**	**238.9230**

3.7 Grading 2 - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8800e-003	2.0600e-003	0.0214	7.0000e-005	6.8700e-003	5.0000e-005	6.9200e-003	1.8300e-003	4.0000e-005	1.8700e-003	0.0000	6.0228	6.0228	1.5000e-004	0.0000	6.0265
Total	**2.8800e-003**	**2.0600e-003**	**0.0214**	**7.0000e-005**	**6.8700e-003**	**5.0000e-005**	**6.9200e-003**	**1.8300e-003**	**4.0000e-005**	**1.8700e-003**	**0.0000**	**6.0228**	**6.0228**	**1.5000e-004**	**0.0000**	**6.0265**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3290	0.0000	0.3290	0.1512	0.0000	0.1512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0331	0.1436	1.4355	2.7000e-003		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	237.0064	237.0064	0.0767	0.0000	238.9227
Total	**0.0331**	**0.1436**	**1.4355**	**2.7000e-003**	**0.3290**	**4.4200e-003**	**0.3334**	**0.1512**	**4.4200e-003**	**0.1557**	**0.0000**	**237.0064**	**237.0064**	**0.0767**	**0.0000**	**238.9227**

3.7 Grading 2 - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8800e-003	2.0600e-003	0.0214	7.0000e-005	6.8700e-003	5.0000e-005	6.9200e-003	1.8300e-003	4.0000e-005	1.8700e-003	0.0000	6.0228	6.0228	1.5000e-004	0.0000	6.0265
Total	**2.8800e-003**	**2.0600e-003**	**0.0214**	**7.0000e-005**	**6.8700e-003**	**5.0000e-005**	**6.9200e-003**	**1.8300e-003**	**4.0000e-005**	**1.8700e-003**	**0.0000**	**6.0228**	**6.0228**	**1.5000e-004**	**0.0000**	**6.0265**

3.7 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1784	0.0000	0.1784	0.0685	0.0000	0.0685	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0775	0.8584	0.5713	1.1500e-003		0.0367	0.0367		0.0338	0.0338	0.0000	100.8157	100.8157	0.0326	0.0000	101.6309
Total	**0.0775**	**0.8584**	**0.5713**	**1.1500e-003**	**0.1784**	**0.0367**	**0.2151**	**0.0685**	**0.0338**	**0.1023**	**0.0000**	**100.8157**	**100.8157**	**0.0326**	**0.0000**	**101.6309**

3.7 Grading 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	7.8000e-004	8.3000e-003	3.0000e-005	2.9200e-003	2.0000e-005	2.9400e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.4716	2.4716	6.0000e-005	0.0000	2.4730
Total	**1.1400e-003**	**7.8000e-004**	**8.3000e-003**	**3.0000e-005**	**2.9200e-003**	**2.0000e-005**	**2.9400e-003**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.4716**	**2.4716**	**6.0000e-005**	**0.0000**	**2.4730**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1784	0.0000	0.1784	0.0685	0.0000	0.0685	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0141	0.0611	0.6105	1.1500e-003		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	100.8156	100.8156	0.0326	0.0000	101.6307
Total	**0.0141**	**0.0611**	**0.6105**	**1.1500e-003**	**0.1784**	**1.8800e-003**	**0.1803**	**0.0685**	**1.8800e-003**	**0.0704**	**0.0000**	**100.8156**	**100.8156**	**0.0326**	**0.0000**	**101.6307**

3.7 Grading 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	7.8000e-004	8.3000e-003	3.0000e-005	2.9200e-003	2.0000e-005	2.9400e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.4716	2.4716	6.0000e-005	0.0000	2.4730
Total	**1.1400e-003**	**7.8000e-004**	**8.3000e-003**	**3.0000e-005**	**2.9200e-003**	**2.0000e-005**	**2.9400e-003**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.4716**	**2.4716**	**6.0000e-005**	**0.0000**	**2.4730**

3.8 Paving 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0276	0.2842	0.3224	5.0000e-004		0.0149	0.0149		0.0137	0.0137	0.0000	44.0517	44.0517	0.0143	0.0000	44.4078
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0499**	**0.2842**	**0.3224**	**5.0000e-004**		**0.0149**	**0.0149**		**0.0137**	**0.0137**	**0.0000**	**44.0517**	**44.0517**	**0.0143**	**0.0000**	**44.4078**

3.8 Paving 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	7.0000e-004	7.4000e-003	2.0000e-005	2.6100e-003	2.0000e-005	2.6200e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.2044	2.2044	5.0000e-005	0.0000	2.2056
Total	**1.0100e-003**	**7.0000e-004**	**7.4000e-003**	**2.0000e-005**	**2.6100e-003**	**2.0000e-005**	**2.6200e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.2044**	**2.2044**	**5.0000e-005**	**0.0000**	**2.2056**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.1700e-003	0.0267	0.3805	5.0000e-004		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	44.0516	44.0516	0.0143	0.0000	44.4078
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0285**	**0.0267**	**0.3805**	**5.0000e-004**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**44.0516**	**44.0516**	**0.0143**	**0.0000**	**44.4078**

3.8 Paving 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	7.0000e-004	7.4000e-003	2.0000e-005	2.6100e-003	2.0000e-005	2.6200e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.2044	2.2044	5.0000e-005	0.0000	2.2056
Total	**1.0100e-003**	**7.0000e-004**	**7.4000e-003**	**2.0000e-005**	**2.6100e-003**	**2.0000e-005**	**2.6200e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.2044**	**2.2044**	**5.0000e-005**	**0.0000**	**2.2056**

3.9 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1711	1.5689	1.4918	2.4200e-003		0.0863	0.0863		0.0811	0.0811	0.0000	208.4736	208.4736	0.0503	0.0000	209.7309
Total	**0.1711**	**1.5689**	**1.4918**	**2.4200e-003**		**0.0863**	**0.0863**		**0.0811**	**0.0811**	**0.0000**	**208.4736**	**208.4736**	**0.0503**	**0.0000**	**209.7309**

3.9 Construction 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1183	3.8918	0.9714	0.0101	0.2443	8.4600e-003	0.2528	0.0707	8.0900e-003	0.0788	0.0000	966.3156	966.3156	0.0475	0.0000	967.5032
Worker	0.2933	0.2024	2.1437	7.0600e-003	0.7553	4.9400e-003	0.7602	0.2009	4.5500e-003	0.2055	0.0000	638.4649	638.4649	0.0143	0.0000	638.8228
Total	**0.4116**	**4.0942**	**3.1151**	**0.0171**	**0.9996**	**0.0134**	**1.0130**	**0.2716**	**0.0126**	**0.2842**	**0.0000**	**1,604.7804**	**1,604.7804**	**0.0618**	**0.0000**	**1,606.3260**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0295	0.2011	1.5714	2.4200e-003		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003	0.0000	208.4733	208.4733	0.0503	0.0000	209.7307
Total	**0.0295**	**0.2011**	**1.5714**	**2.4200e-003**		**3.6700e-003**	**3.6700e-003**		**3.6700e-003**	**3.6700e-003**	**0.0000**	**208.4733**	**208.4733**	**0.0503**	**0.0000**	**209.7307**

3.9 Construction 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1183	3.8918	0.9714	0.0101	0.2443	8.4600e-003	0.2528	0.0707	8.0900e-003	0.0788	0.0000	966.3156	966.3156	0.0475	0.0000	967.5032
Worker	0.2933	0.2024	2.1437	7.0600e-003	0.7553	4.9400e-003	0.7602	0.2009	4.5500e-003	0.2055	0.0000	638.4649	638.4649	0.0143	0.0000	638.8228
Total	**0.4116**	**4.0942**	**3.1151**	**0.0171**	**0.9996**	**0.0134**	**1.0130**	**0.2716**	**0.0126**	**0.2842**	**0.0000**	**1,604.7804**	**1,604.7804**	**0.0618**	**0.0000**	**1,606.3260**

3.9 Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

3.9 Construction 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1594	5.3239	1.3193	0.0144	0.3529	0.0106	0.3636	0.1021	0.0101	0.1122	0.0000	1,382.1028	1,382.1028	0.0656	0.0000	1,383.7422
Worker	0.3949	0.2621	2.8457	9.8200e-003	1.0909	6.9700e-003	1.0979	0.2902	6.4200e-003	0.2966	0.0000	888.4168	888.4168	0.0185	0.0000	888.8804
Total	**0.5543**	**5.5860**	**4.1650**	**0.0242**	**1.4439**	**0.0176**	**1.4614**	**0.3923**	**0.0166**	**0.4089**	**0.0000**	**2,270.5196**	**2,270.5196**	**0.0841**	**0.0000**	**2,272.6226**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2905	2.2698	3.5000e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.0426**	**0.2905**	**2.2698**	**3.5000e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

3.9 Construction 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1594	5.3239	1.3193	0.0144	0.3529	0.0106	0.3636	0.1021	0.0101	0.1122	0.0000	1,382.1028	1,382.1028	0.0656	0.0000	1,383.7422
Worker	0.3949	0.2621	2.8457	9.8200e-003	1.0909	6.9700e-003	1.0979	0.2902	6.4200e-003	0.2966	0.0000	888.4168	888.4168	0.0185	0.0000	888.8804
Total	**0.5543**	**5.5860**	**4.1650**	**0.0242**	**1.4439**	**0.0176**	**1.4614**	**0.3923**	**0.0166**	**0.4089**	**0.0000**	**2,270.5196**	**2,270.5196**	**0.0841**	**0.0000**	**2,272.6226**

3.9 Construction 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1353	1.2371	1.3970	2.3200e-003		0.0602	0.0602		0.0566	0.0566	0.0000	199.3521	199.3521	0.0474	0.0000	200.5377
Total	**0.1353**	**1.2371**	**1.3970**	**2.3200e-003**		**0.0602**	**0.0602**		**0.0566**	**0.0566**	**0.0000**	**199.3521**	**199.3521**	**0.0474**	**0.0000**	**200.5377**

3.9 Construction 2 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0791	2.7155	0.7813	9.2300e-003	0.2335	3.1200e-003	0.2366	0.0675	2.9900e-003	0.0705	0.0000	888.6899	888.6899	0.0370	0.0000	889.6143
Worker	0.2443	0.1559	1.7316	6.2500e-003	0.7217	4.5200e-003	0.7262	0.1920	4.1600e-003	0.1962	0.0000	565.2137	565.2137	0.0110	0.0000	565.4886
Total	**0.3234**	**2.8714**	**2.5129**	**0.0155**	**0.9552**	**7.6400e-003**	**0.9628**	**0.2595**	**7.1500e-003**	**0.2667**	**0.0000**	**1,453.9035**	**1,453.9035**	**0.0480**	**0.0000**	**1,455.1028**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0282	0.1922	1.5016	2.3200e-003		3.5100e-003	3.5100e-003		3.5100e-003	3.5100e-003	0.0000	199.3518	199.3518	0.0474	0.0000	200.5374
Total	**0.0282**	**0.1922**	**1.5016**	**2.3200e-003**		**3.5100e-003**	**3.5100e-003**		**3.5100e-003**	**3.5100e-003**	**0.0000**	**199.3518**	**199.3518**	**0.0474**	**0.0000**	**200.5374**

3.9 Construction 2 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0791	2.7155	0.7813	9.2300e-003	0.2335	3.1200e-003	0.2366	0.0675	2.9900e-003	0.0705	0.0000	888.6899	888.6899	0.0370	0.0000	889.6143
Worker	0.2443	0.1559	1.7316	6.2500e-003	0.7217	4.5200e-003	0.7262	0.1920	4.1600e-003	0.1962	0.0000	565.2137	565.2137	0.0110	0.0000	565.4886
Total	**0.3234**	**2.8714**	**2.5129**	**0.0155**	**0.9552**	**7.6400e-003**	**0.9628**	**0.2595**	**7.1500e-003**	**0.2667**	**0.0000**	**1,453.9035**	**1,453.9035**	**0.0480**	**0.0000**	**1,455.1028**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1298	0.1545	2.5000e-004		8.0000e-003	8.0000e-003		8.0000e-003	8.0000e-003	0.0000	21.7027	21.7027	1.4900e-003	0.0000	21.7399
Total	**0.0186**	**0.1298**	**0.1545**	**2.5000e-004**		**8.0000e-003**	**8.0000e-003**		**8.0000e-003**	**8.0000e-003**	**0.0000**	**21.7027**	**21.7027**	**1.4900e-003**	**0.0000**	**21.7399**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0553	0.0382	0.4042	1.3300e-003	0.1424	9.3000e-004	0.1433	0.0379	8.6000e-004	0.0387	0.0000	120.3718	120.3718	2.7000e-003	0.0000	120.4393
Total	**0.0553**	**0.0382**	**0.4042**	**1.3300e-003**	**0.1424**	**9.3000e-004**	**0.1433**	**0.0379**	**8.6000e-004**	**0.0387**	**0.0000**	**120.3718**	**120.3718**	**2.7000e-003**	**0.0000**	**120.4393**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5300e-003	0.0109	0.1558	2.5000e-004		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	21.7026	21.7026	1.4900e-003	0.0000	21.7399
Total	**2.5300e-003**	**0.0109**	**0.1558**	**2.5000e-004**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**	**0.0000**	**21.7026**	**21.7026**	**1.4900e-003**	**0.0000**	**21.7399**

3.10 Architectural Coating 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0553	0.0382	0.4042	1.3300e-003	0.1424	9.3000e-004	0.1433	0.0379	8.6000e-004	0.0387	0.0000	120.3718	120.3718	2.7000e-003	0.0000	120.4393
Total	**0.0553**	**0.0382**	**0.4042**	**1.3300e-003**	**0.1424**	**9.3000e-004**	**0.1433**	**0.0379**	**8.6000e-004**	**0.0387**	**0.0000**	**120.3718**	**120.3718**	**2.7000e-003**	**0.0000**	**120.4393**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0266	0.1831	0.2358	3.9000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	33.1923	33.1923	2.1600e-003	0.0000	33.2463
Total	**0.0266**	**0.1831**	**0.2358**	**3.9000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**	**0.0000**	**33.1923**	**33.1923**	**2.1600e-003**	**0.0000**	**33.2463**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0788	0.0523	0.5681	1.9600e-003	0.2178	1.3900e-003	0.2192	0.0579	1.2800e-003	0.0592	0.0000	177.3488	177.3488	3.7000e-003	0.0000	177.4413
Total	**0.0788**	**0.0523**	**0.5681**	**1.9600e-003**	**0.2178**	**1.3900e-003**	**0.2192**	**0.0579**	**1.2800e-003**	**0.0592**	**0.0000**	**177.3488**	**177.3488**	**3.7000e-003**	**0.0000**	**177.4413**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8600e-003	0.0167	0.2382	3.9000e-004		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	33.1923	33.1923	2.1600e-003	0.0000	33.2463
Total	**3.8600e-003**	**0.0167**	**0.2382**	**3.9000e-004**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**33.1923**	**33.1923**	**2.1600e-003**	**0.0000**	**33.2463**

3.10 Architectural Coating 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0788	0.0523	0.5681	1.9600e-003	0.2178	1.3900e-003	0.2192	0.0579	1.2800e-003	0.0592	0.0000	177.3488	177.3488	3.7000e-003	0.0000	177.4413
Total	**0.0788**	**0.0523**	**0.5681**	**1.9600e-003**	**0.2178**	**1.3900e-003**	**0.2192**	**0.0579**	**1.2800e-003**	**0.0592**	**0.0000**	**177.3488**	**177.3488**	**3.7000e-003**	**0.0000**	**177.4413**

3.10 Architectural Coating 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0174	0.1186	0.1648	2.7000e-004		6.4400e-003	6.4400e-003		6.4400e-003	6.4400e-003	0.0000	23.2346	23.2346	1.3900e-003	0.0000	23.2694
Total	**0.0174**	**0.1186**	**0.1648**	**2.7000e-004**		**6.4400e-003**	**6.4400e-003**		**6.4400e-003**	**6.4400e-003**	**0.0000**	**23.2346**	**23.2346**	**1.3900e-003**	**0.0000**	**23.2694**

3.10 Architectural Coating 2 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0516	0.0329	0.3658	1.3200e-003	0.1524	9.5000e-004	0.1534	0.0406	8.8000e-004	0.0414	0.0000	119.3897	119.3897	2.3200e-003	0.0000	119.4478
Total	**0.0516**	**0.0329**	**0.3658**	**1.3200e-003**	**0.1524**	**9.5000e-004**	**0.1534**	**0.0406**	**8.8000e-004**	**0.0414**	**0.0000**	**119.3897**	**119.3897**	**2.3200e-003**	**0.0000**	**119.4478**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-003	0.0117	0.1668	2.7000e-004		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	23.2346	23.2346	1.3900e-003	0.0000	23.2693
Total	**2.7000e-003**	**0.0117**	**0.1668**	**2.7000e-004**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**	**0.0000**	**23.2346**	**23.2346**	**1.3900e-003**	**0.0000**	**23.2693**

3.10 Architectural Coating 2 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0516	0.0329	0.3658	1.3200e-003	0.1524	9.5000e-004	0.1534	0.0406	8.8000e-004	0.0414	0.0000	119.3897	119.3897	2.3200e-003	0.0000	119.4478
Total	**0.0516**	**0.0329**	**0.3658**	**1.3200e-003**	**0.1524**	**9.5000e-004**	**0.1534**	**0.0406**	**8.8000e-004**	**0.0414**	**0.0000**	**119.3897**	**119.3897**	**2.3200e-003**	**0.0000**	**119.4478**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9467	4.3511	11.0463	0.0432	4.0125	0.0351	4.0476	1.0768	0.0327	1.1095	0.0000	3,973.7260	3,973.7260	0.1331	0.0000	3,977.0525
Unmitigated	0.9732	4.5105	11.6626	0.0462	4.3099	0.0374	4.3472	1.1566	0.0349	1.1915	0.0000	4,247.4024	4,247.4024	0.1404	0.0000	4,250.9119

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	3,193.42	3,193.42	3193.42	8,372,604	7,794,894
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,099.50	1,099.50	1099.50	3,210,002	2,988,512
Total	4,292.92	4,292.92	4,292.92	11,582,607	10,783,407

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unrefrigerated Warehouse-No Rail	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,353.0811	3,353.0811	0.3955	0.0818	3,387.3511
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,729.8842	3,729.8842	0.4399	0.0910	3,768.0052
NaturalGas Mitigated	0.1156	1.0506	0.8825	6.3000e-003		0.0798	0.0798		0.0798	0.0798	0.0000	1,143.6549	1,143.6549	0.0219	0.0210	1,150.4511
NaturalGas Unmitigated	0.1648	1.4983	1.2585	8.9900e-003		0.1139	0.1139		0.1139	0.1139	0.0000	1,631.0342	1,631.0342	0.0313	0.0299	1,640.7266

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	3.00439e+007	0.1620	1.4727	1.2371	8.8400e-003		0.1119	0.1119		0.1119	0.1119	0.0000	1,603.2583	1,603.2583	0.0307	0.0294	1,612.7857
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	520500	2.8100e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	27.7759	27.7759	5.3000e-004	5.1000e-004	27.9409
Total		**0.1648**	**1.4983**	**1.2585**	**8.9900e-003**		**0.1139**	**0.1139**		**0.1139**	**0.1139**	**0.0000**	**1,631.0342**	**1,631.0342**	**0.0313**	**0.0299**	**1,640.7266**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	2.10638e+007	0.1136	1.0325	0.8673	6.2000e-003		0.0785	0.0785		0.0785	0.0785	0.0000	1,124.0437	1,124.0437	0.0215	0.0206	1,130.7234
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	367500	1.9800e-003	0.0180	0.0151	1.1000e-004		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	19.6112	19.6112	3.8000e-004	3.6000e-004	19.7277
Total		**0.1156**	**1.0506**	**0.8825**	**6.3100e-003**		**0.0798**	**0.0798**		**0.0798**	**0.0798**	**0.0000**	**1,143.6549**	**1,143.6549**	**0.0219**	**0.0210**	**1,150.4511**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	3.27235e+007	3,649.6255	0.4305	0.0891	3,686.9262
Parking Lot	190120	21.2040	2.5000e-003	5.2000e-004	21.4207
Unrefrigerated Warehouse-No Rail	529500	59.0548	6.9700e-003	1.4400e-003	59.6583
Total		**3,729.8842**	**0.4399**	**0.0910**	**3,768.0052**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	2.93594e+007	3,274.4284	0.3862	0.0799	3,307.8945
Parking Lot	190120	21.2040	2.5000e-003	5.2000e-004	21.4207
Unrefrigerated Warehouse-No Rail	515100	57.4487	6.7800e-003	1.4000e-003	58.0359
Total		**3,353.0811**	**0.3955**	**0.0818**	**3,387.3510**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	7.7916	2.8000e-004	0.0307	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.6000e-004	0.0000	0.0636
Unmitigated	8.8381	2.8000e-004	0.0307	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.6000e-004	0.0000	0.0636

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.0465					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.7887					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8300e-003	2.8000e-004	0.0307	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.6000e-004	0.0000	0.0636
Total	**8.8381**	**2.8000e-004**	**0.0307**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0597**	**0.0597**	**1.6000e-004**	**0.0000**	**0.0636**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.7887					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8300e-003	2.8000e-004	0.0307	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.6000e-004	0.0000	0.0636
Total	**7.7916**	**2.8000e-004**	**0.0307**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0597**	**0.0597**	**1.6000e-004**	**0.0000**	**0.0636**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	422.7118	14.9925	0.3600	904.8020
Unmitigated	422.7118	14.9925	0.3600	904.8020

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	424.413 / 0	390.7737	13.8597	0.3328	836.4394
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	34.6875 / 0	31.9381	1.1328	0.0272	68.3626
Total		**422.7118**	**14.9925**	**0.3600**	**904.8020**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	424.413 / 0	390.7737	13.8597	0.3328	836.4394
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	34.6875 / 0	31.9381	1.1328	0.0272	68.3626
Total		**422.7118**	**14.9925**	**0.3600**	**904.8020**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	490.5825	28.9926	0.0000	1,215.3973
Unmitigated	490.5825	28.9926	0.0000	1,215.3973

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	2275.77	461.9607	27.3011	0.0000	1,144.4882
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	141	28.6217	1.6915	0.0000	70.9091
Total		**490.5825**	**28.9926**	**0.0000**	**1,215.3973**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	2275.77	461.9607	27.3011	0.0000	1,144.488 2
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	141	28.6217	1.6915	0.0000	70.9091
Total		**490.5825**	**28.9926**	**0.0000**	**1,215.397 3**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Mitigated)

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	1,835.30	1000sqft	121.35	1,835,304.00	0
Unrefrigerated Warehouse-No Rail	150.00	1000sqft	3.44	150,000.00	0
Parking Lot	1,358.00	Space	17.01	543,200.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 64

Climate Zone 4 **Operational Year** 2024

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 245.88 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - questionnaire and site plan

Construction Phase - applicant provided

Demolition -

Grading - applicant provided

Architectural Coating - Mitigation

Vehicle Trips - TIA trip rate

Energy Use -

Construction Off-road Equipment Mitigation - Mitigation

Mobile Land Use Mitigation - applicant provided

Area Mitigation - Mitigation

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	200.00	46.00
tblConstructionPhase	NumDays	310.00	31.00

tblConstructionPhase	NumDays	220.00	11.00
tblConstructionPhase	NumDays	3,100.00	153.00
tblConstructionPhase	NumDays	220.00	153.00
tblConstructionPhase	NumDays	310.00	124.00
tblConstructionPhase	NumDays	220.00	44.00
tblConstructionPhase	NumDays	3,100.00	612.00
tblConstructionPhase	NumDays	220.00	612.00
tblGrading	AcresOfGrading	77.50	40.08
tblGrading	AcresOfGrading	310.00	126.34
tblLandUse	LandUseSquareFeet	1,835,300.00	1,835,304.00
tblLandUse	LotAcreage	42.13	121.35
tblLandUse	LotAcreage	12.22	17.01
tblProjectCharacteristics	CO2IntensityFactor	641.35	245.88
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	7.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	7.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	7.33

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	12.8793	120.9708	96.6111	0.3125	20.5348	3.7020	24.2368	7.0531	3.4459	10.4990	0.0000	31,537.9383	31,537.9383	3.4377	0.0000	31,623.8811
2021	11.7556	110.5736	91.1446	0.3076	20.5349	3.1976	23.7326	7.0532	2.9721	10.0253	0.0000	31,052.6952	31,052.6952	3.3687	0.0000	31,136.9122
2022	6.9210	59.7186	56.5002	0.2391	13.2681	1.0354	14.3035	3.5827	0.9789	4.5617	0.0000	24,401.4510	24,401.4510	1.3697	0.0000	24,435.6921
2023	6.2212	48.9536	53.1910	0.2321	13.2682	0.8692	14.1374	3.5827	0.8213	4.4041	0.0000	23,696.4727	23,696.4727	1.2654	0.0000	23,728.1070
Maximum	**12.8793**	**120.9708**	**96.6111**	**0.3125**	**20.5349**	**3.7020**	**24.2368**	**7.0532**	**3.4459**	**10.4990**	**0.0000**	**31,537.9383**	**31,537.9383**	**3.4377**	**0.0000**	**31,623.8811**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	7.1862	55.5669	98.2647	0.3125	20.5348	0.4464	20.9812	7.0531	0.4309	7.4841	0.0000	31,537.9383	31,537.9383	3.4377	0.0000	31,623.8811
2021	6.5637	50.8783	94.1652	0.3076	20.5349	0.3059	20.8408	7.0532	0.2965	7.3497	0.0000	31,052.6952	31,052.6952	3.3687	0.0000	31,136.9122
2022	5.3678	45.0580	57.6159	0.2391	13.2681	0.1894	13.4575	3.5827	0.1808	3.7635	0.0000	24,401.4510	24,401.4510	1.3697	0.0000	24,435.6921
2023	4.8143	35.6292	54.4286	0.2321	13.2682	0.1434	13.4116	3.5827	0.1368	3.7196	0.0000	23,696.4727	23,696.4727	1.2654	0.0000	23,728.1070
Maximum	**7.1862**	**55.5669**	**98.2647**	**0.3125**	**20.5349**	**0.4464**	**20.9812**	**7.0532**	**0.4309**	**7.4841**	**0.0000**	**31,537.9383**	**31,537.9383**	**3.4377**	**0.0000**	**31,623.8811**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**36.65**	**45.00**	**-2.36**	**0.00**	**0.00**	**87.68**	**10.10**	**0.00**	**87.28**	**24.32**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	48.4438	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Energy	0.9031	8.2096	6.8961	0.0493		0.6239	0.6239		0.6239	0.6239		9,851.5476	9,851.5476	0.1888	0.1806	9,910.0904
Mobile	6.1177	24.0098	67.4042	0.2686	24.6028	0.2051	24.8079	6.5813	0.1914	6.7727		27,200.1615	27,200.1615	0.8580		27,221.6122
Total	**55.4646**	**32.2225**	**74.6411**	**0.3179**	**24.6028**	**0.8303**	**25.4330**	**6.5813**	**0.8165**	**7.3978**		**37,052.4408**	**37,052.4408**	**1.0488**	**0.1806**	**37,132.4821**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	42.7094	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Energy	0.6332	5.7565	4.8354	0.0345		0.4375	0.4375		0.4375	0.4375		6,907.7467	6,907.7467	0.1324	0.1266	6,948.7959
Mobile	5.9693	23.1883	63.5863	0.2512	22.9052	0.1925	23.0977	6.1272	0.1796	6.3068		25,445.5549	25,445.5549	0.8119		25,465.8510
Total	**49.3119**	**28.9479**	**68.7626**	**0.2858**	**22.9052**	**0.6312**	**23.5364**	**6.1272**	**0.6183**	**6.7455**		**32,354.0333**	**32,354.0333**	**0.9462**	**0.1266**	**32,415.4264**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**11.09**	**10.16**	**7.88**	**10.09**	**6.90**	**23.97**	**7.46**	**6.90**	**24.27**	**8.82**	**0.00**	**12.68**	**12.68**	**9.78**	**29.88**	**12.70**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Paving	Paving	6/17/2020	7/1/2020	5	11	
4	Building Construction	Building Construction	7/2/2020	2/1/2021	5	153	
5	Architectural Coating	Architectural Coating	7/16/2020	2/15/2021	5	153	
6	Grading 2	Grading	9/2/2020	2/22/2021	5	124	
7	Paving 2	Paving	2/23/2021	4/23/2021	5	44	
8	Construction 2	Building Construction	4/24/2021	8/29/2023	5	612	
9	Architectural Coating 2	Architectural Coating	5/8/2021	9/12/2023	5	612	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 40.08

Acres of Paving: 17.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,977,956; Non-Residential Outdoor: 992,652; Striped Parking Area: 32,592 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73

Oakley Logistics Center (Mitigated) - Bay Area AQMD Air District, Summer

Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74

Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.2140**	**1.6587**	**1.8727**	**0.0324**	**1.5419**	**1.5743**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.0700e-003	0.2802	0.0557	7.8000e-004	0.0171	9.2000e-004	0.0180	4.6800e-003	8.8000e-004	5.5600e-003		83.2288	83.2288	4.1600e-003		83.3329
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0602**	**0.3118**	**0.4582**	**2.0200e-003**	**0.1403**	**1.7200e-003**	**0.1420**	**0.0374**	**1.6200e-003**	**0.0390**		**206.3453**	**206.3453**	**7.1300e-003**		**206.5236**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	0.4623	2.0032	23.2798	0.0388		0.0616	0.0616		0.0616	0.0616	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**0.4623**	**2.0032**	**23.2798**	**0.0388**	**0.2140**	**0.0616**	**0.2756**	**0.0324**	**0.0616**	**0.0940**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.0700e-003	0.2802	0.0557	7.8000e-004	0.0171	9.2000e-004	0.0180	4.6800e-003	8.8000e-004	5.5600e-003		83.2288	83.2288	4.1600e-003		83.3329
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0602**	**0.3118**	**0.4582**	**2.0200e-003**	**0.1403**	**1.7200e-003**	**0.1420**	**0.0374**	**1.6200e-003**	**0.0390**		**206.3453**	**206.3453**	**7.1300e-003**		**206.5236**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3932	0.0000	7.3932	3.4583	0.0000	3.4583			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.3932**	**2.1739**	**9.5671**	**3.4583**	**2.0000**	**5.4583**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3932	0.0000	7.3932	3.4583	0.0000	3.4583			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**7.3932**	**0.1015**	**7.4948**	**3.4583**	**0.1015**	**3.5598**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	4.0515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.4080**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0521**	**0.0316**	**0.4025**	**1.2400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**123.1165**	**123.1165**	**2.9700e-003**		**123.1907**

3.4 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	4.0515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.3319**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0521**	**0.0316**	**0.4025**	**1.2400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**123.1165**	**123.1165**	**2.9700e-003**		**123.1907**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.5695	47.1805	11.2543	0.1140	2.8023	0.2313	3.0336	0.8067	0.2213	1.0279		12,076.7133	12,076.7133	0.5947		12,091.5812
Worker	3.6913	2.2348	28.4939	0.0875	8.7241	0.0565	8.7806	2.3140	0.0520	2.3661		8,716.6470	8,716.6470	0.2100		8,721.8981
Total	**5.2608**	**49.4152**	**39.7482**	**0.2015**	**11.5264**	**0.2878**	**11.8142**	**3.1207**	**0.2733**	**3.3940**		**20,793.3603**	**20,793.3603**	**0.8048**		**20,813.4793**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.5695	47.1805	11.2543	0.1140	2.8023	0.2313	3.0336	0.8067	0.2213	1.0279		12,076.7133	12,076.7133	0.5947		12,091.5812
Worker	3.6913	2.2348	28.4939	0.0875	8.7241	0.0565	8.7806	2.3140	0.0520	2.3661		8,716.6470	8,716.6470	0.2100		8,721.8981
Total	**5.2608**	**49.4152**	**39.7482**	**0.2015**	**11.5264**	**0.2878**	**11.8142**	**3.1207**	**0.2733**	**3.3940**		**20,793.3603**	**20,793.3603**	**0.8048**		**20,813.4793**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2839	42.7832	10.0887	0.1129	2.8024	0.0927	2.8951	0.8067	0.0887	0.8954		11,962.8837	11,962.8837	0.5615		11,976.9203
Worker	3.4147	1.9957	26.0861	0.0844	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		8,410.6101	8,410.6101	0.1880		8,415.3104
Total	**4.6987**	**44.7789**	**36.1747**	**0.1973**	**11.5265**	**0.1476**	**11.6741**	**3.1207**	**0.1392**	**3.2599**		**20,373.4938**	**20,373.4938**	**0.7495**		**20,392.2307**

3.5 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2839	42.7832	10.0887	0.1129	2.8024	0.0927	2.8951	0.8067	0.0887	0.8954		11,962.8837	11,962.8837	0.5615		11,976.9203
Worker	3.4147	1.9957	26.0861	0.0844	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		8,410.6101	8,410.6101	0.1880		8,415.3104
Total	**4.6987**	**44.7789**	**36.1747**	**0.1973**	**11.5265**	**0.1476**	**11.6741**	**3.1207**	**0.1392**	**3.2599**		**20,373.4938**	**20,373.4938**	**0.7495**		**20,392.2307**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**0.2422**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7369	0.4461	5.6881	0.0175	1.7415	0.0113	1.7528	0.4619	0.0104	0.4723		1,740.0463	1,740.0463	0.0419		1,741.0945
Total	**0.7369**	**0.4461**	**5.6881**	**0.0175**	**1.7415**	**0.0113**	**1.7528**	**0.4619**	**0.0104**	**0.4723**		**1,740.0463**	**1,740.0463**	**0.0419**		**1,741.0945**

3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7369	0.4461	5.6881	0.0175	1.7415	0.0113	1.7528	0.4619	0.0104	0.4723		1,740.0463	1,740.0463	0.0419		1,741.0945
Total	**0.7369**	**0.4461**	**5.6881**	**0.0175**	**1.7415**	**0.0113**	**1.7528**	**0.4619**	**0.0104**	**0.4723**		**1,740.0463**	**1,740.0463**	**0.0419**		**1,741.0945**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**0.2189**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6817	0.3984	5.2074	0.0168	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,678.9542	1,678.9542	0.0375		1,679.8925
Total	**0.6817**	**0.3984**	**5.2074**	**0.0168**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,678.9542**	**1,678.9542**	**0.0375**		**1,679.8925**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6817	0.3984	5.2074	0.0168	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,678.9542	1,678.9542	0.0375		1,679.8925
Total	**0.6817**	**0.3984**	**5.2074**	**0.0168**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,678.9542**	**1,678.9542**	**0.0375**		**1,679.8925**

3.7 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.1026**	**2.1739**	**9.2765**	**3.4269**	**2.0000**	**5.4269**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.7 Grading 2 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**7.1026**	**0.1015**	**7.2041**	**3.4269**	**0.1015**	**3.5284**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.7 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**7.1026**	**1.9853**	**9.0879**	**3.4269**	**1.8265**	**5.2534**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0376	0.4913	1.5900e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		158.3919	158.3919	3.5400e-003		158.4804
Total	**0.0643**	**0.0376**	**0.4913**	**1.5900e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**158.3919**	**158.3919**	**3.5400e-003**		**158.4804**

3.7 Grading 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**7.1026**	**0.1015**	**7.2041**	**3.4269**	**0.1015**	**3.5284**	**0.0000**	**6,007.043 4**	**6,007.043 4**	**1.9428**		**6,055.613 4**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0376	0.4913	1.5900e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		158.3919	158.3919	3.5400e-003		158.4804
Total	**0.0643**	**0.0376**	**0.4913**	**1.5900e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**158.3919**	**158.3919**	**3.5400e-003**		**158.4804**

3.8 Paving 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2684**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0482**	**0.0282**	**0.3685**	**1.1900e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**118.7939**	**118.7939**	**2.6600e-003**		**118.8603**

3.8 Paving 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2933**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0482**	**0.0282**	**0.3685**	**1.1900e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**118.7939**	**118.7939**	**2.6600e-003**		**118.8603**

3.9 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2839	42.7832	10.0887	0.1129	2.8024	0.0927	2.8951	0.8067	0.0887	0.8954		11,962.8837	11,962.8837	0.5615		11,976.9203
Worker	3.4147	1.9957	26.0861	0.0844	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		8,410.6101	8,410.6101	0.1880		8,415.3104
Total	**4.6987**	**44.7789**	**36.1747**	**0.1973**	**11.5265**	**0.1476**	**11.6741**	**3.1207**	**0.1392**	**3.2599**		**20,373.4938**	**20,373.4938**	**0.7495**		**20,392.2307**

3.9 Construction 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2839	42.7832	10.0887	0.1129	2.8024	0.0927	2.8951	0.8067	0.0887	0.8954		11,962.8837	11,962.8837	0.5615		11,976.9203
Worker	3.4147	1.9957	26.0861	0.0844	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		8,410.6101	8,410.6101	0.1880		8,415.3104
Total	**4.6987**	**44.7789**	**36.1747**	**0.1973**	**11.5265**	**0.1476**	**11.6741**	**3.1207**	**0.1392**	**3.2599**		**20,373.4938**	**20,373.4938**	**0.7495**		**20,392.2307**

3.9 Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.333 6**	**2,554.333 6**	**0.6120**		**2,569.632 2**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.1975	40.5473	9.4881	0.1117	2.8025	0.0803	2.8829	0.8068	0.0768	0.8836		11,846.382 3	11,846.382 3	0.5368		11,859.803 3
Worker	3.1783	1.7899	24.0368	0.0813	8.7241	0.0536	8.7777	2.3140	0.0494	2.3634		8,101.948 8	8,101.948 8	0.1688		8,106.169 7
Total	**4.3758**	**42.3372**	**33.5249**	**0.1930**	**11.5266**	**0.1340**	**11.6605**	**3.1208**	**0.1262**	**3.2470**		**19,948.33 11**	**19,948.33 11**	**0.7057**		**19,965.97 30**

3.9 Construction 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,554.333 6**	**2,554.333 6**	**0.6120**		**2,569.632 2**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.1975	40.5473	9.4881	0.1117	2.8025	0.0803	2.8829	0.8068	0.0768	0.8836		11,846.382 3	11,846.382 3	0.5368		11,859.803 3
Worker	3.1783	1.7899	24.0368	0.0813	8.7241	0.0536	8.7777	2.3140	0.0494	2.3634		8,101.948 8	8,101.948 8	0.1688		8,106.169 7
Total	**4.3758**	**42.3372**	**33.5249**	**0.1930**	**11.5266**	**0.1340**	**11.6605**	**3.1208**	**0.1262**	**3.2470**		**19,948.33 11**	**19,948.33 11**	**0.7057**		**19,965.97 30**

3.9 Construction 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8974	31.3345	8.5417	0.1085	2.8026	0.0357	2.8383	0.8068	0.0341	0.8409		11,513.1295	11,513.1295	0.4588		11,524.6001
Worker	2.9671	1.6099	22.1688	0.0781	8.7241	0.0525	8.7766	2.3140	0.0484	2.3624		7,791.3499	7,791.3499	0.1516		7,795.1399
Total	**3.8645**	**32.9444**	**30.7105**	**0.1866**	**11.5267**	**0.0882**	**11.6148**	**3.1208**	**0.0824**	**3.2032**		**19,304.4794**	**19,304.4794**	**0.6104**		**19,319.7400**

3.9 Construction 2 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8974	31.3345	8.5417	0.1085	2.8026	0.0357	2.8383	0.8068	0.0341	0.8409		11,513.1295	11,513.1295	0.4588		11,524.6001
Worker	2.9671	1.6099	22.1688	0.0781	8.7241	0.0525	8.7766	2.3140	0.0484	2.3624		7,791.3499	7,791.3499	0.1516		7,795.1399
Total	**3.8645**	**32.9444**	**30.7105**	**0.1866**	**11.5267**	**0.0882**	**11.6148**	**3.1208**	**0.0824**	**3.2032**		**19,304.4794**	**19,304.4794**	**0.6104**		**19,319.7400**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**0.2189**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6817	0.3984	5.2074	0.0168	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,678.954 2	1,678.954 2	0.0375		1,679.892 5
Total	**0.6817**	**0.3984**	**5.2074**	**0.0168**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,678.954 2**	**1,678.954 2**	**0.0375**		**1,679.892 5**

3.10 Architectural Coating 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6817	0.3984	5.2074	0.0168	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,678.954 2	1,678.954 2	0.0375		1,679.892 5
Total	**0.6817**	**0.3984**	**5.2074**	**0.0168**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,678.954 2**	**1,678.954 2**	**0.0375**		**1,679.892 5**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**0.2045**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6345	0.3573	4.7983	0.0162	1.7415	0.0107	1.7522	0.4619	9.8600e-003	0.4718		1,617.3382	1,617.3382	0.0337		1,618.1808
Total	**0.6345**	**0.3573**	**4.7983**	**0.0162**	**1.7415**	**0.0107**	**1.7522**	**0.4619**	**9.8600e-003**	**0.4718**		**1,617.3382**	**1,617.3382**	**0.0337**		**1,618.1808**

3.10 Architectural Coating 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6345	0.3573	4.7983	0.0162	1.7415	0.0107	1.7522	0.4619	9.8600e-003	0.4718		1,617.3382	1,617.3382	0.0337		1,618.1808
Total	**0.6345**	**0.3573**	**4.7983**	**0.0162**	**1.7415**	**0.0107**	**1.7522**	**0.4619**	**9.8600e-003**	**0.4718**		**1,617.3382**	**1,617.3382**	**0.0337**		**1,618.1808**

3.10 Architectural Coating 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**0.1917**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5923	0.3214	4.4254	0.0156	1.7415	0.0105	1.7520	0.4619	9.6500e-003	0.4716		1,555.3354	1,555.3354	0.0303		1,556.0920
Total	**0.5923**	**0.3214**	**4.4254**	**0.0156**	**1.7415**	**0.0105**	**1.7520**	**0.4619**	**9.6500e-003**	**0.4716**		**1,555.3354**	**1,555.3354**	**0.0303**		**1,556.0920**

3.10 Architectural Coating 2 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5923	0.3214	4.4254	0.0156	1.7415	0.0105	1.7520	0.4619	9.6500e-003	0.4716		1,555.3354	1,555.3354	0.0303		1,556.0920
Total	**0.5923**	**0.3214**	**4.4254**	**0.0156**	**1.7415**	**0.0105**	**1.7520**	**0.4619**	**9.6500e-003**	**0.4716**		**1,555.3354**	**1,555.3354**	**0.0303**		**1,556.0920**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.9693	23.1883	63.5863	0.2512	22.9052	0.1925	23.0977	6.1272	0.1796	6.3068		25,445.5549	25,445.5549	0.8119		25,465.8510
Unmitigated	6.1177	24.0098	67.4042	0.2686	24.6028	0.2051	24.8079	6.5813	0.1914	6.7727		27,200.1615	27,200.1615	0.8580		27,221.6122

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	3,193.42	3,193.42	3193.42	8,372,604	7,794,894
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,099.50	1,099.50	1099.50	3,210,002	2,988,512
Total	4,292.92	4,292.92	4,292.92	11,582,607	10,783,407

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unrefrigerated Warehouse-No Rail	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.6332	5.7565	4.8354	0.0345		0.4375	0.4375		0.4375	0.4375		6,907.746 7	6,907.746 7	0.1324	0.1266	6,948.795 9
NaturalGas Unmitigated	0.9031	8.2096	6.8961	0.0493		0.6239	0.6239		0.6239	0.6239		9,851.547 6	9,851.547 6	0.1888	0.1806	9,910.090 4

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	82312.1	0.8877	8.0698	6.7787	0.0484		0.6133	0.6133		0.6133	0.6133		9,683.779 7	9,683.779 7	0.1856	0.1775	9,741.325 6
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1426.03	0.0154	0.1398	0.1174	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.7679	167.7679	3.2200e-003	3.0800e-003	168.7649
Total		**0.9031**	**8.2096**	**6.8961**	**0.0493**		**0.6239**	**0.6239**		**0.6239**	**0.6239**		**9,851.547 6**	**9,851.547 6**	**0.1888**	**0.1806**	**9,910.090 4**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	57.709	0.6224	5.6577	4.7525	0.0340		0.4300	0.4300		0.4300	0.4300		6,789.2938	6,789.2938	0.1301	0.1245	6,829.6392
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.00685	0.0109	0.0987	0.0829	5.9000e-004		7.5000e-003	7.5000e-003		7.5000e-003	7.5000e-003		118.4529	118.4529	2.2700e-003	2.1700e-003	119.1568
Total		**0.6332**	**5.7565**	**4.8354**	**0.0345**		**0.4375**	**0.4375**		**0.4375**	**0.4375**		**6,907.7467**	**6,907.7467**	**0.1324**	**0.1266**	**6,948.7960**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	42.7094	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Unmitigated	48.4438	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.7345					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	42.6779					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0315	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Total	**48.4438**	**3.1000e-003**	**0.3408**	**3.0000e-005**		**1.2100e-003**	**1.2100e-003**		**1.2100e-003**	**1.2100e-003**		**0.7317**	**0.7317**	**1.9100e-003**		**0.7795**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	42.6779					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0315	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Total	**42.7094**	**3.1000e-003**	**0.3408**	**3.0000e-005**		**1.2100e-003**	**1.2100e-003**		**1.2100e-003**	**1.2100e-003**		**0.7317**	**0.7317**	**1.9100e-003**		**0.7795**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Mitigated)

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	1,835.30	1000sqft	121.35	1,835,304.00	0
Unrefrigerated Warehouse-No Rail	150.00	1000sqft	3.44	150,000.00	0
Parking Lot	1,358.00	Space	17.01	543,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	245.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - questionnaire and site plan

Construction Phase - applicant provided

Demolition -

Grading - applicant provided

Architectural Coating - Mitigation

Vehicle Trips - TIA trip rate

Energy Use -

Construction Off-road Equipment Mitigation - Mitigation

Mobile Land Use Mitigation - applicant provided

Area Mitigation - Mitigation

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

Oakley Logistics Center (Mitigated) - Bay Area AQMD Air District, Winter

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	200.00	46.00
tblConstructionPhase	NumDays	310.00	31.00

tblConstructionPhase	NumDays	220.00	11.00
tblConstructionPhase	NumDays	3,100.00	153.00
tblConstructionPhase	NumDays	220.00	153.00
tblConstructionPhase	NumDays	310.00	124.00
tblConstructionPhase	NumDays	220.00	44.00
tblConstructionPhase	NumDays	3,100.00	612.00
tblConstructionPhase	NumDays	220.00	612.00
tblGrading	AcresOfGrading	77.50	40.08
tblGrading	AcresOfGrading	310.00	126.34
tblLandUse	LandUseSquareFeet	1,835,300.00	1,835,304.00
tblLandUse	LotAcreage	42.13	121.35
tblLandUse	LotAcreage	12.22	17.01
tblProjectCharacteristics	CO2IntensityFactor	641.35	245.88
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	7.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	7.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	7.33

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	13.2211	122.1399	96.1205	0.3013	20.5348	3.7059	24.2407	7.0531	3.4497	10.5028	0.0000	30,395.0106	30,395.0106	3.4696	0.0000	30,481.7513
2021	12.0787	111.5134	90.6047	0.2967	20.5349	3.2009	23.7358	7.0532	2.9752	10.0284	0.0000	29,941.4234	29,941.4234	3.3992	0.0000	30,026.4028
2022	7.2294	60.5286	55.9447	0.2286	13.2681	1.0383	14.3064	3.5827	0.9817	4.5645	0.0000	23,333.2826	23,333.2826	1.3988	0.0000	23,368.2532
2023	6.5119	49.5587	52.4101	0.2220	13.2682	0.8708	14.1390	3.5827	0.8228	4.4056	0.0000	22,669.4796	22,669.4796	1.2858	0.0000	22,701.6244
Maximum	**13.2211**	**122.1399**	**96.1205**	**0.3013**	**20.5349**	**3.7059**	**24.2407**	**7.0532**	**3.4497**	**10.5028**	**0.0000**	**30,395.0106**	**30,395.0106**	**3.4696**	**0.0000**	**30,481.7513**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	7.5280	56.7360	97.7741	0.3013	20.5348	0.4503	20.9851	7.0531	0.4347	7.4878	0.0000	30,395.0106	30,395.0106	3.4696	0.0000	30,481.7513
2021	6.8868	51.8181	93.6253	0.2967	20.5349	0.3091	20.8440	7.0532	0.2996	7.3528	0.0000	29,941.4234	29,941.4234	3.3992	0.0000	30,026.4028
2022	5.6761	45.8680	57.0603	0.2286	13.2681	0.1923	13.4605	3.5827	0.1836	3.7663	0.0000	23,333.2826	23,333.2826	1.3988	0.0000	23,368.2532
2023	5.1050	36.2343	53.6476	0.2220	13.2682	0.1450	13.4132	3.5827	0.1384	3.7211	0.0000	22,669.4796	22,669.4796	1.2858	0.0000	22,701.6243
Maximum	**7.5280**	**56.7360**	**97.7741**	**0.3013**	**20.5349**	**0.4503**	**20.9851**	**7.0532**	**0.4347**	**7.4878**	**0.0000**	**30,395.0106**	**30,395.0106**	**3.4696**	**0.0000**	**30,481.7513**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**35.46**	**44.53**	**-2.38**	**0.00**	**0.00**	**87.56**	**10.10**	**0.00**	**87.16**	**24.31**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	48.4438	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Energy	0.9031	8.2096	6.8961	0.0493		0.6239	0.6239		0.6239	0.6239		9,851.5476	9,851.5476	0.1888	0.1806	9,910.0904
Mobile	5.2946	25.2723	66.6925	0.2516	24.6028	0.2059	24.8087	6.5813	0.1922	6.7735		25,494.0042	25,494.0042	0.8690		25,515.7279
Total	**54.6415**	**33.4851**	**73.9294**	**0.3009**	**24.6028**	**0.8311**	**25.4338**	**6.5813**	**0.8173**	**7.3986**		**35,346.2835**	**35,346.2835**	**1.0597**	**0.1806**	**35,426.5978**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	42.7094	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Energy	0.6332	5.7565	4.8354	0.0345		0.4375	0.4375		0.4375	0.4375		6,907.7467	6,907.7467	0.1324	0.1266	6,948.7959
Mobile	5.1480	24.3588	63.2931	0.2353	22.9052	0.1933	23.0985	6.1272	0.1804	6.3076		23,846.1755	23,846.1755	0.8246		23,866.7910
Total	**48.4906**	**30.1183**	**68.4693**	**0.2699**	**22.9052**	**0.6320**	**23.5372**	**6.1272**	**0.6191**	**6.7463**		**30,754.6538**	**30,754.6538**	**0.9589**	**0.1266**	**30,816.3664**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	11.26	10.05	7.39	10.30	6.90	23.95	7.46	6.90	24.25	8.82	0.00	12.99	12.99	9.51	29.88	13.01

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Paving	Paving	6/17/2020	7/1/2020	5	11	
4	Building Construction	Building Construction	7/2/2020	2/1/2021	5	153	
5	Architectural Coating	Architectural Coating	7/16/2020	2/15/2021	5	153	
6	Grading 2	Grading	9/2/2020	2/22/2021	5	124	
7	Paving 2	Paving	2/23/2021	4/23/2021	5	44	
8	Construction 2	Building Construction	4/24/2021	8/29/2023	5	612	
9	Architectural Coating 2	Architectural Coating	5/8/2021	9/12/2023	5	612	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 40.08

Acres of Paving: 17.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,977,956; Non-Residential Outdoor: 992,652; Striped Parking Area: 32,592 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73

Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74

Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.704 9	3,747.704 9	1.0580		3,774.153 6
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.2140**	**1.6587**	**1.8727**	**0.0324**	**1.5419**	**1.5743**		**3,747.704 9**	**3,747.704 9**	**1.0580**		**3,774.153 6**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2900e-003	0.2871	0.0600	7.7000e-004	0.0171	9.3000e-004	0.0180	4.6800e-003	8.9000e-004	5.5700e-003		81.8309	81.8309	4.3700e-003		81.9402
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0634**	**0.3261**	**0.4379**	**1.9100e-003**	**0.1403**	**1.7300e-003**	**0.1420**	**0.0374**	**1.6300e-003**	**0.0390**		**195.2407**	**195.2407**	**7.1400e-003**		**195.4194**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	0.4623	2.0032	23.2798	0.0388		0.0616	0.0616		0.0616	0.0616	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**0.4623**	**2.0032**	**23.2798**	**0.0388**	**0.2140**	**0.0616**	**0.2756**	**0.0324**	**0.0616**	**0.0940**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2900e-003	0.2871	0.0600	7.7000e-004	0.0171	9.3000e-004	0.0180	4.6800e-003	8.9000e-004	5.5700e-003		81.8309	81.8309	4.3700e-003		81.9402
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0634**	**0.3261**	**0.4379**	**1.9100e-003**	**0.1403**	**1.7300e-003**	**0.1420**	**0.0374**	**1.6300e-003**	**0.0390**		**195.2407**	**195.2407**	**7.1400e-003**		**195.4194**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3932	0.0000	7.3932	3.4583	0.0000	3.4583			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.3932**	**2.1739**	**9.5671**	**3.4583**	**2.0000**	**5.4583**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.3 Grading - 2020

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					7.3932	0.0000	7.3932	3.4583	0.0000	3.4583			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**7.3932**	**0.1015**	**7.4948**	**3.4583**	**0.1015**	**3.5598**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.733 4	2,207.733 4	0.7140		2,225.584 1
Paving	4.0515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.4080**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.733 4**	**2,207.733 4**	**0.7140**		**2,225.584 1**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0552**	**0.0390**	**0.3780**	**1.1400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**113.4098**	**113.4098**	**2.7700e-003**		**113.4792**

3.4 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.733 4	2,207.733 4	0.7140		2,225.584 1
Paving	4.0515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.3319**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.733 4**	**2,207.733 4**	**0.7140**		**2,225.584 1**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0552**	**0.0390**	**0.3780**	**1.1400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**113.4098**	**113.4098**	**2.7700e-003**		**113.4792**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.6516	47.7082	12.8750	0.1112	2.8023	0.2352	3.0375	0.8067	0.2250	1.0317		11,771.1478	11,771.1478	0.6433		11,787.2296
Worker	3.9044	2.7612	26.7612	0.0806	8.7241	0.0565	8.7806	2.3140	0.0520	2.3661		8,029.4147	8,029.4147	0.1964		8,034.3244
Total	**5.5560**	**50.4693**	**39.6362**	**0.1918**	**11.5264**	**0.2917**	**11.8181**	**3.1207**	**0.2770**	**3.3977**		**19,800.5625**	**19,800.5625**	**0.8397**		**19,821.5540**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.6516	47.7082	12.8750	0.1112	2.8023	0.2352	3.0375	0.8067	0.2250	1.0317		11,771.1478	11,771.1478	0.6433		11,787.2296
Worker	3.9044	2.7612	26.7612	0.0806	8.7241	0.0565	8.7806	2.3140	0.0520	2.3661		8,029.4147	8,029.4147	0.1964		8,034.3244
Total	**5.5560**	**50.4693**	**39.6362**	**0.1918**	**11.5264**	**0.2917**	**11.8181**	**3.1207**	**0.2770**	**3.3977**		**19,800.5625**	**19,800.5625**	**0.8397**		**19,821.5540**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.363 9	2,553.363 9	0.6160		2,568.764 3
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.363 9**	**2,553.363 9**	**0.6160**		**2,568.764 3**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.3600	43.1512	11.5959	0.1101	2.8024	0.0959	2.8983	0.8067	0.0917	0.8984		11,659.363 9	11,659.363 9	0.6074		11,674.549 9
Worker	3.6174	2.4650	24.4060	0.0777	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		7,747.679 1	7,747.679 1	0.1753		7,752.061 9
Total	**4.9775**	**45.6161**	**36.0019**	**0.1878**	**11.5265**	**0.1508**	**11.6773**	**3.1207**	**0.1423**	**3.2630**		**19,407.04 30**	**19,407.04 30**	**0.7828**		**19,426.61 17**

3.5 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.3600	43.1512	11.5959	0.1101	2.8024	0.0959	2.8983	0.8067	0.0917	0.8984		11,659.3639	11,659.3639	0.6074		11,674.5499
Worker	3.6174	2.4650	24.4060	0.0777	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		7,747.6791	7,747.6791	0.1753		7,752.0619
Total	**4.9775**	**45.6161**	**36.0019**	**0.1878**	**11.5265**	**0.1508**	**11.6773**	**3.1207**	**0.1423**	**3.2630**		**19,407.0430**	**19,407.0430**	**0.7828**		**19,426.6117**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**0.2422**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7794	0.5512	5.3422	0.0161	1.7415	0.0113	1.7528	0.4619	0.0104	0.4723		1,602.8587	1,602.8587	0.0392		1,603.8388
Total	**0.7794**	**0.5512**	**5.3422**	**0.0161**	**1.7415**	**0.0113**	**1.7528**	**0.4619**	**0.0104**	**0.4723**		**1,602.8587**	**1,602.8587**	**0.0392**		**1,603.8388**

3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7794	0.5512	5.3422	0.0161	1.7415	0.0113	1.7528	0.4619	0.0104	0.4723		1,602.858 7	1,602.858 7	0.0392		1,603.838 8
Total	**0.7794**	**0.5512**	**5.3422**	**0.0161**	**1.7415**	**0.0113**	**1.7528**	**0.4619**	**0.0104**	**0.4723**		**1,602.858 7**	**1,602.858 7**	**0.0392**		**1,603.838 8**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**0.2189**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7221	0.4921	4.8720	0.0155	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,546.617 7	1,546.617 7	0.0350		1,547.492 6
Total	**0.7221**	**0.4921**	**4.8720**	**0.0155**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,546.617 7**	**1,546.617 7**	**0.0350**		**1,547.492 6**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7221	0.4921	4.8720	0.0155	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,546.6177	1,546.6177	0.0350		1,547.4926
Total	**0.7221**	**0.4921**	**4.8720**	**0.0155**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,546.6177**	**1,546.6177**	**0.0350**		**1,547.4926**

3.7 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.1026**	**2.1739**	**9.2765**	**3.4269**	**2.0000**	**5.4269**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.7 Grading 2 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**7.1026**	**0.1015**	**7.2041**	**3.4269**	**0.1015**	**3.5284**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.7 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**7.1026**	**1.9853**	**9.0879**	**3.4269**	**1.8265**	**5.2534**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0681	0.0464	0.4596	1.4600e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		145.9073	145.9073	3.3000e-003		145.9899
Total	**0.0681**	**0.0464**	**0.4596**	**1.4600e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**145.9073**	**145.9073**	**3.3000e-003**		**145.9899**

3.7 Grading 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1026	0.0000	7.1026	3.4269	0.0000	3.4269			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**7.1026**	**0.1015**	**7.2041**	**3.4269**	**0.1015**	**3.5284**	**0.0000**	**6,007.043 4**	**6,007.043 4**	**1.9428**		**6,055.613 4**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0681	0.0464	0.4596	1.4600e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		145.9073	145.9073	3.3000e-003		145.9899
Total	**0.0681**	**0.0464**	**0.4596**	**1.4600e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**145.9073**	**145.9073**	**3.3000e-003**		**145.9899**

3.8 Paving 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2684**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0511**	**0.0348**	**0.3447**	**1.1000e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**109.4305**	**109.4305**	**2.4800e-003**		**109.4924**

3.8 Paving 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2933**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0511**	**0.0348**	**0.3447**	**1.1000e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**109.4305**	**109.4305**	**2.4800e-003**		**109.4924**

3.9 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.3600	43.1512	11.5959	0.1101	2.8024	0.0959	2.8983	0.8067	0.0917	0.8984		11,659.3639	11,659.3639	0.6074		11,674.5499
Worker	3.6174	2.4650	24.4060	0.0777	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		7,747.6791	7,747.6791	0.1753		7,752.0619
Total	**4.9775**	**45.6161**	**36.0019**	**0.1878**	**11.5265**	**0.1508**	**11.6773**	**3.1207**	**0.1423**	**3.2630**		**19,407.0430**	**19,407.0430**	**0.7828**		**19,426.6117**

3.9 Construction 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.3600	43.1512	11.5959	0.1101	2.8024	0.0959	2.8983	0.8067	0.0917	0.8984		11,659.3639	11,659.3639	0.6074		11,674.5499
Worker	3.6174	2.4650	24.4060	0.0777	8.7241	0.0549	8.7790	2.3140	0.0506	2.3646		7,747.6791	7,747.6791	0.1753		7,752.0619
Total	**4.9775**	**45.6161**	**36.0019**	**0.1878**	**11.5265**	**0.1508**	**11.6773**	**3.1207**	**0.1423**	**3.2630**		**19,407.0430**	**19,407.0430**	**0.7828**		**19,426.6117**

3.9 Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2683	40.8531	10.9007	0.1089	2.8025	0.0833	2.8858	0.8068	0.0796	0.8864		11,543.9307	11,543.9307	0.5803		11,558.4371
Worker	3.3764	2.2102	22.3962	0.0749	8.7241	0.0536	8.7777	2.3140	0.0494	2.3634		7,463.6513	7,463.6513	0.1570		7,467.5754
Total	**4.6446**	**43.0633**	**33.2969**	**0.1838**	**11.5266**	**0.1369**	**11.6635**	**3.1208**	**0.1290**	**3.2498**		**19,007.5819**	**19,007.5819**	**0.7372**		**19,026.0124**

3.9 Construction 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2683	40.8531	10.9007	0.1089	2.8025	0.0833	2.8858	0.8068	0.0796	0.8864		11,543.9307	11,543.9307	0.5803		11,558.4371
Worker	3.3764	2.2102	22.3962	0.0749	8.7241	0.0536	8.7777	2.3140	0.0494	2.3634		7,463.6513	7,463.6513	0.1570		7,467.5754
Total	**4.6446**	**43.0633**	**33.2969**	**0.1838**	**11.5266**	**0.1369**	**11.6635**	**3.1208**	**0.1290**	**3.2498**		**19,007.5819**	**19,007.5819**	**0.7372**		**19,026.0124**

3.9 Construction 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9534	31.4873	9.6796	0.1058	2.8026	0.0372	2.8398	0.8068	0.0356	0.8424		11,222.1340	11,222.1340	0.4926		11,234.4493
Worker	3.1627	1.9869	20.5692	0.0720	8.7241	0.0525	8.7766	2.3140	0.0484	2.3624		7,177.8259	7,177.8259	0.1405		7,181.3373
Total	**4.1161**	**33.4742**	**30.2488**	**0.1778**	**11.5267**	**0.0898**	**11.6164**	**3.1208**	**0.0840**	**3.2048**		**18,399.9600**	**18,399.9600**	**0.6331**		**18,415.7867**

3.9 Construction 2 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9534	31.4873	9.6796	0.1058	2.8026	0.0372	2.8398	0.8068	0.0356	0.8424		11,222.1340	11,222.1340	0.4926		11,234.4493
Worker	3.1627	1.9869	20.5692	0.0720	8.7241	0.0525	8.7766	2.3140	0.0484	2.3624		7,177.8259	7,177.8259	0.1405		7,181.3373
Total	**4.1161**	**33.4742**	**30.2488**	**0.1778**	**11.5267**	**0.0898**	**11.6164**	**3.1208**	**0.0840**	**3.2048**		**18,399.9600**	**18,399.9600**	**0.6331**		**18,415.7867**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**0.2189**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7221	0.4921	4.8720	0.0155	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,546.6177	1,546.6177	0.0350		1,547.4926
Total	**0.7221**	**0.4921**	**4.8720**	**0.0155**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,546.6177**	**1,546.6177**	**0.0350**		**1,547.4926**

3.10 Architectural Coating 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.7221	0.4921	4.8720	0.0155	1.7415	0.0110	1.7525	0.4619	0.0101	0.4720		1,546.617 7	1,546.617 7	0.0350		1,547.492 6
Total	**0.7221**	**0.4921**	**4.8720**	**0.0155**	**1.7415**	**0.0110**	**1.7525**	**0.4619**	**0.0101**	**0.4720**		**1,546.617 7**	**1,546.617 7**	**0.0350**		**1,547.492 6**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**0.2045**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6740	0.4412	4.4708	0.0149	1.7415	0.0107	1.7522	0.4619	9.8600e-003	0.4718		1,489.9191	1,489.9191	0.0313		1,490.7024
Total	**0.6740**	**0.4412**	**4.4708**	**0.0149**	**1.7415**	**0.0107**	**1.7522**	**0.4619**	**9.8600e-003**	**0.4718**		**1,489.9191**	**1,489.9191**	**0.0313**		**1,490.7024**

3.10 Architectural Coating 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6740	0.4412	4.4708	0.0149	1.7415	0.0107	1.7522	0.4619	9.8600e-003	0.4718		1,489.9191	1,489.9191	0.0313		1,490.7024
Total	**0.6740**	**0.4412**	**4.4708**	**0.0149**	**1.7415**	**0.0107**	**1.7522**	**0.4619**	**9.8600e-003**	**0.4718**		**1,489.9191**	**1,489.9191**	**0.0313**		**1,490.7024**

3.10 Architectural Coating 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**0.1917**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6314	0.3966	4.1061	0.0144	1.7415	0.0105	1.7520	0.4619	9.6500e-003	0.4716		1,432.8617	1,432.8617	0.0280		1,433.5626
Total	**0.6314**	**0.3966**	**4.1061**	**0.0144**	**1.7415**	**0.0105**	**1.7520**	**0.4619**	**9.6500e-003**	**0.4716**		**1,432.8617**	**1,432.8617**	**0.0280**		**1,433.5626**

3.10 Architectural Coating 2 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6314	0.3966	4.1061	0.0144	1.7415	0.0105	1.7520	0.4619	9.6500e-003	0.4716		1,432.8617	1,432.8617	0.0280		1,433.5626
Total	**0.6314**	**0.3966**	**4.1061**	**0.0144**	**1.7415**	**0.0105**	**1.7520**	**0.4619**	**9.6500e-003**	**0.4716**		**1,432.8617**	**1,432.8617**	**0.0280**		**1,433.5626**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.1480	24.3588	63.2931	0.2353	22.9052	0.1933	23.0985	6.1272	0.1804	6.3076		23,846.1755	23,846.1755	0.8246		23,866.7910
Unmitigated	5.2946	25.2723	66.6925	0.2516	24.6028	0.2059	24.8087	6.5813	0.1922	6.7735		25,494.0042	25,494.0042	0.8690		25,515.7279

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	3,193.42	3,193.42	3193.42	8,372,604	7,794,894
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,099.50	1,099.50	1099.50	3,210,002	2,988,512
Total	4,292.92	4,292.92	4,292.92	11,582,607	10,783,407

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unrefrigerated Warehouse-No Rail	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.6332	5.7565	4.8354	0.0345		0.4375	0.4375		0.4375	0.4375		6,907.746 7	6,907.746 7	0.1324	0.1266	6,948.795 9
NaturalGas Unmitigated	0.9031	8.2096	6.8961	0.0493		0.6239	0.6239		0.6239	0.6239		9,851.547 6	9,851.547 6	0.1888	0.1806	9,910.090 4

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	82312.1	0.8877	8.0698	6.7787	0.0484		0.6133	0.6133		0.6133	0.6133		9,683.779 7	9,683.779 7	0.1856	0.1775	9,741.325 6
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1426.03	0.0154	0.1398	0.1174	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.7679	167.7679	3.2200e-003	3.0800e-003	168.7649
Total		**0.9031**	**8.2096**	**6.8961**	**0.0493**		**0.6239**	**0.6239**		**0.6239**	**0.6239**		**9,851.547 6**	**9,851.547 6**	**0.1888**	**0.1806**	**9,910.090 4**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	57.709	0.6224	5.6577	4.7525	0.0340		0.4300	0.4300		0.4300	0.4300		6,789.2938	6,789.2938	0.1301	0.1245	6,829.6392
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.00685	0.0109	0.0987	0.0829	5.9000e-004		7.5000e-003	7.5000e-003		7.5000e-003	7.5000e-003		118.4529	118.4529	2.2700e-003	2.1700e-003	119.1568
Total		**0.6332**	**5.7565**	**4.8354**	**0.0345**		**0.4375**	**0.4375**		**0.4375**	**0.4375**		**6,907.7467**	**6,907.7467**	**0.1324**	**0.1266**	**6,948.7960**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	42.7094	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Unmitigated	48.4438	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.7345					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	42.6779					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0315	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Total	**48.4438**	**3.1000e-003**	**0.3408**	**3.0000e-005**		**1.2100e-003**	**1.2100e-003**		**1.2100e-003**	**1.2100e-003**		**0.7317**	**0.7317**	**1.9100e-003**		**0.7795**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	42.6779					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0315	3.1000e-003	0.3408	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7317	0.7317	1.9100e-003		0.7795
Total	**42.7094**	**3.1000e-003**	**0.3408**	**3.0000e-005**		**1.2100e-003**	**1.2100e-003**		**1.2100e-003**	**1.2100e-003**		**0.7317**	**0.7317**	**1.9100e-003**		**0.7795**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Mitigated)

Bay Area AQMD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.22	0.71	0.00	0.00	0.87	0.88	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating 2	0.22	0.71	0.00	0.00	0.84	0.85	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.25	0.24	-0.01	0.00	0.77	0.77	0.00	0.00	0.00	0.00	0.00	0.00
Construction 2	0.24	0.24	-0.02	0.00	0.82	0.82	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.85	0.93	-0.07	0.00	0.96	0.96	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.82	0.93	-0.03	0.00	0.95	0.95	0.00	0.00	0.00	0.00	0.00	0.00
Grading 2	0.81	0.93	-0.04	0.00	0.95	0.95	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.20	0.91	-0.18	0.00	0.95	0.94	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	0.42	0.90	-0.18	0.00	0.94	0.94	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	Tier 4 Final	2	2	No Change	0.00
Concrete/Industrial Saws	Diesel	Tier 4 Final	1	1	No Change	0.00
Cranes	Diesel	Tier 4 Final	2	2	No Change	0.00
Excavators	Diesel	Tier 4 Final	7	7	No Change	0.00
Forklifts	Diesel	Tier 4 Final	6	6	No Change	0.00
Generator Sets	Diesel	Tier 4 Final	2	2	No Change	0.00
Graders	Diesel	Tier 4 Final	2	2	No Change	0.00
Pavers	Diesel	Tier 4 Final	4	4	No Change	0.00
Paving Equipment	Diesel	Tier 4 Final	4	4	No Change	0.00
Rollers	Diesel	Tier 4 Final	4	4	No Change	0.00
Rubber Tired Dozers	Diesel	Tier 4 Final	4	4	No Change	0.00
Scrapers	Diesel	Tier 4 Final	4	4	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	10	10	No Change	0.00
Welders	Diesel	Tier 4 Final	2	2	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr							Unmitigated mt/yr					
Air Compressors	8.07900E-002	5.57760E-001	6.94950E-001	1.14000E-003	3.32800E-002	3.32800E-002	0.00000E+000	9.76620E+001	9.76620E+001	6.52000E-003	0.00000E+000	9.78249E+001
Concrete/Industrial Saws	9.62000E-003	7.58700E-002	8.47900E-002	1.40000E-004	4.56000E-003	4.56000E-003	0.00000E+000	1.23661E+001	1.23661E+001	7.80000E-004	0.00000E+000	1.23857E+001
Cranes	1.31350E-001	1.50064E+000	6.49760E-001	1.93000E-003	6.18900E-002	5.69400E-002	0.00000E+000	1.69664E+002	1.69664E+002	5.48700E-002	0.00000E+000	1.71036E+002
Excavators	5.42900E-002	5.30840E-001	7.32140E-001	1.16000E-003	2.57200E-002	2.36600E-002	0.00000E+000	1.01631E+002	1.01631E+002	3.28700E-002	0.00000E+000	1.02453E+002
Forklifts	1.38240E-001	1.27124E+000	1.33110E+000	1.75000E-003	8.69100E-002	7.99500E-002	0.00000E+000	1.54099E+002	1.54099E+002	4.98400E-002	0.00000E+000	1.55345E+002
Generator Sets	1.31440E-001	1.16184E+000	1.40831E+000	2.52000E-003	5.99200E-002	5.99200E-002	0.00000E+000	2.16192E+002	2.16192E+002	1.06300E-002	0.00000E+000	2.16458E+002
Graders	3.64500E-002	4.82810E-001	1.39750E-001	5.10000E-004	1.54000E-002	1.41700E-002	0.00000E+000	4.51701E+001	4.51701E+001	1.46100E-002	0.00000E+000	4.55354E+001
Pavers	1.37200E-002	1.45090E-001	1.59690E-001	2.60000E-004	7.02000E-003	6.46000E-003	0.00000E+000	2.27074E+001	2.27074E+001	7.34000E-003	0.00000E+000	2.28910E+001
Paving Equipment	1.07300E-002	1.08930E-001	1.39700E-001	2.20000E-004	5.39000E-003	4.96000E-003	0.00000E+000	1.96822E+001	1.96822E+001	6.37000E-003	0.00000E+000	1.98413E+001
Rollers	1.06300E-002	1.07560E-001	1.03570E-001	1.40000E-004	6.64000E-003	6.10000E-003	0.00000E+000	1.26776E+001	1.26776E+001	4.10000E-003	0.00000E+000	1.27801E+001
Rubber Tired Dozers	1.32700E-001	1.39285E+000	5.08520E-001	1.05000E-003	6.81200E-002	6.26700E-002	0.00000E+000	9.26934E+001	9.26934E+001	2.99800E-002	0.00000E+000	9.34429E+001
Scrapers	1.51550E-001	1.78275E+000	1.13929E+000	2.35000E-003	6.94900E-002	6.39300E-002	0.00000E+000	2.06312E+002	2.06312E+002	6.67300E-002	0.00000E+000	2.07981E+002
Tractors/Loaders/Backhoes	2.07700E-001	2.10162E+000	2.61126E+000	3.60000E-003	1.20230E-001	1.10620E-001	0.00000E+000	3.16600E+002	3.16600E+002	1.02390E-001	0.00000E+000	3.19160E+002
Welders	1.10830E-001	5.67660E-001	6.54100E-001	9.80000E-004	2.62200E-002	2.62200E-002	0.00000E+000	7.19944E+001	7.19944E+001	8.99000E-003	0.00000E+000	7.22192E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	1.13700E-002	4.92500E-002	7.00900E-001	1.14000E-003	1.52000E-003	1.52000E-003	0.00000E+000	9.76618E+001	9.76618E+001	6.52000E-003	0.00000E+000	9.78248E+001
Concrete/Industrial Saws	1.44000E-003	6.24000E-003	8.87500E-002	1.40000E-004	1.90000E-004	1.90000E-004	0.00000E+000	1.23661E+001	1.23661E+001	7.80000E-004	0.00000E+000	1.23857E+001
Cranes	2.37300E-002	1.02810E-001	8.69950E-001	1.93000E-003	3.16000E-003	3.16000E-003	0.00000E+000	1.69664E+002	1.69664E+002	5.48700E-002	0.00000E+000	1.71035E+002
Excavators	1.42300E-002	6.16700E-002	8.77640E-001	1.16000E-003	1.90000E-003	1.90000E-003	0.00000E+000	1.01631E+002	1.01631E+002	3.28700E-002	0.00000E+000	1.02453E+002
Forklifts	2.16100E-002	9.36600E-002	1.33290E+000	1.75000E-003	2.88000E-003	2.88000E-003	0.00000E+000	1.54099E+002	1.54099E+002	4.98400E-002	0.00000E+000	1.55345E+002
Generator Sets	2.51600E-002	1.09030E-001	1.55156E+000	2.52000E-003	3.35000E-003	3.35000E-003	0.00000E+000	2.16192E+002	2.16192E+002	1.06300E-002	0.00000E+000	2.16457E+002
Graders	6.29000E-003	2.72500E-002	2.30550E-001	5.10000E-004	8.40000E-004	8.40000E-004	0.00000E+000	4.51701E+001	4.51701E+001	1.46100E-002	0.00000E+000	4.55353E+001
Pavers	3.18000E-003	1.37700E-002	1.95970E-001	2.60000E-004	4.20000E-004	4.20000E-004	0.00000E+000	2.27074E+001	2.27074E+001	7.34000E-003	0.00000E+000	2.28910E+001
Paving Equipment	2.77000E-003	1.19800E-002	1.70560E-001	2.20000E-004	3.70000E-004	3.70000E-004	0.00000E+000	1.96821E+001	1.96821E+001	6.37000E-003	0.00000E+000	1.98413E+001
Rollers	1.77000E-003	7.67000E-003	1.09110E-001	1.40000E-004	2.40000E-004	2.40000E-004	0.00000E+000	1.26776E+001	1.26776E+001	4.10000E-003	0.00000E+000	1.27801E+001
Rubber Tired Dozers	1.29100E-002	5.59500E-002	4.73450E-001	1.05000E-003	1.72000E-003	1.72000E-003	0.00000E+000	9.26933E+001	9.26933E+001	2.99800E-002	0.00000E+000	9.34428E+001
Scrapers	2.88900E-002	1.25210E-001	1.05946E+000	2.35000E-003	3.85000E-003	3.85000E-003	0.00000E+000	2.06312E+002	2.06312E+002	6.67300E-002	0.00000E+000	2.07980E+002
Tractors/Loaders/Backhoes	4.40200E-002	1.90760E-001	2.71460E+000	3.60000E-003	5.87000E-003	5.87000E-003	0.00000E+000	3.16600E+002	3.16600E+002	1.02390E-001	0.00000E+000	3.19160E+002
Welders	1.67600E-002	3.84020E-001	5.72540E-001	9.80000E-004	1.12000E-003	1.12000E-003	0.00000E+000	7.19943E+001	7.19943E+001	8.99000E-003	0.00000E+000	7.22191E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	8.59265E-001	9.11700E-001	-8.56177E-003	0.00000E+000	9.54327E-001	9.54327E-001	0.00000E+000	1.22873E-006	1.22873E-006	0.00000E+000	0.00000E+000	1.22668E-006
Concrete/Industrial Saws	8.50312E-001	9.17754E-001	-4.67036E-002	0.00000E+000	9.58333E-001	9.58333E-001	0.00000E+000	1.61732E-006	1.61732E-006	0.00000E+000	0.00000E+000	1.61477E-006
Cranes	8.19338E-001	9.31489E-001	-3.38879E-001	0.00000E+000	9.48942E-001	9.44503E-001	0.00000E+000	1.17880E-006	1.17880E-006	0.00000E+000	0.00000E+000	1.22781E-006
Excavators	7.37889E-001	8.83826E-001	-1.98732E-001	0.00000E+000	9.26128E-001	9.19696E-001	0.00000E+000	1.18074E-006	1.18074E-006	0.00000E+000	0.00000E+000	1.17127E-006
Forklifts	8.43678E-001	9.26324E-001	-1.35227E-003	0.00000E+000	9.66862E-001	9.63977E-001	0.00000E+000	1.16808E-006	1.16808E-006	0.00000E+000	0.00000E+000	1.22308E-006
Generator Sets	8.08582E-001	9.06157E-001	-1.01718E-001	0.00000E+000	9.44092E-001	9.44092E-001	0.00000E+000	1.20264E-006	1.20264E-006	0.00000E+000	0.00000E+000	1.15496E-006
Graders	8.27435E-001	9.43560E-001	-6.49732E-001	0.00000E+000	9.45455E-001	9.40720E-001	0.00000E+000	1.10693E-006	1.10693E-006	0.00000E+000	0.00000E+000	1.09805E-006
Pavers	7.68222E-001	9.05093E-001	-2.27190E-001	0.00000E+000	9.40171E-001	9.34985E-001	0.00000E+000	8.80769E-007	8.80769E-007	0.00000E+000	0.00000E+000	8.73704E-007
Paving Equipment	7.41845E-001	8.90021E-001	-2.20902E-001	0.00000E+000	9.31354E-001	9.25403E-001	0.00000E+000	1.01615E-006	1.01615E-006	0.00000E+000	0.00000E+000	1.00800E-006
Rollers	8.33490E-001	9.28691E-001	-5.34904E-002	0.00000E+000	9.63855E-001	9.60656E-001	0.00000E+000	7.88794E-007	7.88794E-007	0.00000E+000	0.00000E+000	1.56493E-006
Rubber Tired Dozers	9.02713E-001	9.59831E-001	6.89648E-002	0.00000E+000	9.74750E-001	9.72555E-001	0.00000E+000	1.18671E-006	1.18671E-006	0.00000E+000	0.00000E+000	1.17719E-006
Scrapers	8.09370E-001	9.29766E-001	7.00700E-002	0.00000E+000	9.44596E-001	9.39778E-001	0.00000E+000	1.21175E-006	1.21175E-006	0.00000E+000	0.00000E+000	1.20204E-006
Tractors/Loaders/Backhoes	7.88060E-001	9.09232E-001	-3.95748E-002	0.00000E+000	9.51177E-001	9.46935E-001	0.00000E+000	1.20025E-006	1.20025E-006	0.00000E+000	0.00000E+000	1.19062E-006
Welders	8.48777E-001	3.23504E-001	1.24690E-001	0.00000E+000	9.57285E-001	9.57285E-001	0.00000E+000	1.25010E-006	1.25010E-006	0.00000E+000	0.00000E+000	1.24621E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Water Exposed Area	PM10 Reduction	0.00	PM2.5 Reduction	0.00	Frequency (per day)	

No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	0.00			
No	Clean Paved Road	% PM Reduction	0.00					

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.13	0.03	0.13	0.03	0.00	0.00
Architectural Coating 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating 2	Roads	0.51	0.14	0.51	0.14	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.85	0.23	0.85	0.23	0.00	0.00
Construction 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Construction 2	Roads	3.40	0.92	3.40	0.92	0.00	0.00
Demolition	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading	Fugitive Dust	0.11	0.05	0.11	0.05	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading 2	Fugitive Dust	0.51	0.22	0.51	0.22	0.00	0.00
Grading 2	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.10	10.10	10.10	10.11	10.10
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	2.72	3.53	5.28	6.45	6.13	6.14	0.00	6.44	6.44	5.21	0.00	6.44
Natural Gas	29.88	29.88	29.88	29.81	29.88	29.88	0.00	29.88	29.88	29.88	29.87	29.88
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Low Density Suburban

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.05	0.23		
No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
Yes	Land Use	Increase Transit Accessibility	0.08	0.50		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.05			

Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.02			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
No	Transit Improvements	Expand Transit Network	0.00	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.07			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"	3.00			
No	Commute	Workplace Parking Charge		0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program	5.00			
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.07			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	150.00
Yes	Use Low VOC Paint (Non-residential Interior)	0.00
Yes	Use Low VOC Paint (Non-residential Exterior)	0.00
Yes	Use Low VOC Paint (Parking)	0.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	30.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value

Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Year 2030 Project Emissions Modeling

Oakley Logistics Center (2030)
Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	1,835.30	1000sqft	121.35	1,835,304.00	0
Unrefrigerated Warehouse-No Rail	150.00	1000sqft	3.44	150,000.00	0
Parking Lot	1,358.00	Space	17.01	543,200.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 64

Climate Zone 4 **Operational Year** 2030

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 175 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - questionnaire and site plan

Construction Phase - applicant provided

Demolition -

Grading - applicant provided

Vehicle Trips - TIA trip rate

Energy Use -

Mobile Land Use Mitigation - applicant provided

Energy Mitigation -

Architectural Coating -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	46.00
tblConstructionPhase	NumDays	310.00	31.00
tblConstructionPhase	NumDays	220.00	11.00
tblConstructionPhase	NumDays	3,100.00	153.00
tblConstructionPhase	NumDays	220.00	153.00
tblConstructionPhase	NumDays	310.00	124.00
tblConstructionPhase	NumDays	220.00	44.00
tblConstructionPhase	NumDays	3,100.00	612.00
tblConstructionPhase	NumDays	220.00	612.00
tblGrading	AcresOfGrading	77.50	40.08
tblGrading	AcresOfGrading	310.00	126.34
tblLandUse	LandUseSquareFeet	1,835,300.00	1,835,304.00
tblLandUse	LotAcreage	42.13	121.35
tblLandUse	LotAcreage	12.22	17.01
tblProjectCharacteristics	CO2IntensityFactor	641.35	175
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	7.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	7.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	7.33

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	9.1821	8.4957	6.5317	0.0205	1.2904	0.2702	1.5606	0.4337	0.2515	0.6852	0.0000	1,870.9991	1,870.9991	0.2186	0.0000	1,876.4639
2021	5.9672	7.6989	6.7431	0.0255	1.4749	0.1742	1.6490	0.4197	0.1633	0.5830	0.0000	2,353.2351	2,353.2351	0.1778	0.0000	2,357.6790
2022	5.3276	7.8514	7.0960	0.0300	1.6616	0.1348	1.7964	0.4502	0.1274	0.5777	0.0000	2,782.3035	2,782.3035	0.1622	0.0000	2,786.3572
2023	3.6400	4.2600	4.4405	0.0194	1.1076	0.0752	1.1828	0.3001	0.0711	0.3712	0.0000	1,795.8799	1,795.8799	0.0991	0.0000	1,798.3576
Maximum	**9.1821**	**8.4957**	**7.0960**	**0.0300**	**1.6616**	**0.2702**	**1.7964**	**0.4502**	**0.2515**	**0.6852**	**0.0000**	**2,782.3035**	**2,782.3035**	**0.2186**	**0.0000**	**2,786.3572**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	9.1821	8.4957	6.5317	0.0205	1.2904	0.2702	1.5606	0.4337	0.2515	0.6852	0.0000	1,870.998 4	1,870.998 4	0.2186	0.0000	1,876.463 2
2021	5.9672	7.6989	6.7431	0.0255	1.4749	0.1742	1.6490	0.4197	0.1633	0.5830	0.0000	2,353.234 6	2,353.234 6	0.1778	0.0000	2,357.678 5
2022	5.3276	7.8514	7.0960	0.0300	1.6616	0.1348	1.7964	0.4502	0.1274	0.5777	0.0000	2,782.303 1	2,782.303 1	0.1622	0.0000	2,786.356 8
2023	3.6400	4.2600	4.4405	0.0194	1.1076	0.0752	1.1828	0.3001	0.0711	0.3712	0.0000	1,795.879 7	1,795.879 7	0.0991	0.0000	1,798.357 4
Maximum	**9.1821**	**8.4957**	**7.0960**	**0.0300**	**1.6616**	**0.2702**	**1.7964**	**0.4502**	**0.2515**	**0.6852**	**0.0000**	**2,782.303 1**	**2,782.303 1**	**0.2186**	**0.0000**	**2,786.356 8**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-2-2020**	**6-1-2020**	1.9385	1.9385
2	**6-2-2020**	**9-1-2020**	4.7724	4.7724
3	**9-2-2020**	**12-1-2020**	8.8297	8.8297
4	**12-2-2020**	**3-1-2021**	7.6198	7.6198
5	**3-2-2021**	**6-1-2021**	1.5781	1.5781
6	**6-2-2021**	**9-1-2021**	3.4775	3.4775
7	**9-2-2021**	**12-1-2021**	3.4674	3.4674
8	**12-2-2021**	**3-1-2022**	3.3322	3.3322

9	**3-2-2022**	**6-1-2022**	3.3253	3.3253
10	**6-2-2022**	**9-1-2022**	3.3133	3.3133
11	**9-2-2022**	**12-1-2022**	3.3021	3.3021
12	**12-2-2022**	**3-1-2023**	3.0268	3.0268
13	**3-2-2023**	**6-1-2023**	2.9462	2.9462
14	**6-2-2023**	**9-1-2023**	2.8801	2.8801
15	**9-2-2023**	**9-30-2023**	0.1438	0.1438
		Highest	8.8297	8.8297

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.8381	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.5000e-004	0.0000	0.0636
Energy	0.1648	1.4983	1.2585	8.9900e-003		0.1139	0.1139		0.1139	0.1139	0.0000	4,285.7021	4,285.7021	0.4712	0.1209	4,333.5155
Mobile	0.7307	3.7952	8.5996	0.0398	4.3075	0.0262	4.3337	1.1555	0.0244	1.1799	0.0000	3,674.9956	3,674.9956	0.1133	0.0000	3,677.8271
Waste						0.0000	0.0000		0.0000	0.0000	490.5825	0.0000	490.5825	28.9926	0.0000	1,215.3973
Water						0.0000	0.0000		0.0000	0.0000	145.6515	197.1920	342.8434	14.9925	0.3600	824.9336
Total	**9.7336**	**5.2938**	**9.8887**	**0.0488**	**4.3075**	**0.1402**	**4.4477**	**1.1555**	**0.1384**	**1.2938**	**636.2339**	**8,157.9494**	**8,794.1833**	**44.5697**	**0.4809**	**10,051.7371**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.8381	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.5000e-004	0.0000	0.0636
Energy	0.1156	1.0506	0.8825	6.3000e-003		0.0798	0.0798		0.0798	0.0798	0.0000	3,530.1410	3,530.1410	0.4174	0.1028	3,571.2071
Mobile	0.7096	3.6813	8.1368	0.0373	4.0103	0.0246	4.0349	1.0758	0.0229	1.0987	0.0000	3,439.5826	3,439.5826	0.1073	0.0000	3,442.2651
Waste						0.0000	0.0000		0.0000	0.0000	490.5825	0.0000	490.5825	28.9926	0.0000	1,215.3973
Water						0.0000	0.0000		0.0000	0.0000	145.6515	197.1920	342.8434	14.9925	0.3600	824.9336
Total	**9.6632**	**4.7321**	**9.0498**	**0.0436**	**4.0103**	**0.1046**	**4.1149**	**1.0758**	**0.1029**	**1.1786**	**636.2339**	**7,166.9753**	**7,803.2092**	**44.5099**	**0.4628**	**9,053.8667**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.72**	**10.61**	**8.48**	**10.74**	**6.90**	**25.41**	**7.48**	**6.90**	**25.65**	**8.91**	**0.00**	**12.15**	**11.27**	**0.13**	**3.77**	**9.93**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Paving	Paving	6/17/2020	7/1/2020	5	11	
4	Building Construction	Building Construction	7/2/2020	2/1/2021	5	153	
5	Architectural Coating	Architectural Coating	7/16/2020	2/15/2021	5	153	
6	Grading 2	Grading	9/2/2020	2/22/2021	5	124	
7	Paving 2	Paving	2/23/2021	4/23/2021	5	44	
8	Construction 2	Building Construction	4/24/2021	8/29/2023	5	612	
9	Architectural Coating 2	Architectural Coating	5/8/2021	9/12/2023	5	612	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 40.08

Acres of Paving: 17.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,977,956; Non-Residential Outdoor: 992,652; Striped Parking Area: 32,592 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74
Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	1,062.00	414.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	212.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9200e-003	0.0000	4.9200e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0762	0.7636	0.5003	8.9000e-004		0.0382	0.0382		0.0355	0.0355	0.0000	78.1968	78.1968	0.0221	0.0000	78.7487
Total	**0.0762**	**0.7636**	**0.5003**	**8.9000e-004**	**4.9200e-003**	**0.0382**	**0.0431**	**7.5000e-004**	**0.0355**	**0.0362**	**0.0000**	**78.1968**	**78.1968**	**0.0221**	**0.0000**	**78.7487**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-004	6.5800e-003	1.3200e-003	2.0000e-005	3.8000e-004	2.0000e-005	4.0000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.7243	1.7243	9.0000e-005	0.0000	1.7266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	8.2000e-004	8.4700e-003	3.0000e-005	2.7300e-003	2.0000e-005	2.7400e-003	7.3000e-004	2.0000e-005	7.4000e-004	0.0000	2.3884	2.3884	6.0000e-005	0.0000	2.3898
Total	**1.3300e-003**	**7.4000e-003**	**9.7900e-003**	**5.0000e-005**	**3.1100e-003**	**4.0000e-005**	**3.1400e-003**	**8.3000e-004**	**4.0000e-005**	**8.6000e-004**	**0.0000**	**4.1127**	**4.1127**	**1.5000e-004**	**0.0000**	**4.1164**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9200e-003	0.0000	4.9200e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0762	0.7636	0.5003	8.9000e-004		0.0382	0.0382		0.0355	0.0355	0.0000	78.1967	78.1967	0.0221	0.0000	78.7486
Total	**0.0762**	**0.7636**	**0.5003**	**8.9000e-004**	**4.9200e-003**	**0.0382**	**0.0431**	**7.5000e-004**	**0.0355**	**0.0362**	**0.0000**	**78.1967**	**78.1967**	**0.0221**	**0.0000**	**78.7486**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-004	6.5800e-003	1.3200e-003	2.0000e-005	3.8000e-004	2.0000e-005	4.0000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.7243	1.7243	9.0000e-005	0.0000	1.7266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	8.2000e-004	8.4700e-003	3.0000e-005	2.7300e-003	2.0000e-005	2.7400e-003	7.3000e-004	2.0000e-005	7.4000e-004	0.0000	2.3884	2.3884	6.0000e-005	0.0000	2.3898
Total	**1.3300e-003**	**7.4000e-003**	**9.7900e-003**	**5.0000e-005**	**3.1100e-003**	**4.0000e-005**	**3.1400e-003**	**8.3000e-004**	**4.0000e-005**	**8.6000e-004**	**0.0000**	**4.1127**	**4.1127**	**1.5000e-004**	**0.0000**	**4.1164**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1146	0.0000	0.1146	0.0536	0.0000	0.0536	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0690	0.7781	0.4954	9.6000e-004		0.0337	0.0337		0.0310	0.0310	0.0000	84.4507	84.4507	0.0273	0.0000	85.1335
Total	**0.0690**	**0.7781**	**0.4954**	**9.6000e-004**	**0.1146**	**0.0337**	**0.1483**	**0.0536**	**0.0310**	**0.0846**	**0.0000**	**84.4507**	**84.4507**	**0.0273**	**0.0000**	**85.1335**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	7.4000e-004	7.6100e-003	2.0000e-005	2.4500e-003	2.0000e-005	2.4700e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.1461	2.1461	5.0000e-005	0.0000	2.1474
Total	**1.0300e-003**	**7.4000e-004**	**7.6100e-003**	**2.0000e-005**	**2.4500e-003**	**2.0000e-005**	**2.4700e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.1461**	**2.1461**	**5.0000e-005**	**0.0000**	**2.1474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1146	0.0000	0.1146	0.0536	0.0000	0.0536	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0690	0.7781	0.4954	9.6000e-004		0.0337	0.0337		0.0310	0.0310	0.0000	84.4506	84.4506	0.0273	0.0000	85.1334
Total	**0.0690**	**0.7781**	**0.4954**	**9.6000e-004**	**0.1146**	**0.0337**	**0.1483**	**0.0536**	**0.0310**	**0.0846**	**0.0000**	**84.4506**	**84.4506**	**0.0273**	**0.0000**	**85.1334**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	7.4000e-004	7.6100e-003	2.0000e-005	2.4500e-003	2.0000e-005	2.4700e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.1461	2.1461	5.0000e-005	0.0000	2.1474
Total	**1.0300e-003**	**7.4000e-004**	**7.6100e-003**	**2.0000e-005**	**2.4500e-003**	**2.0000e-005**	**2.4700e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.1461**	**2.1461**	**5.0000e-005**	**0.0000**	**2.1474**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.4600e-003	0.0774	0.0806	1.3000e-004		4.1400e-003	4.1400e-003		3.8100e-003	3.8100e-003	0.0000	11.0155	11.0155	3.5600e-003	0.0000	11.1046
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0297**	**0.0774**	**0.0806**	**1.3000e-004**		**4.1400e-003**	**4.1400e-003**		**3.8100e-003**	**3.8100e-003**	**0.0000**	**11.0155**	**11.0155**	**3.5600e-003**	**0.0000**	**11.1046**

3.4 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**2.7000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5711**	**0.5711**	**1.0000e-005**	**0.0000**	**0.5715**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.4600e-003	0.0774	0.0806	1.3000e-004		4.1400e-003	4.1400e-003		3.8100e-003	3.8100e-003	0.0000	11.0155	11.0155	3.5600e-003	0.0000	11.1046
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0297**	**0.0774**	**0.0806**	**1.3000e-004**		**4.1400e-003**	**4.1400e-003**		**3.8100e-003**	**3.8100e-003**	**0.0000**	**11.0155**	**11.0155**	**3.5600e-003**	**0.0000**	**11.1046**

3.4 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**2.7000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5711**	**0.5711**	**1.0000e-005**	**0.0000**	**0.5715**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1389	1.2567	1.1036	1.7600e-003		0.0732	0.0732		0.0688	0.0688	0.0000	151.7045	151.7045	0.0370	0.0000	152.6298
Total	**0.1389**	**1.2567**	**1.1036**	**1.7600e-003**		**0.0732**	**0.0732**		**0.0688**	**0.0688**	**0.0000**	**151.7045**	**151.7045**	**0.0370**	**0.0000**	**152.6298**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1049	3.1287	0.7866	7.3900e-003	0.1778	0.0153	0.1931	0.0514	0.0146	0.0660	0.0000	709.9757	709.9757	0.0366	0.0000	710.8912
Worker	0.2306	0.1650	1.7085	5.3300e-003	0.5497	3.7000e-003	0.5534	0.1462	3.4100e-003	0.1496	0.0000	481.5573	481.5573	0.0117	0.0000	481.8487
Total	**0.3355**	**3.2937**	**2.4951**	**0.0127**	**0.7275**	**0.0190**	**0.7464**	**0.1977**	**0.0180**	**0.2157**	**0.0000**	**1,191.5331**	**1,191.5331**	**0.0483**	**0.0000**	**1,192.7399**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1389	1.2567	1.1036	1.7600e-003		0.0732	0.0732		0.0688	0.0688	0.0000	151.7044	151.7044	0.0370	0.0000	152.6296
Total	**0.1389**	**1.2567**	**1.1036**	**1.7600e-003**		**0.0732**	**0.0732**		**0.0688**	**0.0688**	**0.0000**	**151.7044**	**151.7044**	**0.0370**	**0.0000**	**152.6296**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1049	3.1287	0.7866	7.3900e-003	0.1778	0.0153	0.1931	0.0514	0.0146	0.0660	0.0000	709.9757	709.9757	0.0366	0.0000	710.8912
Worker	0.2306	0.1650	1.7085	5.3300e-003	0.5497	3.7000e-003	0.5534	0.1462	3.4100e-003	0.1496	0.0000	481.5573	481.5573	0.0117	0.0000	481.8487
Total	**0.3355**	**3.2937**	**2.4951**	**0.0127**	**0.7275**	**0.0190**	**0.7464**	**0.1977**	**0.0180**	**0.2157**	**0.0000**	**1,191.5331**	**1,191.5331**	**0.0483**	**0.0000**	**1,192.7399**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0209	0.1918	0.1823	3.0000e-004		0.0105	0.0105		9.9100e-003	9.9100e-003	0.0000	25.4801	25.4801	6.1500e-003	0.0000	25.6338
Total	**0.0209**	**0.1918**	**0.1823**	**3.0000e-004**		**0.0105**	**0.0105**		**9.9100e-003**	**9.9100e-003**	**0.0000**	**25.4801**	**25.4801**	**6.1500e-003**	**0.0000**	**25.6338**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0145	0.4757	0.1187	1.2300e-003	0.0299	1.0300e-003	0.0309	8.6400e-003	9.9000e-004	9.6300e-003	0.0000	118.1052	118.1052	5.8100e-003	0.0000	118.2504
Worker	0.0359	0.0247	0.2620	8.6000e-004	0.0923	6.0000e-004	0.0929	0.0246	5.6000e-004	0.0251	0.0000	78.0346	78.0346	1.7500e-003	0.0000	78.0783
Total	**0.0503**	**0.5004**	**0.3807**	**2.0900e-003**	**0.1222**	**1.6300e-003**	**0.1238**	**0.0332**	**1.5500e-003**	**0.0347**	**0.0000**	**196.1398**	**196.1398**	**7.5600e-003**	**0.0000**	**196.3287**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0209	0.1918	0.1823	3.0000e-004		0.0105	0.0105		9.9100e-003	9.9100e-003	0.0000	25.4801	25.4801	6.1500e-003	0.0000	25.6338
Total	**0.0209**	**0.1918**	**0.1823**	**3.0000e-004**		**0.0105**	**0.0105**		**9.9100e-003**	**9.9100e-003**	**0.0000**	**25.4801**	**25.4801**	**6.1500e-003**	**0.0000**	**25.6338**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0145	0.4757	0.1187	1.2300e-003	0.0299	1.0300e-003	0.0309	8.6400e-003	9.9000e-004	9.6300e-003	0.0000	118.1052	118.1052	5.8100e-003	0.0000	118.2504
Worker	0.0359	0.0247	0.2620	8.6000e-004	0.0923	6.0000e-004	0.0929	0.0246	5.6000e-004	0.0251	0.0000	78.0346	78.0346	1.7500e-003	0.0000	78.0783
Total	**0.0503**	**0.5004**	**0.3807**	**2.0900e-003**	**0.1222**	**1.6300e-003**	**0.1238**	**0.0332**	**1.5500e-003**	**0.0347**	**0.0000**	**196.1398**	**196.1398**	**7.5600e-003**	**0.0000**	**196.3287**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.2766					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.1019	0.1108	1.8000e-004		6.7100e-003	6.7100e-003		6.7100e-003	6.7100e-003	0.0000	15.4472	15.4472	1.2000e-003	0.0000	15.4771
Total	**8.2912**	**0.1019**	**0.1108**	**1.8000e-004**		**6.7100e-003**	**6.7100e-003**		**6.7100e-003**	**6.7100e-003**	**0.0000**	**15.4472**	**15.4472**	**1.2000e-003**	**0.0000**	**15.4771**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0425	0.0304	0.3150	9.8000e-004	0.1014	6.8000e-004	0.1020	0.0270	6.3000e-004	0.0276	0.0000	88.7919	88.7919	2.1500e-003	0.0000	88.8456
Total	**0.0425**	**0.0304**	**0.3150**	**9.8000e-004**	**0.1014**	**6.8000e-004**	**0.1020**	**0.0270**	**6.3000e-004**	**0.0276**	**0.0000**	**88.7919**	**88.7919**	**2.1500e-003**	**0.0000**	**88.8456**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.2766					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.1019	0.1108	1.8000e-004		6.7100e-003	6.7100e-003		6.7100e-003	6.7100e-003	0.0000	15.4472	15.4472	1.2000e-003	0.0000	15.4771
Total	**8.2912**	**0.1019**	**0.1108**	**1.8000e-004**		**6.7100e-003**	**6.7100e-003**		**6.7100e-003**	**6.7100e-003**	**0.0000**	**15.4472**	**15.4472**	**1.2000e-003**	**0.0000**	**15.4771**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0425	0.0304	0.3150	9.8000e-004	0.1014	6.8000e-004	0.1020	0.0270	6.3000e-004	0.0276	0.0000	88.7919	88.7919	2.1500e-003	0.0000	88.8456
Total	**0.0425**	**0.0304**	**0.3150**	**9.8000e-004**	**0.1014**	**6.8000e-004**	**0.1020**	**0.0270**	**6.3000e-004**	**0.0276**	**0.0000**	**88.7919**	**88.7919**	**2.1500e-003**	**0.0000**	**88.8456**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.1889					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5000e-003	0.0244	0.0291	5.0000e-005		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	4.0852	4.0852	2.8000e-004	0.0000	4.0922
Total	**2.1924**	**0.0244**	**0.0291**	**5.0000e-005**		**1.5100e-003**	**1.5100e-003**		**1.5100e-003**	**1.5100e-003**	**0.0000**	**4.0852**	**4.0852**	**2.8000e-004**	**0.0000**	**4.0922**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0104	7.1800e-003	0.0761	2.5000e-004	0.0268	1.8000e-004	0.0270	7.1300e-003	1.6000e-004	7.2900e-003	0.0000	22.6582	22.6582	5.1000e-004	0.0000	22.6709
Total	**0.0104**	**7.1800e-003**	**0.0761**	**2.5000e-004**	**0.0268**	**1.8000e-004**	**0.0270**	**7.1300e-003**	**1.6000e-004**	**7.2900e-003**	**0.0000**	**22.6582**	**22.6582**	**5.1000e-004**	**0.0000**	**22.6709**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.1889					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5000e-003	0.0244	0.0291	5.0000e-005		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	4.0852	4.0852	2.8000e-004	0.0000	4.0922
Total	**2.1924**	**0.0244**	**0.0291**	**5.0000e-005**		**1.5100e-003**	**1.5100e-003**		**1.5100e-003**	**1.5100e-003**	**0.0000**	**4.0852**	**4.0852**	**2.8000e-004**	**0.0000**	**4.0922**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0104	7.1800e-003	0.0761	2.5000e-004	0.0268	1.8000e-004	0.0270	7.1300e-003	1.6000e-004	7.2900e-003	0.0000	22.6582	22.6582	5.1000e-004	0.0000	22.6709
Total	**0.0104**	**7.1800e-003**	**0.0761**	**2.5000e-004**	**0.0268**	**1.8000e-004**	**0.0270**	**7.1300e-003**	**1.6000e-004**	**7.2900e-003**	**0.0000**	**22.6582**	**22.6582**	**5.1000e-004**	**0.0000**	**22.6709**

3.7 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3290	0.0000	0.3290	0.1512	0.0000	0.1512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1936	2.1836	1.3902	2.7000e-003		0.0946	0.0946		0.0870	0.0870	0.0000	237.0067	237.0067	0.0767	0.0000	238.9230
Total	**0.1936**	**2.1836**	**1.3902**	**2.7000e-003**	**0.3290**	**0.0946**	**0.4235**	**0.1512**	**0.0870**	**0.2382**	**0.0000**	**237.0067**	**237.0067**	**0.0767**	**0.0000**	**238.9230**

3.7 Grading 2 - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8800e-003	2.0600e-003	0.0214	7.0000e-005	6.8700e-003	5.0000e-005	6.9200e-003	1.8300e-003	4.0000e-005	1.8700e-003	0.0000	6.0228	6.0228	1.5000e-004	0.0000	6.0265
Total	**2.8800e-003**	**2.0600e-003**	**0.0214**	**7.0000e-005**	**6.8700e-003**	**5.0000e-005**	**6.9200e-003**	**1.8300e-003**	**4.0000e-005**	**1.8700e-003**	**0.0000**	**6.0228**	**6.0228**	**1.5000e-004**	**0.0000**	**6.0265**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3290	0.0000	0.3290	0.1512	0.0000	0.1512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1936	2.1836	1.3902	2.7000e-003		0.0946	0.0946		0.0870	0.0870	0.0000	237.0064	237.0064	0.0767	0.0000	238.9227
Total	**0.1936**	**2.1836**	**1.3902**	**2.7000e-003**	**0.3290**	**0.0946**	**0.4235**	**0.1512**	**0.0870**	**0.2382**	**0.0000**	**237.0064**	**237.0064**	**0.0767**	**0.0000**	**238.9227**

3.7 Grading 2 - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8800e-003	2.0600e-003	0.0214	7.0000e-005	6.8700e-003	5.0000e-005	6.9200e-003	1.8300e-003	4.0000e-005	1.8700e-003	0.0000	6.0228	6.0228	1.5000e-004	0.0000	6.0265
Total	**2.8800e-003**	**2.0600e-003**	**0.0214**	**7.0000e-005**	**6.8700e-003**	**5.0000e-005**	**6.9200e-003**	**1.8300e-003**	**4.0000e-005**	**1.8700e-003**	**0.0000**	**6.0228**	**6.0228**	**1.5000e-004**	**0.0000**	**6.0265**

3.7 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1784	0.0000	0.1784	0.0685	0.0000	0.0685	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0775	0.8584	0.5713	1.1500e-003		0.0367	0.0367		0.0338	0.0338	0.0000	100.8157	100.8157	0.0326	0.0000	101.6309
Total	**0.0775**	**0.8584**	**0.5713**	**1.1500e-003**	**0.1784**	**0.0367**	**0.2151**	**0.0685**	**0.0338**	**0.1023**	**0.0000**	**100.8157**	**100.8157**	**0.0326**	**0.0000**	**101.6309**

3.7 Grading 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	7.8000e-004	8.3000e-003	3.0000e-005	2.9200e-003	2.0000e-005	2.9400e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.4716	2.4716	6.0000e-005	0.0000	2.4730
Total	**1.1400e-003**	**7.8000e-004**	**8.3000e-003**	**3.0000e-005**	**2.9200e-003**	**2.0000e-005**	**2.9400e-003**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.4716**	**2.4716**	**6.0000e-005**	**0.0000**	**2.4730**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1784	0.0000	0.1784	0.0685	0.0000	0.0685	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0775	0.8584	0.5713	1.1500e-003		0.0367	0.0367		0.0338	0.0338	0.0000	100.8156	100.8156	0.0326	0.0000	101.6307
Total	**0.0775**	**0.8584**	**0.5713**	**1.1500e-003**	**0.1784**	**0.0367**	**0.2151**	**0.0685**	**0.0338**	**0.1023**	**0.0000**	**100.8156**	**100.8156**	**0.0326**	**0.0000**	**101.6307**

3.7 Grading 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	7.8000e-004	8.3000e-003	3.0000e-005	2.9200e-003	2.0000e-005	2.9400e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.4716	2.4716	6.0000e-005	0.0000	2.4730
Total	**1.1400e-003**	**7.8000e-004**	**8.3000e-003**	**3.0000e-005**	**2.9200e-003**	**2.0000e-005**	**2.9400e-003**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.4716**	**2.4716**	**6.0000e-005**	**0.0000**	**2.4730**

3.8 Paving 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0276	0.2842	0.3224	5.0000e-004		0.0149	0.0149		0.0137	0.0137	0.0000	44.0517	44.0517	0.0143	0.0000	44.4078
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0499**	**0.2842**	**0.3224**	**5.0000e-004**		**0.0149**	**0.0149**		**0.0137**	**0.0137**	**0.0000**	**44.0517**	**44.0517**	**0.0143**	**0.0000**	**44.4078**

3.8 Paving 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	7.0000e-004	7.4000e-003	2.0000e-005	2.6100e-003	2.0000e-005	2.6200e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.2044	2.2044	5.0000e-005	0.0000	2.2056
Total	**1.0100e-003**	**7.0000e-004**	**7.4000e-003**	**2.0000e-005**	**2.6100e-003**	**2.0000e-005**	**2.6200e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.2044**	**2.2044**	**5.0000e-005**	**0.0000**	**2.2056**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0276	0.2842	0.3224	5.0000e-004		0.0149	0.0149		0.0137	0.0137	0.0000	44.0516	44.0516	0.0143	0.0000	44.4078
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0499**	**0.2842**	**0.3224**	**5.0000e-004**		**0.0149**	**0.0149**		**0.0137**	**0.0137**	**0.0000**	**44.0516**	**44.0516**	**0.0143**	**0.0000**	**44.4078**

3.8 Paving 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	7.0000e-004	7.4000e-003	2.0000e-005	2.6100e-003	2.0000e-005	2.6200e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.2044	2.2044	5.0000e-005	0.0000	2.2056
Total	**1.0100e-003**	**7.0000e-004**	**7.4000e-003**	**2.0000e-005**	**2.6100e-003**	**2.0000e-005**	**2.6200e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.2044**	**2.2044**	**5.0000e-005**	**0.0000**	**2.2056**

3.9 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1711	1.5689	1.4918	2.4200e-003		0.0863	0.0863		0.0811	0.0811	0.0000	208.4736	208.4736	0.0503	0.0000	209.7309
Total	**0.1711**	**1.5689**	**1.4918**	**2.4200e-003**		**0.0863**	**0.0863**		**0.0811**	**0.0811**	**0.0000**	**208.4736**	**208.4736**	**0.0503**	**0.0000**	**209.7309**

3.9 Construction 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1183	3.8918	0.9714	0.0101	0.2443	8.4600e-003	0.2528	0.0707	8.0900e-003	0.0788	0.0000	966.3156	966.3156	0.0475	0.0000	967.5032
Worker	0.2933	0.2024	2.1437	7.0600e-003	0.7553	4.9400e-003	0.7602	0.2009	4.5500e-003	0.2055	0.0000	638.4649	638.4649	0.0143	0.0000	638.8228
Total	**0.4116**	**4.0942**	**3.1151**	**0.0171**	**0.9996**	**0.0134**	**1.0130**	**0.2716**	**0.0126**	**0.2842**	**0.0000**	**1,604.7804**	**1,604.7804**	**0.0618**	**0.0000**	**1,606.3260**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1711	1.5689	1.4918	2.4200e-003		0.0863	0.0863		0.0811	0.0811	0.0000	208.4733	208.4733	0.0503	0.0000	209.7307
Total	**0.1711**	**1.5689**	**1.4918**	**2.4200e-003**		**0.0863**	**0.0863**		**0.0811**	**0.0811**	**0.0000**	**208.4733**	**208.4733**	**0.0503**	**0.0000**	**209.7307**

3.9 Construction 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1183	3.8918	0.9714	0.0101	0.2443	8.4600e-003	0.2528	0.0707	8.0900e-003	0.0788	0.0000	966.3156	966.3156	0.0475	0.0000	967.5032
Worker	0.2933	0.2024	2.1437	7.0600e-003	0.7553	4.9400e-003	0.7602	0.2009	4.5500e-003	0.2055	0.0000	638.4649	638.4649	0.0143	0.0000	638.8228
Total	**0.4116**	**4.0942**	**3.1151**	**0.0171**	**0.9996**	**0.0134**	**1.0130**	**0.2716**	**0.0126**	**0.2842**	**0.0000**	**1,604.7804**	**1,604.7804**	**0.0618**	**0.0000**	**1,606.3260**

3.9 Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

3.9 Construction 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1594	5.3239	1.3193	0.0144	0.3529	0.0106	0.3636	0.1021	0.0101	0.1122	0.0000	1,382.1028	1,382.1028	0.0656	0.0000	1,383.7422
Worker	0.3949	0.2621	2.8457	9.8200e-003	1.0909	6.9700e-003	1.0979	0.2902	6.4200e-003	0.2966	0.0000	888.4168	888.4168	0.0185	0.0000	888.8804
Total	**0.5543**	**5.5860**	**4.1650**	**0.0242**	**1.4439**	**0.0176**	**1.4614**	**0.3923**	**0.0166**	**0.4089**	**0.0000**	**2,270.5196**	**2,270.5196**	**0.0841**	**0.0000**	**2,272.6226**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

3.9 Construction 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1594	5.3239	1.3193	0.0144	0.3529	0.0106	0.3636	0.1021	0.0101	0.1122	0.0000	1,382.1028	1,382.1028	0.0656	0.0000	1,383.7422
Worker	0.3949	0.2621	2.8457	9.8200e-003	1.0909	6.9700e-003	1.0979	0.2902	6.4200e-003	0.2966	0.0000	888.4168	888.4168	0.0185	0.0000	888.8804
Total	**0.5543**	**5.5860**	**4.1650**	**0.0242**	**1.4439**	**0.0176**	**1.4614**	**0.3923**	**0.0166**	**0.4089**	**0.0000**	**2,270.5196**	**2,270.5196**	**0.0841**	**0.0000**	**2,272.6226**

3.9 Construction 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1353	1.2371	1.3970	2.3200e-003		0.0602	0.0602		0.0566	0.0566	0.0000	199.3521	199.3521	0.0474	0.0000	200.5377
Total	**0.1353**	**1.2371**	**1.3970**	**2.3200e-003**		**0.0602**	**0.0602**		**0.0566**	**0.0566**	**0.0000**	**199.3521**	**199.3521**	**0.0474**	**0.0000**	**200.5377**

3.9 Construction 2 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0791	2.7155	0.7813	9.2300e-003	0.2335	3.1200e-003	0.2366	0.0675	2.9900e-003	0.0705	0.0000	888.6899	888.6899	0.0370	0.0000	889.6143
Worker	0.2443	0.1559	1.7316	6.2500e-003	0.7217	4.5200e-003	0.7262	0.1920	4.1600e-003	0.1962	0.0000	565.2137	565.2137	0.0110	0.0000	565.4886
Total	**0.3234**	**2.8714**	**2.5129**	**0.0155**	**0.9552**	**7.6400e-003**	**0.9628**	**0.2595**	**7.1500e-003**	**0.2667**	**0.0000**	**1,453.9035**	**1,453.9035**	**0.0480**	**0.0000**	**1,455.1028**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1353	1.2371	1.3970	2.3200e-003		0.0602	0.0602		0.0566	0.0566	0.0000	199.3518	199.3518	0.0474	0.0000	200.5374
Total	**0.1353**	**1.2371**	**1.3970**	**2.3200e-003**		**0.0602**	**0.0602**		**0.0566**	**0.0566**	**0.0000**	**199.3518**	**199.3518**	**0.0474**	**0.0000**	**200.5374**

3.9 Construction 2 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0791	2.7155	0.7813	9.2300e-003	0.2335	3.1200e-003	0.2366	0.0675	2.9900e-003	0.0705	0.0000	888.6899	888.6899	0.0370	0.0000	889.6143
Worker	0.2443	0.1559	1.7316	6.2500e-003	0.7217	4.5200e-003	0.7262	0.1920	4.1600e-003	0.1962	0.0000	565.2137	565.2137	0.0110	0.0000	565.4886
Total	**0.3234**	**2.8714**	**2.5129**	**0.0155**	**0.9552**	**7.6400e-003**	**0.9628**	**0.2595**	**7.1500e-003**	**0.2667**	**0.0000**	**1,453.9035**	**1,453.9035**	**0.0480**	**0.0000**	**1,455.1028**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.9071					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1298	0.1545	2.5000e-004		8.0000e-003	8.0000e-003		8.0000e-003	8.0000e-003	0.0000	21.7027	21.7027	1.4900e-003	0.0000	21.7399
Total	**2.9257**	**0.1298**	**0.1545**	**2.5000e-004**		**8.0000e-003**	**8.0000e-003**		**8.0000e-003**	**8.0000e-003**	**0.0000**	**21.7027**	**21.7027**	**1.4900e-003**	**0.0000**	**21.7399**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0553	0.0382	0.4042	1.3300e-003	0.1424	9.3000e-004	0.1433	0.0379	8.6000e-004	0.0387	0.0000	120.3718	120.3718	2.7000e-003	0.0000	120.4393
Total	**0.0553**	**0.0382**	**0.4042**	**1.3300e-003**	**0.1424**	**9.3000e-004**	**0.1433**	**0.0379**	**8.6000e-004**	**0.0387**	**0.0000**	**120.3718**	**120.3718**	**2.7000e-003**	**0.0000**	**120.4393**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.9071					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1298	0.1545	2.5000e-004		8.0000e-003	8.0000e-003		8.0000e-003	8.0000e-003	0.0000	21.7026	21.7026	1.4900e-003	0.0000	21.7399
Total	**2.9257**	**0.1298**	**0.1545**	**2.5000e-004**		**8.0000e-003**	**8.0000e-003**		**8.0000e-003**	**8.0000e-003**	**0.0000**	**21.7026**	**21.7026**	**1.4900e-003**	**0.0000**	**21.7399**

3.10 Architectural Coating 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0553	0.0382	0.4042	1.3300e-003	0.1424	9.3000e-004	0.1433	0.0379	8.6000e-004	0.0387	0.0000	120.3718	120.3718	2.7000e-003	0.0000	120.4393
Total	**0.0553**	**0.0382**	**0.4042**	**1.3300e-003**	**0.1424**	**9.3000e-004**	**0.1433**	**0.0379**	**8.6000e-004**	**0.0387**	**0.0000**	**120.3718**	**120.3718**	**2.7000e-003**	**0.0000**	**120.4393**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.4461					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0266	0.1831	0.2358	3.9000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	33.1923	33.1923	2.1600e-003	0.0000	33.2463
Total	**4.4727**	**0.1831**	**0.2358**	**3.9000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**	**0.0000**	**33.1923**	**33.1923**	**2.1600e-003**	**0.0000**	**33.2463**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0788	0.0523	0.5681	1.9600e-003	0.2178	1.3900e-003	0.2192	0.0579	1.2800e-003	0.0592	0.0000	177.3488	177.3488	3.7000e-003	0.0000	177.4413
Total	**0.0788**	**0.0523**	**0.5681**	**1.9600e-003**	**0.2178**	**1.3900e-003**	**0.2192**	**0.0579**	**1.2800e-003**	**0.0592**	**0.0000**	**177.3488**	**177.3488**	**3.7000e-003**	**0.0000**	**177.4413**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.4461					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0266	0.1831	0.2358	3.9000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	33.1923	33.1923	2.1600e-003	0.0000	33.2463
Total	**4.4727**	**0.1831**	**0.2358**	**3.9000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**	**0.0000**	**33.1923**	**33.1923**	**2.1600e-003**	**0.0000**	**33.2463**

3.10 Architectural Coating 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0788	0.0523	0.5681	1.9600e-003	0.2178	1.3900e-003	0.2192	0.0579	1.2800e-003	0.0592	0.0000	177.3488	177.3488	3.7000e-003	0.0000	177.4413
Total	**0.0788**	**0.0523**	**0.5681**	**1.9600e-003**	**0.2178**	**1.3900e-003**	**0.2192**	**0.0579**	**1.2800e-003**	**0.0592**	**0.0000**	**177.3488**	**177.3488**	**3.7000e-003**	**0.0000**	**177.4413**

3.10 Architectural Coating 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.1123					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0174	0.1186	0.1648	2.7000e-004		6.4400e-003	6.4400e-003		6.4400e-003	6.4400e-003	0.0000	23.2346	23.2346	1.3900e-003	0.0000	23.2694
Total	**3.1297**	**0.1186**	**0.1648**	**2.7000e-004**		**6.4400e-003**	**6.4400e-003**		**6.4400e-003**	**6.4400e-003**	**0.0000**	**23.2346**	**23.2346**	**1.3900e-003**	**0.0000**	**23.2694**

3.10 Architectural Coating 2 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0516	0.0329	0.3658	1.3200e-003	0.1524	9.5000e-004	0.1534	0.0406	8.8000e-004	0.0414	0.0000	119.3897	119.3897	2.3200e-003	0.0000	119.4478
Total	**0.0516**	**0.0329**	**0.3658**	**1.3200e-003**	**0.1524**	**9.5000e-004**	**0.1534**	**0.0406**	**8.8000e-004**	**0.0414**	**0.0000**	**119.3897**	**119.3897**	**2.3200e-003**	**0.0000**	**119.4478**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.1123					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0174	0.1186	0.1648	2.7000e-004		6.4400e-003	6.4400e-003		6.4400e-003	6.4400e-003	0.0000	23.2346	23.2346	1.3900e-003	0.0000	23.2693
Total	**3.1297**	**0.1186**	**0.1648**	**2.7000e-004**		**6.4400e-003**	**6.4400e-003**		**6.4400e-003**	**6.4400e-003**	**0.0000**	**23.2346**	**23.2346**	**1.3900e-003**	**0.0000**	**23.2693**

3.10 Architectural Coating 2 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0516	0.0329	0.3658	1.3200e-003	0.1524	9.5000e-004	0.1534	0.0406	8.8000e-004	0.0414	0.0000	119.3897	119.3897	2.3200e-003	0.0000	119.4478
Total	**0.0516**	**0.0329**	**0.3658**	**1.3200e-003**	**0.1524**	**9.5000e-004**	**0.1534**	**0.0406**	**8.8000e-004**	**0.0414**	**0.0000**	**119.3897**	**119.3897**	**2.3200e-003**	**0.0000**	**119.4478**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7096	3.6813	8.1368	0.0373	4.0103	0.0246	4.0349	1.0758	0.0229	1.0987	0.0000	3,439.5826	3,439.5826	0.1073	0.0000	3,442.2651
Unmitigated	0.7307	3.7952	8.5996	0.0398	4.3075	0.0262	4.3337	1.1555	0.0244	1.1799	0.0000	3,674.9956	3,674.9956	0.1133	0.0000	3,677.8271

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	3,193.42	3,193.42	3193.42	8,372,604	7,794,894
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,099.50	1,099.50	1099.50	3,210,002	2,988,512
Total	4,292.92	4,292.92	4,292.92	11,582,607	10,783,407

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676
Parking Lot	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676
Unrefrigerated Warehouse-No Rail	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,386.4861	2,386.4861	0.3955	0.0818	2,420.7560
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,654.6679	2,654.6679	0.4399	0.0910	2,692.7889
NaturalGas Mitigated	0.1156	1.0506	0.8825	6.3000e-003		0.0798	0.0798		0.0798	0.0798	0.0000	1,143.6549	1,143.6549	0.0219	0.0210	1,150.4511
NaturalGas Unmitigated	0.1648	1.4983	1.2585	8.9900e-003		0.1139	0.1139		0.1139	0.1139	0.0000	1,631.0342	1,631.0342	0.0313	0.0299	1,640.7266

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	3.00439e+007	0.1620	1.4727	1.2371	8.8400e-003		0.1119	0.1119		0.1119	0.1119	0.0000	1,603.2583	1,603.2583	0.0307	0.0294	1,612.7857
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	520500	2.8100e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	27.7759	27.7759	5.3000e-004	5.1000e-004	27.9409
Total		**0.1648**	**1.4983**	**1.2585**	**8.9900e-003**		**0.1139**	**0.1139**		**0.1139**	**0.1139**	**0.0000**	**1,631.0342**	**1,631.0342**	**0.0313**	**0.0299**	**1,640.7266**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	2.10638e+007	0.1136	1.0325	0.8673	6.2000e-003		0.0785	0.0785		0.0785	0.0785	0.0000	1,124.0437	1,124.0437	0.0215	0.0206	1,130.7234
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	367500	1.9800e-003	0.0180	0.0151	1.1000e-004		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	19.6112	19.6112	3.8000e-004	3.6000e-004	19.7277
Total		**0.1156**	**1.0506**	**0.8825**	**6.3100e-003**		**0.0798**	**0.0798**		**0.0798**	**0.0798**	**0.0000**	**1,143.6549**	**1,143.6549**	**0.0219**	**0.0210**	**1,150.4511**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	3.27235e +007	2,597.545 4	0.4305	0.0891	2,634.846 1
Parking Lot	190120	15.0915	2.5000e-003	5.2000e-004	15.3082
Unrefrigerated Warehouse-No Rail	529500	42.0310	6.9700e-003	1.4400e-003	42.6346
Total		**2,654.667 9**	**0.4399**	**0.0910**	**2,692.788 9**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	2.93594e +007	2,330.506 6	0.3862	0.0799	2,363.972 7
Parking Lot	190120	15.0915	2.5000e-003	5.2000e-004	15.3082
Unrefrigerated Warehouse-No Rail	515100	40.8880	6.7800e-003	1.4000e-003	41.4751
Total		**2,386.486 1**	**0.3955**	**0.0818**	**2,420.756 0**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.8381	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.5000e-004	0.0000	0.0636
Unmitigated	8.8381	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.5000e-004	0.0000	0.0636

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.0465					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.7887					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8000e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.5000e-004	0.0000	0.0636
Total	**8.8381**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0597**	**0.0597**	**1.5000e-004**	**0.0000**	**0.0636**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.0465					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.7887					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8000e-003	2.8000e-004	0.0306	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0597	0.0597	1.5000e-004	0.0000	0.0636
Total	**8.8381**	**2.8000e-004**	**0.0306**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0597**	**0.0597**	**1.5000e-004**	**0.0000**	**0.0636**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	342.8434	14.9925	0.3600	824.9336
Unmitigated	342.8434	14.9925	0.3600	824.9336

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	424.413 / 0	316.9398	13.8597	0.3328	762.6055
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	34.6875 / 0	25.9037	1.1328	0.0272	62.3281
Total		**342.8434**	**14.9925**	**0.3600**	**824.9336**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	424.413 / 0	316.9398	13.8597	0.3328	762.6055
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	34.6875 / 0	25.9037	1.1328	0.0272	62.3281
Total		**342.8434**	**14.9925**	**0.3600**	**824.9336**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	490.5825	28.9926	0.0000	1,215.3973
Unmitigated	490.5825	28.9926	0.0000	1,215.3973

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	2275.77	461.9607	27.3011	0.0000	1,144.4882
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	141	28.6217	1.6915	0.0000	70.9091
Total		**490.5825**	**28.9926**	**0.0000**	**1,215.3973**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	2275.77	461.9607	27.3011	0.0000	1,144.488 2
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	141	28.6217	1.6915	0.0000	70.9091
Total		**490.5825**	**28.9926**	**0.0000**	**1,215.397 3**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (2030)

Bay Area AQMD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	2	No Change	0.00
Concrete/Industrial Saws	Diesel	No Change	0	1	No Change	0.00
Cranes	Diesel	No Change	0	2	No Change	0.00
Excavators	Diesel	No Change	0	7	No Change	0.00
Forklifts	Diesel	No Change	0	6	No Change	0.00
Generator Sets	Diesel	No Change	0	2	No Change	0.00
Graders	Diesel	No Change	0	2	No Change	0.00
Pavers	Diesel	No Change	0	4	No Change	0.00
Paving Equipment	Diesel	No Change	0	4	No Change	0.00
Rollers	Diesel	No Change	0	4	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	4	No Change	0.00
Scrapers	Diesel	No Change	0	4	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	10	No Change	0.00
Welders	Diesel	No Change	0	2	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr							Unmitigated mt/yr					
Air Compressors	8.07900E-002	5.57760E-001	6.94950E-001	1.14000E-003	3.32800E-002	3.32800E-002	0.00000E+000	9.76620E+001	9.76620E+001	6.52000E-003	0.00000E+000	9.78249E+001
Concrete/Industrial Saws	9.62000E-003	7.58700E-002	8.47900E-002	1.40000E-004	4.56000E-003	4.56000E-003	0.00000E+000	1.23661E+001	1.23661E+001	7.80000E-004	0.00000E+000	1.23857E+001
Cranes	1.31350E-001	1.50064E+000	6.49760E-001	1.93000E-003	6.18900E-002	5.69400E-002	0.00000E+000	1.69664E+002	1.69664E+002	5.48700E-002	0.00000E+000	1.71036E+002
Excavators	5.42900E-002	5.30840E-001	7.32140E-001	1.16000E-003	2.57200E-002	2.36600E-002	0.00000E+000	1.01631E+002	1.01631E+002	3.28700E-002	0.00000E+000	1.02453E+002
Forklifts	1.38240E-001	1.27124E+000	1.33110E+000	1.75000E-003	8.69100E-002	7.99500E-002	0.00000E+000	1.54099E+002	1.54099E+002	4.98400E-002	0.00000E+000	1.55345E+002
Generator Sets	1.31440E-001	1.16184E+000	1.40831E+000	2.52000E-003	5.99200E-002	5.99200E-002	0.00000E+000	2.16192E+002	2.16192E+002	1.06300E-002	0.00000E+000	2.16458E+002
Graders	3.64500E-002	4.82810E-001	1.39750E-001	5.10000E-004	1.54000E-002	1.41700E-002	0.00000E+000	4.51701E+001	4.51701E+001	1.46100E-002	0.00000E+000	4.55354E+001
Pavers	1.37200E-002	1.45090E-001	1.59690E-001	2.60000E-004	7.02000E-003	6.46000E-003	0.00000E+000	2.27074E+001	2.27074E+001	7.34000E-003	0.00000E+000	2.28910E+001
Paving Equipment	1.07300E-002	1.08930E-001	1.39700E-001	2.20000E-004	5.39000E-003	4.96000E-003	0.00000E+000	1.96822E+001	1.96822E+001	6.37000E-003	0.00000E+000	1.98413E+001
Rollers	1.06300E-002	1.07560E-001	1.03570E-001	1.40000E-004	6.64000E-003	6.10000E-003	0.00000E+000	1.26776E+001	1.26776E+001	4.10000E-003	0.00000E+000	1.27801E+001
Rubber Tired Dozers	1.32700E-001	1.39285E+000	5.08520E-001	1.05000E-003	6.81200E-002	6.26700E-002	0.00000E+000	9.26934E+001	9.26934E+001	2.99800E-002	0.00000E+000	9.34429E+001
Scrapers	1.51550E-001	1.78275E+000	1.13929E+000	2.35000E-003	6.94900E-002	6.39300E-002	0.00000E+000	2.06312E+002	2.06312E+002	6.67300E-002	0.00000E+000	2.07981E+002
Tractors/Loaders/Backhoes	2.07700E-001	2.10162E+000	2.61126E+000	3.60000E-003	1.20230E-001	1.10620E-001	0.00000E+000	3.16600E+002	3.16600E+002	1.02390E-001	0.00000E+000	3.19160E+002
Welders	1.10830E-001	5.67660E-001	6.54100E-001	9.80000E-004	2.62200E-002	2.62200E-002	0.00000E+000	7.19944E+001	7.19944E+001	8.99000E-003	0.00000E+000	7.22192E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated tons/yr							Mitigated mt/yr					
Air Compressors	8.07900E-002	5.57760E-001	6.94950E-001	1.14000E-003	3.32800E-002	3.32800E-002	0.00000E+000	9.76618E+001	9.76618E+001	6.52000E-003	0.00000E+000	9.78248E+001
Concrete/Industrial Saws	9.62000E-003	7.58700E-002	8.47900E-002	1.40000E-004	4.56000E-003	4.56000E-003	0.00000E+000	1.23661E+001	1.23661E+001	7.80000E-004	0.00000E+000	1.23857E+001
Cranes	1.31350E-001	1.50064E+000	6.49760E-001	1.93000E-003	6.18900E-002	5.69400E-002	0.00000E+000	1.69664E+002	1.69664E+002	5.48700E-002	0.00000E+000	1.71035E+002
Excavators	5.42900E-002	5.30840E-001	7.32140E-001	1.16000E-003	2.57200E-002	2.36600E-002	0.00000E+000	1.01631E+002	1.01631E+002	3.28700E-002	0.00000E+000	1.02453E+002
Forklifts	1.38240E-001	1.27124E+000	1.33110E+000	1.75000E-003	8.69100E-002	7.99500E-002	0.00000E+000	1.54099E+002	1.54099E+002	4.98400E-002	0.00000E+000	1.55345E+002
Generator Sets	1.31440E-001	1.16184E+000	1.40831E+000	2.52000E-003	5.99200E-002	5.99200E-002	0.00000E+000	2.16192E+002	2.16192E+002	1.06300E-002	0.00000E+000	2.16457E+002
Graders	3.64500E-002	4.82810E-001	1.39750E-001	5.10000E-004	1.54000E-002	1.41700E-002	0.00000E+000	4.51701E+001	4.51701E+001	1.46100E-002	0.00000E+000	4.55353E+001
Pavers	1.37200E-002	1.45090E-001	1.59690E-001	2.60000E-004	7.02000E-003	6.46000E-003	0.00000E+000	2.27074E+001	2.27074E+001	7.34000E-003	0.00000E+000	2.28910E+001
Paving Equipment	1.07300E-002	1.08930E-001	1.39700E-001	2.20000E-004	5.39000E-003	4.96000E-003	0.00000E+000	1.96821E+001	1.96821E+001	6.37000E-003	0.00000E+000	1.98413E+001
Rollers	1.06300E-002	1.07560E-001	1.03570E-001	1.40000E-004	6.64000E-003	6.10000E-003	0.00000E+000	1.26776E+001	1.26776E+001	4.10000E-003	0.00000E+000	1.27801E+001
Rubber Tired Dozers	1.32700E-001	1.39285E+000	5.08520E-001	1.05000E-003	6.81200E-002	6.26700E-002	0.00000E+000	9.26933E+001	9.26933E+001	2.99800E-002	0.00000E+000	9.34428E+001
Scrapers	1.51550E-001	1.78275E+000	1.13929E+000	2.35000E-003	6.94900E-002	6.39300E-002	0.00000E+000	2.06312E+002	2.06312E+002	6.67300E-002	0.00000E+000	2.07980E+002
Tractors/Loaders/Backhoes	2.07700E-001	2.10162E+000	2.61126E+000	3.60000E-003	1.20230E-001	1.10620E-001	0.00000E+000	3.16600E+002	3.16600E+002	1.02390E-001	0.00000E+000	3.19160E+002
Welders	1.10830E-001	5.67660E-001	6.54100E-001	9.80000E-004	2.62200E-002	2.62200E-002	0.00000E+000	7.19943E+001	7.19943E+001	8.99000E-003	0.00000E+000	7.22191E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.22873E-006	1.22873E-006	0.00000E+000	0.00000E+000	1.22668E-006
Concrete/Industrial Saws	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.61732E-006	1.61732E-006	0.00000E+000	0.00000E+000	1.61477E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17880E-006	1.17880E-006	0.00000E+000	0.00000E+000	1.22781E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.18074E-006	1.18074E-006	0.00000E+000	0.00000E+000	1.17127E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.16808E-006	1.16808E-006	0.00000E+000	0.00000E+000	1.22308E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.20264E-006	1.20264E-006	0.00000E+000	0.00000E+000	1.15496E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.10693E-006	1.10693E-006	0.00000E+000	0.00000E+000	1.09805E-006
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	8.80769E-007	8.80769E-007	0.00000E+000	0.00000E+000	8.73704E-007
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.01615E-006	1.01615E-006	0.00000E+000	0.00000E+000	1.00800E-006
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	7.88794E-007	7.88794E-007	0.00000E+000	0.00000E+000	1.56493E-006
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.18671E-006	1.18671E-006	0.00000E+000	0.00000E+000	1.17719E-006
Scrapers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.21175E-006	1.21175E-006	0.00000E+000	0.00000E+000	1.20204E-006
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.20025E-006	1.20025E-006	0.00000E+000	0.00000E+000	1.19062E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.25010E-006	1.25010E-006	0.00000E+000	0.00000E+000	1.24621E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction		PM2.5 Reduction			
No	Replace Ground Cover of Area Disturbed	PM10 Reduction		PM2.5 Reduction			
No	Water Exposed Area	PM10 Reduction		PM2.5 Reduction		Frequency (per day)	

No	Unpaved Road Mitigation	Moisture Content %		Vehicle Speed (mph)			
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.13	0.03	0.13	0.03	0.00	0.00
Architectural Coating 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating 2	Roads	0.51	0.14	0.51	0.14	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.85	0.23	0.85	0.23	0.00	0.00
Construction 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Construction 2	Roads	3.40	0.92	3.40	0.92	0.00	0.00
Demolition	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading	Fugitive Dust	0.11	0.05	0.11	0.05	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading 2	Fugitive Dust	0.51	0.22	0.51	0.22	0.00	0.00
Grading 2	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
	Percent Reduction											
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.10	10.10	10.10	10.11	10.10
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	2.90	3.00	5.38	6.41	6.04	5.99	0.00	6.41	6.41	5.26	0.00	6.40
Natural Gas	29.88	29.88	29.88	29.81	29.88	29.88	0.00	29.88	29.88	29.88	29.87	29.88
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Low Density Suburban

Mitigation Selected	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.05	0.23		
No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
Yes	Land Use	Increase Transit Accessibility	0.08	0.50		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.05			

Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.02			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
No	Transit Improvements	Expand Transit Network	0.00	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.07			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"	3.00			
No	Commute	Workplace Parking Charge		0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program	5.00			
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.07			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	Use Low VOC Paint (Parking)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	30.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value

Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Unmitigated Off-Site Emissions Modeling

Oakley Logistics Center (Off-site Improvements Unmitigtaed)

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	124.80	1000sqft	2.86	124,796.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	257.69	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity adjusted per PG&E progress towards RPS

Land Use -

Construction Phase - *

Off-road Equipment - Equipment adjusted for off-site work

Grading - Based on Off-site Improvements

Vehicle Trips -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	6.00	10.00
tblConstructionPhase	PhaseEndDate	4/9/2020	3/14/2020
tblConstructionPhase	PhaseStartDate	4/2/2020	3/2/2020
tblGrading	AcresOfGrading	5.00	2.86
tblGrading	MaterialExported	0.00	20.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Pavers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	257.69
tblTripsAndVMT	HaulingTripNumber	3.00	2.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0200	0.2064	0.1220	2.3000e-004	0.0626	9.9900e-003	0.0725	0.0335	9.2700e-003	0.0428	0.0000	20.5878	20.5878	5.7300e-003	0.0000	20.7311
Maximum	**0.0200**	**0.2064**	**0.1220**	**2.3000e-004**	**0.0626**	**9.9900e-003**	**0.0725**	**0.0335**	**9.2700e-003**	**0.0428**	**0.0000**	**20.5878**	**20.5878**	**5.7300e-003**	**0.0000**	**20.7311**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0200	0.2064	0.1220	2.3000e-004	0.0626	9.9900e-003	0.0725	0.0335	9.2700e-003	0.0428	0.0000	20.5878	20.5878	5.7300e-003	0.0000	20.7311
Maximum	**0.0200**	**0.2064**	**0.1220**	**2.3000e-004**	**0.0626**	**9.9900e-003**	**0.0725**	**0.0335**	**9.2700e-003**	**0.0428**	**0.0000**	**20.5878**	**20.5878**	**5.7300e-003**	**0.0000**	**20.7311**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-2-2020**	**6-1-2020**	0.2103	0.2103
		Highest	0.2103	0.2103

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0108	1.0000e-005	1.1500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2300e-003	2.2300e-003	1.0000e-005	0.0000	2.3800e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0108**	**1.0000e-005**	**1.1500e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.2300e-003**	**2.2300e-003**	**1.0000e-005**	**0.0000**	**2.3800e-003**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0108	1.0000e-005	1.1500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2300e-003	2.2300e-003	1.0000e-005	0.0000	2.3800e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0108**	**1.0000e-005**	**1.1500e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.2300e-003**	**2.2300e-003**	**1.0000e-005**	**0.0000**	**2.3800e-003**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/2/2020	3/14/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 2.86

Acres of Paving: 2.86

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	158	0.38
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Pavers	1	8.00	130	0.42
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	2.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0617	0.0000	0.0617	0.0333	0.0000	0.0333	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0196	0.2059	0.1195	2.3000e-004		9.9800e-003	9.9800e-003		9.2600e-003	9.2600e-003	0.0000	19.8189	19.8189	5.7100e-003	0.0000	19.9617
Total	**0.0196**	**0.2059**	**0.1195**	**2.3000e-004**	**0.0617**	**9.9800e-003**	**0.0717**	**0.0333**	**9.2600e-003**	**0.0425**	**0.0000**	**19.8189**	**19.8189**	**5.7100e-003**	**0.0000**	**19.9617**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.9000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0766	0.0766	0.0000	0.0000	0.0767
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.4000e-004	2.4600e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	0.0000	2.2000e-004	0.0000	0.6923	0.6923	2.0000e-005	0.0000	0.6927
Total	**3.4000e-004**	**5.3000e-004**	**2.5200e-003**	**1.0000e-005**	**8.1000e-004**	**1.0000e-005**	**8.2000e-004**	**2.1000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**0.7689**	**0.7689**	**2.0000e-005**	**0.0000**	**0.7694**

3.2 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0617	0.0000	0.0617	0.0333	0.0000	0.0333	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0196	0.2059	0.1195	2.3000e-004		9.9800e-003	9.9800e-003		9.2600e-003	9.2600e-003	0.0000	19.8189	19.8189	5.7100e-003	0.0000	19.9616
Total	**0.0196**	**0.2059**	**0.1195**	**2.3000e-004**	**0.0617**	**9.9800e-003**	**0.0717**	**0.0333**	**9.2600e-003**	**0.0425**	**0.0000**	**19.8189**	**19.8189**	**5.7100e-003**	**0.0000**	**19.9616**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.9000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0766	0.0766	0.0000	0.0000	0.0767
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.4000e-004	2.4600e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	0.0000	2.2000e-004	0.0000	0.6923	0.6923	2.0000e-005	0.0000	0.6927
Total	**3.4000e-004**	**5.3000e-004**	**2.5200e-003**	**1.0000e-005**	**8.1000e-004**	**1.0000e-005**	**8.2000e-004**	**2.1000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**0.7689**	**0.7689**	**2.0000e-005**	**0.0000**	**0.7694**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0108	1.0000e-005	1.1500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2300e-003	2.2300e-003	1.0000e-005	0.0000	2.3800e-003
Unmitigated	0.0108	1.0000e-005	1.1500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2300e-003	2.2300e-003	1.0000e-005	0.0000	2.3800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.6000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2300e-003	2.2300e-003	1.0000e-005	0.0000	2.3800e-003
Total	**0.0108**	**1.0000e-005**	**1.1500e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2300e-003**	**2.2300e-003**	**1.0000e-005**	**0.0000**	**2.3800e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.6000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2300e-003	2.2300e-003	1.0000e-005	0.0000	2.3800e-003
Total	**0.0108**	**1.0000e-005**	**1.1500e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2300e-003**	**2.2300e-003**	**1.0000e-005**	**0.0000**	**2.3800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Off-site Improvements Unmitigtaed)

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	124.80	1000sqft	2.86	124,796.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	257.69	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity adjusted per PG&E progress towards RPS

Land Use -

Construction Phase - *

Off-road Equipment - Equipment adjusted for off-site work

Grading - Based on Off-site Improvements

Vehicle Trips -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	6.00	10.00
tblConstructionPhase	PhaseEndDate	4/9/2020	3/14/2020
tblConstructionPhase	PhaseStartDate	4/2/2020	3/2/2020
tblGrading	AcresOfGrading	5.00	2.86
tblGrading	MaterialExported	0.00	20.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Pavers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	257.69
tblTripsAndVMT	HaulingTripNumber	3.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	3.9968	41.2763	24.4524	0.0470	12.5155	1.9971	14.5126	6.6978	1.8532	8.5510	0.0000	4,550.4890	4,550.4890	1.2638	0.0000	4,582.0839
Maximum	**3.9968**	**41.2763**	**24.4524**	**0.0470**	**12.5155**	**1.9971**	**14.5126**	**6.6978**	**1.8532**	**8.5510**	**0.0000**	**4,550.4890**	**4,550.4890**	**1.2638**	**0.0000**	**4,582.0839**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	3.9968	41.2763	24.4524	0.0470	12.5155	1.9971	14.5126	6.6978	1.8532	8.5510	0.0000	4,550.4890	4,550.4890	1.2638	0.0000	4,582.0839
Maximum	**3.9968**	**41.2763**	**24.4524**	**0.0470**	**12.5155**	**1.9971**	**14.5126**	**6.6978**	**1.8532**	**8.5510**	**0.0000**	**4,550.4890**	**4,550.4890**	**1.2638**	**0.0000**	**4,582.0839**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0597	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0597**	**1.2000e-004**	**0.0127**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**	**0.0000**	**0.0291**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0597	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0597**	**1.2000e-004**	**0.0127**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**	**0.0000**	**0.0291**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/2/2020	3/14/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 2.86

Acres of Paving: 2.86

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	158	0.38
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Pavers	1	8.00	130	0.42
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	2.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3477	0.0000	12.3477	6.6532	0.0000	6.6532			0.0000			0.0000
Off-Road	3.9256	41.1769	23.9044	0.0452		1.9959	1.9959		1.8520	1.8520		4,369.3180	4,369.3180	1.2590		4,400.7928
Total	**3.9256**	**41.1769**	**23.9044**	**0.0452**	**12.3477**	**1.9959**	**14.3436**	**6.6532**	**1.8520**	**8.5053**		**4,369.3180**	**4,369.3180**	**1.2590**		**4,400.7928**

3.2 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6500e-003	0.0573	0.0114	1.6000e-004	3.4900e-003	1.9000e-004	3.6800e-003	9.6000e-004	1.8000e-004	1.1400e-003		17.0157	17.0157	8.5000e-004		17.0370
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0712**	**0.0994**	**0.5480**	**1.8100e-003**	**0.1678**	**1.2500e-003**	**0.1690**	**0.0445**	**1.1600e-003**	**0.0457**		**181.1710**	**181.1710**	**4.8100e-003**		**181.2912**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3477	0.0000	12.3477	6.6532	0.0000	6.6532			0.0000			0.0000
Off-Road	3.9256	41.1769	23.9044	0.0452		1.9959	1.9959		1.8520	1.8520	0.0000	4,369.3180	4,369.3180	1.2590		4,400.7928
Total	**3.9256**	**41.1769**	**23.9044**	**0.0452**	**12.3477**	**1.9959**	**14.3436**	**6.6532**	**1.8520**	**8.5053**	**0.0000**	**4,369.3180**	**4,369.3180**	**1.2590**		**4,400.7928**

3.2 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6500e-003	0.0573	0.0114	1.6000e-004	3.4900e-003	1.9000e-004	3.6800e-003	9.6000e-004	1.8000e-004	1.1400e-003		17.0157	17.0157	8.5000e-004		17.0370
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0712**	**0.0994**	**0.5480**	**1.8100e-003**	**0.1678**	**1.2500e-003**	**0.1690**	**0.0445**	**1.1600e-003**	**0.0457**		**181.1710**	**181.1710**	**4.8100e-003**		**181.2912**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0597	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Unmitigated	0.0597	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0143					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0442					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1800e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Total	**0.0596**	**1.2000e-004**	**0.0127**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**		**0.0291**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0143					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0442					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1800e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Total	**0.0596**	**1.2000e-004**	**0.0127**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**		**0.0291**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Off-site Improvements Unmitigtaed)

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	124.80	1000sqft	2.86	124,796.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	257.69	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity adjusted per PG&E progress towards RPS

Land Use -

Construction Phase - *

Off-road Equipment - Equipment adjusted for off-site work

Grading - Based on Off-site Improvements

Vehicle Trips -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	6.00	10.00
tblConstructionPhase	PhaseEndDate	4/9/2020	3/14/2020
tblConstructionPhase	PhaseStartDate	4/2/2020	3/2/2020
tblGrading	AcresOfGrading	5.00	2.86
tblGrading	MaterialExported	0.00	20.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Pavers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	257.69
tblTripsAndVMT	HaulingTripNumber	3.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.0009	41.2876	24.4206	0.0469	12.5155	1.9971	14.5126	6.6978	1.8532	8.5510	0.0000	4,537.2610	4,537.2610	1.2636	0.0000	4,568.8505
Maximum	**4.0009**	**41.2876**	**24.4206**	**0.0469**	**12.5155**	**1.9971**	**14.5126**	**6.6978**	**1.8532**	**8.5510**	**0.0000**	**4,537.2610**	**4,537.2610**	**1.2636**	**0.0000**	**4,568.8505**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.0009	41.2876	24.4206	0.0469	12.5155	1.9971	14.5126	6.6978	1.8532	8.5510	0.0000	4,537.2610	4,537.2610	1.2636	0.0000	4,568.8505
Maximum	**4.0009**	**41.2876**	**24.4206**	**0.0469**	**12.5155**	**1.9971**	**14.5126**	**6.6978**	**1.8532**	**8.5510**	**0.0000**	**4,537.2610**	**4,537.2610**	**1.2636**	**0.0000**	**4,568.8505**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0597	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0597**	**1.2000e-004**	**0.0127**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**	**0.0000**	**0.0291**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0597	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0597**	**1.2000e-004**	**0.0127**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**	**0.0000**	**0.0291**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/2/2020	3/14/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 2.86

Acres of Paving: 2.86

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	158	0.38
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Pavers	1	8.00	130	0.42
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	2.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3477	0.0000	12.3477	6.6532	0.0000	6.6532			0.0000			0.0000
Off-Road	3.9256	41.1769	23.9044	0.0452		1.9959	1.9959		1.8520	1.8520		4,369.318 0	4,369.318 0	1.2590		4,400.792 8
Total	**3.9256**	**41.1769**	**23.9044**	**0.0452**	**12.3477**	**1.9959**	**14.3436**	**6.6532**	**1.8520**	**8.5053**		**4,369.318 0**	**4,369.318 0**	**1.2590**		**4,400.792 8**

3.2 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.7000e-003	0.0587	0.0123	1.6000e-004	3.4900e-003	1.9000e-004	3.6800e-003	9.6000e-004	1.8000e-004	1.1400e-003		16.7299	16.7299	8.9000e-004		16.7522
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0752**	**0.1107**	**0.5162**	**1.6800e-003**	**0.1678**	**1.2500e-003**	**0.1690**	**0.0445**	**1.1600e-003**	**0.0457**		**167.9430**	**167.9430**	**4.5900e-003**		**168.0578**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3477	0.0000	12.3477	6.6532	0.0000	6.6532			0.0000			0.0000
Off-Road	3.9256	41.1769	23.9044	0.0452		1.9959	1.9959		1.8520	1.8520	0.0000	4,369.3180	4,369.3180	1.2590		4,400.7928
Total	**3.9256**	**41.1769**	**23.9044**	**0.0452**	**12.3477**	**1.9959**	**14.3436**	**6.6532**	**1.8520**	**8.5053**	**0.0000**	**4,369.3180**	**4,369.3180**	**1.2590**		**4,400.7928**

3.2 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.7000e-003	0.0587	0.0123	1.6000e-004	3.4900e-003	1.9000e-004	3.6800e-003	9.6000e-004	1.8000e-004	1.1400e-003		16.7299	16.7299	8.9000e-004		16.7522
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0752**	**0.1107**	**0.5162**	**1.6800e-003**	**0.1678**	**1.2500e-003**	**0.1690**	**0.0445**	**1.1600e-003**	**0.0457**		**167.9430**	**167.9430**	**4.5900e-003**		**168.0578**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0597	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Unmitigated	0.0597	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0143					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0442					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1800e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Total	**0.0596**	**1.2000e-004**	**0.0127**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**		**0.0291**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0143					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0442					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1800e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Total	**0.0596**	**1.2000e-004**	**0.0127**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**		**0.0291**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Off-site Improvements Unmitigtaed)

Bay Area AQMD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Concrete/Industrial Saws	Diesel	No Change	0	1	No Change	0.00
Excavators	Diesel	No Change	0	1	No Change	0.00
Pavers	Diesel	No Change	0	1	No Change	0.00
Graders	Diesel	No Change	0	1	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	2	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	2	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr							Unmitigated mt/yr					
Concrete/Industrial Saws	2.09000E-003	1.64900E-002	1.84300E-002	3.00000E-005	9.90000E-004	9.90000E-004	0.00000E+000	2.68828E+000	2.68828E+000	1.70000E-004	0.00000E+000	2.69254E+000
Excavators	1.23000E-003	1.21200E-002	1.64200E-002	3.00000E-005	5.90000E-004	5.40000E-004	0.00000E+000	2.27984E+000	2.27984E+000	7.40000E-004	0.00000E+000	2.29828E+000
Graders	2.38000E-003	3.16300E-002	9.07000E-003	3.00000E-005	1.01000E-003	9.30000E-004	0.00000E+000	2.91532E+000	2.91532E+000	9.40000E-004	0.00000E+000	2.93889E+000
Pavers	1.30000E-003	1.39000E-002	1.43300E-002	2.00000E-005	6.80000E-004	6.20000E-004	0.00000E+000	2.04246E+000	2.04246E+000	6.60000E-004	0.00000E+000	2.05898E+000
Rubber Tired Dozers	1.07900E-002	1.13320E-001	4.13200E-002	9.00000E-005	5.55000E-003	5.11000E-003	0.00000E+000	7.50552E+000	7.50552E+000	2.43000E-003	0.00000E+000	7.56621E+000
Tractors/Loaders/ Backhoes	1.83000E-003	1.84200E-002	1.99500E-002	3.00000E-005	1.16000E-003	1.07000E-003	0.00000E+000	2.38746E+000	2.38746E+000	7.70000E-004	0.00000E+000	2.40676E+000

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated tons/yr							Mitigated mt/yr					
Concrete/Industrial Saws	2.09000E-003	1.64900E-002	1.84300E-002	3.00000E-005	9.90000E-004	9.90000E-004	0.00000E+000	2.68828E+000	2.68828E+000	1.70000E-004	0.00000E+000	2.69254E+000
Excavators	1.23000E-003	1.21200E-002	1.64200E-002	3.00000E-005	5.90000E-004	5.40000E-004	0.00000E+000	2.27984E+000	2.27984E+000	7.40000E-004	0.00000E+000	2.29827E+000
Graders	2.38000E-003	3.16300E-002	9.07000E-003	3.00000E-005	1.01000E-003	9.30000E-004	0.00000E+000	2.91532E+000	2.91532E+000	9.40000E-004	0.00000E+000	2.93889E+000
Pavers	1.30000E-003	1.39000E-002	1.43300E-002	2.00000E-005	6.80000E-004	6.20000E-004	0.00000E+000	2.04246E+000	2.04246E+000	6.60000E-004	0.00000E+000	2.05897E+000
Rubber Tired Dozers	1.07900E-002	1.13320E-001	4.13200E-002	9.00000E-005	5.55000E-003	5.11000E-003	0.00000E+000	7.50552E+000	7.50552E+000	2.43000E-003	0.00000E+000	7.56620E+000
Tractors/Loaders/Backhoes	1.83000E-003	1.84200E-002	1.99500E-002	3.00000E-005	1.16000E-003	1.07000E-003	0.00000E+000	2.38746E+000	2.38746E+000	7.70000E-004	0.00000E+000	2.40676E+000

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Concrete/Industrial Saws	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	4.35108E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	4.85677E-006
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.32167E-006
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction		PM2.5 Reduction			
No	Replace Ground Cover of Area Disturbed	PM10 Reduction		PM2.5 Reduction			
No	Water Exposed Area	PM10 Reduction		PM2.5 Reduction		Frequency (per day)	
No	Unpaved Road Mitigation	Moisture Content %		Vehicle Speed (mph)			
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Grading	Fugitive Dust	0.06	0.03	0.06	0.03	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.00	0.15		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			

No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.00			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				
No	Commute	Workplace Parking Charge				
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.00			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	Use Low VOC Paint (Parking)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value

Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Mitigated Off-Site Emissions Modeling

Oakley Logistics Center (Off-site Improvements Mitigtaed)

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	124.80	1000sqft	2.86	124,796.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	257.69	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity adjusted per PG&E progress towards RPS

Land Use -

Construction Phase - *

Off-road Equipment - Equipment adjusted for off-site work

Grading - Based on Off-site Improvements

Vehicle Trips -

Architectural Coating -

Construction Off-road Equipment Mitigation - Engine Tier Mitigation

Area Mitigation - Mitigation

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	6.00	10.00
tblConstructionPhase	PhaseEndDate	4/9/2020	3/14/2020
tblConstructionPhase	PhaseStartDate	4/2/2020	3/2/2020
tblGrading	AcresOfGrading	5.00	2.86
tblGrading	MaterialExported	0.00	20.00
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Pavers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	CO2IntensityFactor	641.35	257.69
tblTripsAndVMT	HaulingTripNumber	3.00	2.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0200	0.2065	0.1221	2.3000e-004	0.0626	9.9900e-003	0.0725	0.0335	9.2700e-003	0.0428	0.0000	20.5991	20.5991	5.7400e-003	0.0000	20.7425
Maximum	**0.0200**	**0.2065**	**0.1221**	**2.3000e-004**	**0.0626**	**9.9900e-003**	**0.0725**	**0.0335**	**9.2700e-003**	**0.0428**	**0.0000**	**20.5991**	**20.5991**	**5.7400e-003**	**0.0000**	**20.7425**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	3.0400e-003	0.0122	0.1329	2.3000e-004	0.0626	3.7000e-004	0.0629	0.0335	3.7000e-004	0.0339	0.0000	20.5991	20.5991	5.7400e-003	0.0000	20.7424
Maximum	**3.0400e-003**	**0.0122**	**0.1329**	**2.3000e-004**	**0.0626**	**3.7000e-004**	**0.0629**	**0.0335**	**3.7000e-004**	**0.0339**	**0.0000**	**20.5991**	**20.5991**	**5.7400e-003**	**0.0000**	**20.7424**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**84.78**	**94.07**	**-8.85**	**0.00**	**0.00**	**96.30**	**13.28**	**0.00**	**96.01**	**20.82**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-2-2020**	**6-1-2020**	0.2104	0.0142
		Highest	0.2104	0.0142

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0108	1.0000e-005	1.1500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2300e-003	2.2300e-003	1.0000e-005	0.0000	2.3800e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0108**	**1.0000e-005**	**1.1500e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.2300e-003**	**2.2300e-003**	**1.0000e-005**	**0.0000**	**2.3800e-003**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.1700e-003	1.0000e-005	1.1500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2300e-003	2.2300e-003	1.0000e-005	0.0000	2.3800e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.1700e-003**	**1.0000e-005**	**1.1500e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.2300e-003**	**2.2300e-003**	**1.0000e-005**	**0.0000**	**2.3800e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	24.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/2/2020	3/14/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 2.86

Acres of Paving: 2.86

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	158	0.38
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Pavers	1	8.00	130	0.42
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41

<u>Trips and VMT</u>

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	2.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0617	0.0000	0.0617	0.0333	0.0000	0.0333	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0196	0.2060	0.1196	2.3000e-004		9.9800e-003	9.9800e-003		9.2600e-003	9.2600e-003	0.0000	19.8302	19.8302	5.7100e-003	0.0000	19.9730
Total	**0.0196**	**0.2060**	**0.1196**	**2.3000e-004**	**0.0617**	**9.9800e-003**	**0.0717**	**0.0333**	**9.2600e-003**	**0.0425**	**0.0000**	**19.8302**	**19.8302**	**5.7100e-003**	**0.0000**	**19.9730**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.9000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0766	0.0766	0.0000	0.0000	0.0767
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.4000e-004	2.4600e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	0.0000	2.2000e-004	0.0000	0.6923	0.6923	2.0000e-005	0.0000	0.6927
Total	**3.4000e-004**	**5.3000e-004**	**2.5200e-003**	**1.0000e-005**	**8.1000e-004**	**1.0000e-005**	**8.2000e-004**	**2.1000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**0.7689**	**0.7689**	**2.0000e-005**	**0.0000**	**0.7694**

3.2 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0617	0.0000	0.0617	0.0333	0.0000	0.0333	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-003	0.0117	0.1304	2.3000e-004		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	19.8301	19.8301	5.7100e-003	0.0000	19.9730
Total	**2.7000e-003**	**0.0117**	**0.1304**	**2.3000e-004**	**0.0617**	**3.6000e-004**	**0.0621**	**0.0333**	**3.6000e-004**	**0.0336**	**0.0000**	**19.8301**	**19.8301**	**5.7100e-003**	**0.0000**	**19.9730**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.9000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0766	0.0766	0.0000	0.0000	0.0767
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.4000e-004	2.4600e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	0.0000	2.2000e-004	0.0000	0.6923	0.6923	2.0000e-005	0.0000	0.6927
Total	**3.4000e-004**	**5.3000e-004**	**2.5200e-003**	**1.0000e-005**	**8.1000e-004**	**1.0000e-005**	**8.2000e-004**	**2.1000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**0.7689**	**0.7689**	**2.0000e-005**	**0.0000**	**0.7694**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.1700e-003	1.0000e-005	1.1500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2300e-003	2.2300e-003	1.0000e-005	0.0000	2.3800e-003
Unmitigated	0.0108	1.0000e-005	1.1500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2300e-003	2.2300e-003	1.0000e-005	0.0000	2.3800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.6000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2300e-003	2.2300e-003	1.0000e-005	0.0000	2.3800e-003
Total	**0.0108**	**1.0000e-005**	**1.1500e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2300e-003**	**2.2300e-003**	**1.0000e-005**	**0.0000**	**2.3800e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2300e-003	2.2300e-003	1.0000e-005	0.0000	2.3800e-003
Total	**8.1800e-003**	**1.0000e-005**	**1.1500e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2300e-003**	**2.2300e-003**	**1.0000e-005**	**0.0000**	**2.3800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Off-site Improvements Mitigtaed)

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	124.80	1000sqft	2.86	124,796.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	257.69	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity adjusted per PG&E progress towards RPS

Land Use -

Construction Phase - *

Off-road Equipment - Equipment adjusted for off-site work

Grading - Based on Off-site Improvements

Vehicle Trips -

Architectural Coating -

Construction Off-road Equipment Mitigation - Engine Tier Mitigation

Area Mitigation - Mitigation

Oakley Logistics Center (Off-site Improvements Mitigtaed) - Bay Area AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	6.00	10.00
tblConstructionPhase	PhaseEndDate	4/9/2020	3/14/2020
tblConstructionPhase	PhaseStartDate	4/2/2020	3/2/2020
tblGrading	AcresOfGrading	5.00	2.86
tblGrading	MaterialExported	0.00	20.00
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Pavers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	CO2IntensityFactor	641.35	257.69
tblTripsAndVMT	HaulingTripNumber	3.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	3.9984	41.2950	24.4678	0.0471	12.5155	1.9980	14.5135	6.6978	1.8540	8.5518	0.0000	4,552.974 7	4,552.974 7	1.2646	0.0000	4,584.589 7
Maximum	**3.9984**	**41.2950**	**24.4678**	**0.0471**	**12.5155**	**1.9980**	**14.5135**	**6.6978**	**1.8540**	**8.5518**	**0.0000**	**4,552.974 7**	**4,552.974 7**	**1.2646**	**0.0000**	**4,584.589 7**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.6118	2.4419	26.6284	0.0471	12.5155	0.0733	12.5888	6.6978	0.0732	6.7710	0.0000	4,552.974 7	4,552.974 7	1.2646	0.0000	4,584.589 7
Maximum	**0.6118**	**2.4419**	**26.6284**	**0.0471**	**12.5155**	**0.0733**	**12.5888**	**6.6978**	**0.0732**	**6.7710**	**0.0000**	**4,552.974 7**	**4,552.974 7**	**1.2646**	**0.0000**	**4,584.589 7**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**84.70**	**94.09**	**-8.83**	**0.00**	**0.00**	**96.33**	**13.26**	**0.00**	**96.05**	**20.82**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0597	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0597**	**1.2000e-004**	**0.0127**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**	**0.0000**	**0.0291**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0454	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0454**	**1.2000e-004**	**0.0127**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**	**0.0000**	**0.0291**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	23.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/2/2020	3/14/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 2.86

Acres of Paving: 2.86

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	158	0.38
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Pavers	1	8.00	130	0.42
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	2.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3477	0.0000	12.3477	6.6532	0.0000	6.6532			0.0000			0.0000
Off-Road	3.9273	41.1956	23.9198	0.0453		1.9968	1.9968		1.8529	1.8529		4,371.8037	4,371.8037	1.2598		4,403.2986
Total	**3.9273**	**41.1956**	**23.9198**	**0.0453**	**12.3477**	**1.9968**	**14.3445**	**6.6532**	**1.8529**	**8.5061**		**4,371.8037**	**4,371.8037**	**1.2598**		**4,403.2986**

3.2 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6500e-003	0.0573	0.0114	1.6000e-004	3.4900e-003	1.9000e-004	3.6800e-003	9.6000e-004	1.8000e-004	1.1400e-003		17.0157	17.0157	8.5000e-004		17.0370
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0712**	**0.0994**	**0.5480**	**1.8100e-003**	**0.1678**	**1.2500e-003**	**0.1690**	**0.0445**	**1.1600e-003**	**0.0457**		**181.1710**	**181.1710**	**4.8100e-003**		**181.2912**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3477	0.0000	12.3477	6.6532	0.0000	6.6532			0.0000			0.0000
Off-Road	0.5406	2.3426	26.0804	0.0453		0.0721	0.0721		0.0721	0.0721	0.0000	4,371.8037	4,371.8037	1.2598		4,403.2986
Total	**0.5406**	**2.3426**	**26.0804**	**0.0453**	**12.3477**	**0.0721**	**12.4198**	**6.6532**	**0.0721**	**6.7253**	**0.0000**	**4,371.8037**	**4,371.8037**	**1.2598**		**4,403.2986**

3.2 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6500e-003	0.0573	0.0114	1.6000e-004	3.4900e-003	1.9000e-004	3.6800e-003	9.6000e-004	1.8000e-004	1.1400e-003		17.0157	17.0157	8.5000e-004		17.0370
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0712**	**0.0994**	**0.5480**	**1.8100e-003**	**0.1678**	**1.2500e-003**	**0.1690**	**0.0445**	**1.1600e-003**	**0.0457**		**181.1710**	**181.1710**	**4.8100e-003**		**181.2912**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0454	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Unmitigated	0.0597	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0143					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0442					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1800e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Total	**0.0596**	**1.2000e-004**	**0.0127**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**		**0.0291**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0442					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1800e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Total	**0.0454**	**1.2000e-004**	**0.0127**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**		**0.0291**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Off-site Improvements Mitigtaed)

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	124.80	1000sqft	2.86	124,796.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	257.69	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity adjusted per PG&E progress towards RPS

Land Use -

Construction Phase - *

Off-road Equipment - Equipment adjusted for off-site work

Grading - Based on Off-site Improvements

Vehicle Trips -

Architectural Coating -

Construction Off-road Equipment Mitigation - Engine Tier Mitigation

Area Mitigation - Mitigation

Oakley Logistics Center (Off-site Improvements Mitigtaed) - Bay Area AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	6.00	10.00
tblConstructionPhase	PhaseEndDate	4/9/2020	3/14/2020
tblConstructionPhase	PhaseStartDate	4/2/2020	3/2/2020
tblGrading	AcresOfGrading	5.00	2.86
tblGrading	MaterialExported	0.00	20.00
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Pavers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	CO2IntensityFactor	641.35	257.69
tblTripsAndVMT	HaulingTripNumber	3.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.0025	41.3063	24.4360	0.0469	12.5155	1.9980	14.5135	6.6978	1.8540	8.5518	0.0000	4,539.7467	4,539.7467	1.2644	0.0000	4,571.3563
Maximum	**4.0025**	**41.3063**	**24.4360**	**0.0469**	**12.5155**	**1.9980**	**14.5135**	**6.6978**	**1.8540**	**8.5518**	**0.0000**	**4,539.7467**	**4,539.7467**	**1.2644**	**0.0000**	**4,571.3563**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.6158	2.4532	26.5966	0.0469	12.5155	0.0733	12.5888	6.6978	0.0732	6.7710	0.0000	4,539.7467	4,539.7467	1.2644	0.0000	4,571.3563
Maximum	**0.6158**	**2.4532**	**26.5966**	**0.0469**	**12.5155**	**0.0733**	**12.5888**	**6.6978**	**0.0732**	**6.7710**	**0.0000**	**4,539.7467**	**4,539.7467**	**1.2644**	**0.0000**	**4,571.3563**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**84.61**	**94.06**	**-8.84**	**0.00**	**0.00**	**96.33**	**13.26**	**0.00**	**96.05**	**20.82**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0597	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0597**	**1.2000e-004**	**0.0127**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**	**0.0000**	**0.0291**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0454	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0454**	**1.2000e-004**	**0.0127**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**	**0.0000**	**0.0291**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	23.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/2/2020	3/14/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 2.86

Acres of Paving: 2.86

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	158	0.38
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Pavers	1	8.00	130	0.42
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	2.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3477	0.0000	12.3477	6.6532	0.0000	6.6532			0.0000			0.0000
Off-Road	3.9273	41.1956	23.9198	0.0453		1.9968	1.9968		1.8529	1.8529		4,371.8037	4,371.8037	1.2598		4,403.2986
Total	**3.9273**	**41.1956**	**23.9198**	**0.0453**	**12.3477**	**1.9968**	**14.3445**	**6.6532**	**1.8529**	**8.5061**		**4,371.8037**	**4,371.8037**	**1.2598**		**4,403.2986**

3.2 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.7000e-003	0.0587	0.0123	1.6000e-004	3.4900e-003	1.9000e-004	3.6800e-003	9.6000e-004	1.8000e-004	1.1400e-003		16.7299	16.7299	8.9000e-004		16.7522
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0752**	**0.1107**	**0.5162**	**1.6800e-003**	**0.1678**	**1.2500e-003**	**0.1690**	**0.0445**	**1.1600e-003**	**0.0457**		**167.9430**	**167.9430**	**4.5900e-003**		**168.0578**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3477	0.0000	12.3477	6.6532	0.0000	6.6532			0.0000			0.0000
Off-Road	0.5406	2.3426	26.0804	0.0453		0.0721	0.0721		0.0721	0.0721	0.0000	4,371.8037	4,371.8037	1.2598		4,403.2986
Total	**0.5406**	**2.3426**	**26.0804**	**0.0453**	**12.3477**	**0.0721**	**12.4198**	**6.6532**	**0.0721**	**6.7253**	**0.0000**	**4,371.8037**	**4,371.8037**	**1.2598**		**4,403.2986**

3.2 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.7000e-003	0.0587	0.0123	1.6000e-004	3.4900e-003	1.9000e-004	3.6800e-003	9.6000e-004	1.8000e-004	1.1400e-003		16.7299	16.7299	8.9000e-004		16.7522
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0752**	**0.1107**	**0.5162**	**1.6800e-003**	**0.1678**	**1.2500e-003**	**0.1690**	**0.0445**	**1.1600e-003**	**0.0457**		**167.9430**	**167.9430**	**4.5900e-003**		**168.0578**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0454	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Unmitigated	0.0597	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0143					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0442					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1800e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Total	**0.0596**	**1.2000e-004**	**0.0127**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**		**0.0291**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0442					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1800e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0273	0.0273	7.0000e-005		0.0291
Total	**0.0454**	**1.2000e-004**	**0.0127**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0273**	**0.0273**	**7.0000e-005**		**0.0291**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Off-site Improvements Mitigtaed)

Bay Area AQMD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Grading	0.85	0.94	-0.09	0.00	0.96	0.96	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Concrete/Industrial Saws	Diesel	Tier 4 Final	1	1	No Change	0.00
Excavators	Diesel	Tier 4 Final	1	1	No Change	0.00
Pavers	Diesel	Tier 4 Final	1	1	No Change	0.00
Graders	Diesel	Tier 4 Final	1	1	No Change	0.00
Rubber Tired Dozers	Diesel	Tier 4 Final	2	2	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2	2	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr							Unmitigated mt/yr					
Concrete/Industrial Saws	2.09000E-003	1.64900E-002	1.84300E-002	3.00000E-005	9.90000E-004	9.90000E-004	0.00000E+000	2.68828E+000	2.68828E+000	1.70000E-004	0.00000E+000	2.69254E+000
Excavators	1.22000E-003	1.20600E-002	1.63400E-002	3.00000E-005	5.80000E-004	5.40000E-004	0.00000E+000	2.26850E+000	2.26850E+000	7.30000E-004	0.00000E+000	2.28684E+000
Graders	2.38000E-003	3.16300E-002	9.07000E-003	3.00000E-005	1.01000E-003	9.30000E-004	0.00000E+000	2.91532E+000	2.91532E+000	9.40000E-004	0.00000E+000	2.93889E+000
Pavers	1.31000E-003	1.40500E-002	1.44900E-002	2.00000E-005	6.80000E-004	6.30000E-004	0.00000E+000	2.06508E+000	2.06508E+000	6.70000E-004	0.00000E+000	2.08178E+000
Rubber Tired Dozers	1.07900E-002	1.13320E-001	4.13200E-002	9.00000E-005	5.55000E-003	5.11000E-003	0.00000E+000	7.50552E+000	7.50552E+000	2.43000E-003	0.00000E+000	7.56621E+000
Tractors/Loaders/ Backhoes	1.83000E-003	1.84200E-002	1.99500E-002	3.00000E-005	1.16000E-003	1.07000E-003	0.00000E+000	2.38746E+000	2.38746E+000	7.70000E-004	0.00000E+000	2.40676E+000

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated tons/yr							Mitigated mt/yr					
Concrete/Industrial Saws	3.10000E-004	1.36000E-003	1.92900E-002	3.00000E-005	4.00000E-005	4.00000E-005	0.00000E+000	2.68828E+000	2.68828E+000	1.70000E-004	0.00000E+000	2.69254E+000
Excavators	3.20000E-004	1.38000E-003	1.95900E-002	3.00000E-005	4.00000E-005	4.00000E-005	0.00000E+000	2.26850E+000	2.26850E+000	7.30000E-004	0.00000E+000	2.28684E+000
Graders	4.10000E-004	1.76000E-003	1.48700E-002	3.00000E-005	5.00000E-005	5.00000E-005	0.00000E+000	2.91532E+000	2.91532E+000	9.40000E-004	0.00000E+000	2.93889E+000
Pavers	2.90000E-004	1.25000E-003	1.78200E-002	2.00000E-005	4.00000E-005	4.00000E-005	0.00000E+000	2.06508E+000	2.06508E+000	6.70000E-004	0.00000E+000	2.08177E+000
Rubber Tired Dozers	1.05000E-003	4.53000E-003	3.83400E-002	9.00000E-005	1.40000E-004	1.40000E-004	0.00000E+000	7.50552E+000	7.50552E+000	2.43000E-003	0.00000E+000	7.56620E+000
Tractors/Loaders/Backhoes	3.30000E-004	1.44000E-003	2.04900E-002	3.00000E-005	4.00000E-005	4.00000E-005	0.00000E+000	2.38746E+000	2.38746E+000	7.70000E-004	0.00000E+000	2.40676E+000

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Concrete/Industrial Saws	8.51675E-001	9.17526E-001	-4.66630E-002	0.00000E+000	9.59596E-001	9.59596E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Excavators	7.37705E-001	8.85572E-001	-1.98898E-001	0.00000E+000	9.31034E-001	9.25926E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Graders	8.27731E-001	9.44357E-001	-6.39471E-001	0.00000E+000	9.50495E-001	9.46237E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Pavers	7.78626E-001	9.11032E-001	-2.29814E-001	0.00000E+000	9.41176E-001	9.36508E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	4.80358E-006
Rubber Tired Dozers	9.02688E-001	9.60025E-001	7.21200E-002	0.00000E+000	9.74775E-001	9.72603E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.32167E-006
Tractors/Loaders/Backhoes	8.19672E-001	9.21824E-001	-2.70677E-002	0.00000E+000	9.65517E-001	9.62617E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Water Exposed Area	PM10 Reduction	0.00	PM2.5 Reduction	0.00	Frequency (per day)	
No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	0.00		
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Grading	Fugitive Dust	0.06	0.03	0.06	0.03	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.00	0.15		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			

No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.00			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				
No	Commute	Workplace Parking Charge				
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.00			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	150.00
Yes	Use Low VOC Paint (Non-residential Interior)	0.00
Yes	Use Low VOC Paint (Non-residential Exterior)	0.00
Yes	Use Low VOC Paint (Parking)	0.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value

Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Mitigated Reduced Intensity Alternative Emissions Modeling

Oakley Logistics Center (Reduced Intensity Alt. Mitigated)

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	920.00	1000sqft	121.35	920,000.00	0
Unrefrigerated Warehouse-No Rail	90.00	1000sqft	3.44	90,000.00	0
Parking Lot	1,358.00	Space	17.01	543,200.00	0

1.2 Other Project Characteristics

Urbanization Urban

Wind Speed (m/s) 2.2

Precipitation Freq (Days) 64

Climate Zone 4

Operational Year 2024

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 245.88

CH4 Intensity (lb/MWhr) 0.029

N2O Intensity (lb/MWhr) 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - Per description of Alternative

Construction Phase - *

Demolition -

Grading - Based on description of Alternative

Architectural Coating - Mitigation

Vehicle Trips - TIA trip rate

Energy Use -

Construction Off-road Equipment Mitigation - Mitigation

Mobile Land Use Mitigation - applicant provided

Area Mitigation - Mitigation

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	200.00	46.00
tblConstructionPhase	NumDays	310.00	31.00

tblConstructionPhase	NumDays	220.00	11.00
tblConstructionPhase	NumDays	3,100.00	153.00
tblConstructionPhase	NumDays	220.00	153.00
tblConstructionPhase	NumDays	310.00	124.00
tblConstructionPhase	NumDays	220.00	44.00
tblConstructionPhase	NumDays	3,100.00	306.00
tblConstructionPhase	NumDays	220.00	306.00
tblConstructionPhase	PhaseEndDate	12/4/2020	5/4/2020
tblConstructionPhase	PhaseEndDate	2/11/2022	6/16/2020
tblConstructionPhase	PhaseEndDate	11/29/2047	7/1/2020
tblConstructionPhase	PhaseEndDate	3/9/2035	2/1/2021
tblConstructionPhase	PhaseEndDate	8/6/2049	2/15/2021
tblConstructionPhase	PhaseEndDate	4/21/2023	2/22/2021
tblConstructionPhase	PhaseEndDate	10/2/2048	4/23/2021
tblConstructionPhase	PhaseEndDate	1/25/2047	6/27/2022
tblConstructionPhase	PhaseEndDate	6/10/2050	7/11/2022
tblConstructionPhase	PhaseStartDate	12/5/2020	5/5/2020
tblConstructionPhase	PhaseStartDate	1/26/2047	6/17/2020
tblConstructionPhase	PhaseStartDate	4/22/2023	7/2/2020
tblConstructionPhase	PhaseStartDate	10/3/2048	7/16/2020
tblConstructionPhase	PhaseStartDate	2/12/2022	9/2/2020
tblConstructionPhase	PhaseStartDate	11/30/2047	2/23/2021
tblConstructionPhase	PhaseStartDate	3/10/2035	4/24/2021
tblConstructionPhase	PhaseStartDate	8/7/2049	5/8/2021
tblGrading	AcresOfGrading	77.50	40.08
tblGrading	AcresOfGrading	310.00	26.34
tblLandUse	LotAcreage	21.12	121.35

tblLandUse	LotAcreage	2.07	3.44
tblLandUse	LotAcreage	12.22	17.01
tblProjectCharacteristics	CO2IntensityFactor	641.35	245.88
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	6.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	6.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	6.33

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.7597	7.2186	5.4482	0.0152	0.9177	0.2626	1.1803	0.3413	0.2444	0.5857	0.0000	1,378.0713	1,378.0713	0.1992	0.0000	1,383.0512
2021	0.6678	5.9163	5.2099	0.0175	0.9239	0.1679	1.0918	0.2791	0.1574	0.4365	0.0000	1,604.8171	1,604.8171	0.1498	0.0000	1,608.5630
2022	0.3118	2.7635	2.5769	9.7400e-003	0.4998	0.0622	0.5620	0.1354	0.0589	0.1943	0.0000	897.1095	897.1095	0.0624	0.0000	898.6691
Maximum	**0.7597**	**7.2186**	**5.4482**	**0.0175**	**0.9239**	**0.2626**	**1.1803**	**0.3413**	**0.2444**	**0.5857**	**0.0000**	**1,604.8171**	**1,604.8171**	**0.1992**	**0.0000**	**1,608.5630**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3404	2.4591	5.5994	0.0152	0.9177	0.0227	0.9404	0.3413	0.0221	0.3634	0.0000	1,378.0706	1,378.0706	0.1992	0.0000	1,383.0505
2021	0.4050	3.1853	5.3982	0.0175	0.9239	0.0172	0.9411	0.2791	0.0166	0.2957	0.0000	1,604.8166	1,604.8166	0.1498	0.0000	1,608.5625
2022	0.2130	1.8335	2.6473	9.7400e-003	0.4998	8.5200e-003	0.5083	0.1354	8.1900e-003	0.1436	0.0000	897.1093	897.1093	0.0624	0.0000	898.6689
Maximum	**0.4050**	**3.1853**	**5.5994**	**0.0175**	**0.9239**	**0.0227**	**0.9411**	**0.3413**	**0.0221**	**0.3634**	**0.0000**	**1,604.8166**	**1,604.8166**	**0.1992**	**0.0000**	**1,608.5625**

Oakley Logistics Center (Reduced Intensity Alt. Mitigated) - Bay Area AQMD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**44.90**	**52.96**	**-3.10**	**0.00**	**0.00**	**90.17**	**15.68**	**0.00**	**89.82**	**34.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-2-2020**	**6-1-2020**	1.9385	0.1485
2	**6-2-2020**	**9-1-2020**	1.9542	0.8922
3	**9-2-2020**	**12-1-2020**	3.6731	1.3624
4	**12-2-2020**	**3-1-2021**	2.8708	0.9528
5	**3-2-2021**	**6-1-2021**	1.0041	0.5164
6	**6-2-2021**	**9-1-2021**	1.7153	1.1121
7	**9-2-2021**	**12-1-2021**	1.7137	1.1171
8	**12-2-2021**	**3-1-2022**	1.6174	1.0733
9	**3-2-2022**	**6-1-2022**	1.5945	1.0618
10	**6-2-2022**	**9-1-2022**	0.4597	0.3018
		Highest	3.6731	1.3624

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.5197	2.0000e-004	0.0217	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0423	0.0423	1.1000e-004	0.0000	0.0451
Energy	0.0829	0.7536	0.6330	4.5200e-003		0.0573	0.0573		0.0573	0.0573	0.0000	2,706.4645	2,706.4645	0.2382	0.0611	2,730.6164
Mobile	0.4922	2.2813	5.8998	0.0234	2.1806	0.0189	2.1995	0.5852	0.0176	0.6028	0.0000	2,148.8913	2,148.8913	0.0710	0.0000	2,150.6667
Waste						0.0000	0.0000		0.0000	0.0000	248.7451	0.0000	248.7451	14.7004	0.0000	616.2555
Water						0.0000	0.0000		0.0000	0.0000	74.0986	140.9515	215.0501	7.6273	0.1831	460.3083
Total	**5.0947**	**3.0351**	**6.5545**	**0.0279**	**2.1806**	**0.0762**	**2.2569**	**0.5852**	**0.0750**	**0.6602**	**322.8437**	**4,996.3496**	**5,319.1934**	**22.6370**	**0.2442**	**5,957.8919**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.9817	2.0000e-004	0.0217	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0423	0.0423	1.1000e-004	0.0000	0.0451
Energy	0.0581	0.5284	0.4439	3.1700e-003		0.0402	0.0402		0.0402	0.0402	0.0000	2,272.3032	2,272.3032	0.2112	0.0520	2,293.0663
Mobile	0.4788	2.2007	5.5879	0.0219	2.0301	0.0177	2.0479	0.5448	0.0166	0.5614	0.0000	2,010.4237	2,010.4237	0.0673	0.0000	2,012.1064
Waste						0.0000	0.0000		0.0000	0.0000	248.7451	0.0000	248.7451	14.7004	0.0000	616.2555
Water						0.0000	0.0000		0.0000	0.0000	74.0986	140.9515	215.0501	7.6273	0.1831	460.3083
Total	**4.5186**	**2.7293**	**6.0535**	**0.0250**	**2.0301**	**0.0580**	**2.0881**	**0.5448**	**0.0568**	**0.6016**	**322.8437**	**4,423.7206**	**4,746.5643**	**22.6063**	**0.2351**	**5,381.7816**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**11.31**	**10.08**	**7.64**	**10.25**	**6.90**	**23.95**	**7.48**	**6.90**	**24.26**	**8.87**	**0.00**	**11.46**	**10.77**	**0.14**	**3.73**	**9.67**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Paving	Paving	6/17/2020	7/1/2020	5	11	
4	Building Construction	Building Construction	7/2/2020	2/1/2021	5	153	
5	Architectural Coating	Architectural Coating	7/16/2020	2/15/2021	5	153	
6	Grading 2	Grading	9/2/2020	2/22/2021	5	124	
7	Paving 2	Paving	2/23/2021	4/23/2021	5	44	
8	Construction 2	Building Construction	4/24/2021	6/27/2022	5	306	
9	Architectural Coating 2	Architectural Coating	5/8/2021	7/11/2022	5	306	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 40.08

Acres of Paving: 17.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,515,000; Non-Residential Outdoor: 505,000; Striped Parking Area: 32,592 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74
Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	652.00	255.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	130.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	652.00	255.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	130.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9200e-003	0.0000	4.9200e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0762	0.7636	0.5003	8.9000e-004		0.0382	0.0382		0.0355	0.0355	0.0000	78.1968	78.1968	0.0221	0.0000	78.7487
Total	**0.0762**	**0.7636**	**0.5003**	**8.9000e-004**	**4.9200e-003**	**0.0382**	**0.0431**	**7.5000e-004**	**0.0355**	**0.0362**	**0.0000**	**78.1968**	**78.1968**	**0.0221**	**0.0000**	**78.7487**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-004	6.5800e-003	1.3200e-003	2.0000e-005	3.8000e-004	2.0000e-005	4.0000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.7243	1.7243	9.0000e-005	0.0000	1.7266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	8.2000e-004	8.4700e-003	3.0000e-005	2.7300e-003	2.0000e-005	2.7400e-003	7.3000e-004	2.0000e-005	7.4000e-004	0.0000	2.3884	2.3884	6.0000e-005	0.0000	2.3898
Total	**1.3300e-003**	**7.4000e-003**	**9.7900e-003**	**5.0000e-005**	**3.1100e-003**	**4.0000e-005**	**3.1400e-003**	**8.3000e-004**	**4.0000e-005**	**8.6000e-004**	**0.0000**	**4.1127**	**4.1127**	**1.5000e-004**	**0.0000**	**4.1164**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9200e-003	0.0000	4.9200e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0106	0.0461	0.5354	8.9000e-004		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003	0.0000	78.1967	78.1967	0.0221	0.0000	78.7486
Total	**0.0106**	**0.0461**	**0.5354**	**8.9000e-004**	**4.9200e-003**	**1.4200e-003**	**6.3400e-003**	**7.5000e-004**	**1.4200e-003**	**2.1700e-003**	**0.0000**	**78.1967**	**78.1967**	**0.0221**	**0.0000**	**78.7486**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-004	6.5800e-003	1.3200e-003	2.0000e-005	3.8000e-004	2.0000e-005	4.0000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.7243	1.7243	9.0000e-005	0.0000	1.7266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	8.2000e-004	8.4700e-003	3.0000e-005	2.7300e-003	2.0000e-005	2.7400e-003	7.3000e-004	2.0000e-005	7.4000e-004	0.0000	2.3884	2.3884	6.0000e-005	0.0000	2.3898
Total	**1.3300e-003**	**7.4000e-003**	**9.7900e-003**	**5.0000e-005**	**3.1100e-003**	**4.0000e-005**	**3.1400e-003**	**8.3000e-004**	**4.0000e-005**	**8.6000e-004**	**0.0000**	**4.1127**	**4.1127**	**1.5000e-004**	**0.0000**	**4.1164**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1146	0.0000	0.1146	0.0536	0.0000	0.0536	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0690	0.7781	0.4954	9.6000e-004		0.0337	0.0337		0.0310	0.0310	0.0000	84.4507	84.4507	0.0273	0.0000	85.1335
Total	**0.0690**	**0.7781**	**0.4954**	**9.6000e-004**	**0.1146**	**0.0337**	**0.1483**	**0.0536**	**0.0310**	**0.0846**	**0.0000**	**84.4507**	**84.4507**	**0.0273**	**0.0000**	**85.1335**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	7.4000e-004	7.6100e-003	2.0000e-005	2.4500e-003	2.0000e-005	2.4700e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.1461	2.1461	5.0000e-005	0.0000	2.1474
Total	**1.0300e-003**	**7.4000e-004**	**7.6100e-003**	**2.0000e-005**	**2.4500e-003**	**2.0000e-005**	**2.4700e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.1461**	**2.1461**	**5.0000e-005**	**0.0000**	**2.1474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1146	0.0000	0.1146	0.0536	0.0000	0.0536	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0118	0.0512	0.5115	9.6000e-004		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	84.4506	84.4506	0.0273	0.0000	85.1334
Total	**0.0118**	**0.0512**	**0.5115**	**9.6000e-004**	**0.1146**	**1.5700e-003**	**0.1162**	**0.0536**	**1.5700e-003**	**0.0552**	**0.0000**	**84.4506**	**84.4506**	**0.0273**	**0.0000**	**85.1334**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	7.4000e-004	7.6100e-003	2.0000e-005	2.4500e-003	2.0000e-005	2.4700e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.1461	2.1461	5.0000e-005	0.0000	2.1474
Total	**1.0300e-003**	**7.4000e-004**	**7.6100e-003**	**2.0000e-005**	**2.4500e-003**	**2.0000e-005**	**2.4700e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.1461**	**2.1461**	**5.0000e-005**	**0.0000**	**2.1474**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.4600e-003	0.0774	0.0806	1.3000e-004		4.1400e-003	4.1400e-003		3.8100e-003	3.8100e-003	0.0000	11.0155	11.0155	3.5600e-003	0.0000	11.1046
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0297**	**0.0774**	**0.0806**	**1.3000e-004**		**4.1400e-003**	**4.1400e-003**		**3.8100e-003**	**3.8100e-003**	**0.0000**	**11.0155**	**11.0155**	**3.5600e-003**	**0.0000**	**11.1046**

3.4 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**2.7000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5711**	**0.5711**	**1.0000e-005**	**0.0000**	**0.5715**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5400e-003	6.6800e-003	0.0951	1.3000e-004		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	11.0155	11.0155	3.5600e-003	0.0000	11.1046
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0238**	**6.6800e-003**	**0.0951**	**1.3000e-004**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**	**0.0000**	**11.0155**	**11.0155**	**3.5600e-003**	**0.0000**	**11.1046**

3.4 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**2.7000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5711**	**0.5711**	**1.0000e-005**	**0.0000**	**0.5715**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1389	1.2567	1.1036	1.7600e-003		0.0732	0.0732		0.0688	0.0688	0.0000	151.7045	151.7045	0.0370	0.0000	152.6298
Total	**0.1389**	**1.2567**	**1.1036**	**1.7600e-003**		**0.0732**	**0.0732**		**0.0688**	**0.0688**	**0.0000**	**151.7045**	**151.7045**	**0.0370**	**0.0000**	**152.6298**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0646	1.9271	0.4845	4.5500e-003	0.1095	9.4000e-003	0.1189	0.0317	8.9900e-003	0.0407	0.0000	437.3039	437.3039	0.0226	0.0000	437.8678
Worker	0.1415	0.1013	1.0489	3.2700e-003	0.3375	2.2700e-003	0.3397	0.0898	2.0900e-003	0.0919	0.0000	295.6454	295.6454	7.1600e-003	0.0000	295.8243
Total	**0.2062**	**2.0284**	**1.5334**	**7.8200e-003**	**0.4470**	**0.0117**	**0.4587**	**0.1215**	**0.0111**	**0.1325**	**0.0000**	**732.9493**	**732.9493**	**0.0297**	**0.0000**	**733.6920**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0215	0.1464	1.1436	1.7600e-003		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	151.7044	151.7044	0.0370	0.0000	152.6296
Total	**0.0215**	**0.1464**	**1.1436**	**1.7600e-003**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**151.7044**	**151.7044**	**0.0370**	**0.0000**	**152.6296**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0646	1.9271	0.4845	4.5500e-003	0.1095	9.4000e-003	0.1189	0.0317	8.9900e-003	0.0407	0.0000	437.3039	437.3039	0.0226	0.0000	437.8678
Worker	0.1415	0.1013	1.0489	3.2700e-003	0.3375	2.2700e-003	0.3397	0.0898	2.0900e-003	0.0919	0.0000	295.6454	295.6454	7.1600e-003	0.0000	295.8243
Total	**0.2062**	**2.0284**	**1.5334**	**7.8200e-003**	**0.4470**	**0.0117**	**0.4587**	**0.1215**	**0.0111**	**0.1325**	**0.0000**	**732.9493**	**732.9493**	**0.0297**	**0.0000**	**733.6920**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0209	0.1918	0.1823	3.0000e-004		0.0105	0.0105		9.9100e-003	9.9100e-003	0.0000	25.4801	25.4801	6.1500e-003	0.0000	25.6338
Total	**0.0209**	**0.1918**	**0.1823**	**3.0000e-004**		**0.0105**	**0.0105**		**9.9100e-003**	**9.9100e-003**	**0.0000**	**25.4801**	**25.4801**	**6.1500e-003**	**0.0000**	**25.6338**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9000e-003	0.2930	0.0731	7.6000e-004	0.0184	6.4000e-004	0.0190	5.3200e-003	6.1000e-004	5.9300e-003	0.0000	72.7460	72.7460	3.5800e-003	0.0000	72.8354
Worker	0.0220	0.0152	0.1609	5.3000e-004	0.0567	3.7000e-004	0.0570	0.0151	3.4000e-004	0.0154	0.0000	47.9083	47.9083	1.0700e-003	0.0000	47.9351
Total	**0.0309**	**0.3082**	**0.2340**	**1.2900e-003**	**0.0751**	**1.0100e-003**	**0.0761**	**0.0204**	**9.5000e-004**	**0.0214**	**0.0000**	**120.6542**	**120.6542**	**4.6500e-003**	**0.0000**	**120.7705**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.6100e-003	0.0246	0.1921	3.0000e-004		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	25.4801	25.4801	6.1500e-003	0.0000	25.6338
Total	**3.6100e-003**	**0.0246**	**0.1921**	**3.0000e-004**		**4.5000e-004**	**4.5000e-004**		**4.5000e-004**	**4.5000e-004**	**0.0000**	**25.4801**	**25.4801**	**6.1500e-003**	**0.0000**	**25.6338**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9000e-003	0.2930	0.0731	7.6000e-004	0.0184	6.4000e-004	0.0190	5.3200e-003	6.1000e-004	5.9300e-003	0.0000	72.7460	72.7460	3.5800e-003	0.0000	72.8354
Worker	0.0220	0.0152	0.1609	5.3000e-004	0.0567	3.7000e-004	0.0570	0.0151	3.4000e-004	0.0154	0.0000	47.9083	47.9083	1.0700e-003	0.0000	47.9351
Total	**0.0309**	**0.3082**	**0.2340**	**1.2900e-003**	**0.0751**	**1.0100e-003**	**0.0761**	**0.0204**	**9.5000e-004**	**0.0214**	**0.0000**	**120.6542**	**120.6542**	**4.6500e-003**	**0.0000**	**120.7705**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.1019	0.1108	1.8000e-004		6.7100e-003	6.7100e-003		6.7100e-003	6.7100e-003	0.0000	15.4472	15.4472	1.2000e-003	0.0000	15.4771
Total	**0.0147**	**0.1019**	**0.1108**	**1.8000e-004**		**6.7100e-003**	**6.7100e-003**		**6.7100e-003**	**6.7100e-003**	**0.0000**	**15.4472**	**15.4472**	**1.2000e-003**	**0.0000**	**15.4771**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0261	0.0187	0.1932	6.0000e-004	0.0622	4.2000e-004	0.0626	0.0165	3.9000e-004	0.0169	0.0000	54.4479	54.4479	1.3200e-003	0.0000	54.4808
Total	**0.0261**	**0.0187**	**0.1932**	**6.0000e-004**	**0.0622**	**4.2000e-004**	**0.0626**	**0.0165**	**3.9000e-004**	**0.0169**	**0.0000**	**54.4479**	**54.4479**	**1.3200e-003**	**0.0000**	**54.4808**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-003	7.7900e-003	0.1109	1.8000e-004		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	15.4472	15.4472	1.2000e-003	0.0000	15.4771
Total	**1.8000e-003**	**7.7900e-003**	**0.1109**	**1.8000e-004**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**15.4472**	**15.4472**	**1.2000e-003**	**0.0000**	**15.4771**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0261	0.0187	0.1932	6.0000e-004	0.0622	4.2000e-004	0.0626	0.0165	3.9000e-004	0.0169	0.0000	54.4479	54.4479	1.3200e-003	0.0000	54.4808
Total	**0.0261**	**0.0187**	**0.1932**	**6.0000e-004**	**0.0622**	**4.2000e-004**	**0.0626**	**0.0165**	**3.9000e-004**	**0.0169**	**0.0000**	**54.4479**	**54.4479**	**1.3200e-003**	**0.0000**	**54.4808**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5000e-003	0.0244	0.0291	5.0000e-005		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	4.0852	4.0852	2.8000e-004	0.0000	4.0922
Total	**3.5000e-003**	**0.0244**	**0.0291**	**5.0000e-005**		**1.5100e-003**	**1.5100e-003**		**1.5100e-003**	**1.5100e-003**	**0.0000**	**4.0852**	**4.0852**	**2.8000e-004**	**0.0000**	**4.0922**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3800e-003	4.4000e-003	0.0467	1.5000e-004	0.0164	1.1000e-004	0.0165	4.3700e-003	1.0000e-004	4.4700e-003	0.0000	13.8942	13.8942	3.1000e-004	0.0000	13.9020
Total	**6.3800e-003**	**4.4000e-003**	**0.0467**	**1.5000e-004**	**0.0164**	**1.1000e-004**	**0.0165**	**4.3700e-003**	**1.0000e-004**	**4.4700e-003**	**0.0000**	**13.8942**	**13.8942**	**3.1000e-004**	**0.0000**	**13.9020**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	2.0600e-003	0.0293	5.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	4.0852	4.0852	2.8000e-004	0.0000	4.0922
Total	**4.8000e-004**	**2.0600e-003**	**0.0293**	**5.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**4.0852**	**4.0852**	**2.8000e-004**	**0.0000**	**4.0922**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3800e-003	4.4000e-003	0.0467	1.5000e-004	0.0164	1.1000e-004	0.0165	4.3700e-003	1.0000e-004	4.4700e-003	0.0000	13.8942	13.8942	3.1000e-004	0.0000	13.9020
Total	**6.3800e-003**	**4.4000e-003**	**0.0467**	**1.5000e-004**	**0.0164**	**1.1000e-004**	**0.0165**	**4.3700e-003**	**1.0000e-004**	**4.4700e-003**	**0.0000**	**13.8942**	**13.8942**	**3.1000e-004**	**0.0000**	**13.9020**

3.7 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2759	0.0000	0.2759	0.1455	0.0000	0.1455	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1936	2.1836	1.3902	2.7000e-003		0.0946	0.0946		0.0870	0.0870	0.0000	237.0067	237.0067	0.0767	0.0000	238.9230
Total	**0.1936**	**2.1836**	**1.3902**	**2.7000e-003**	**0.2759**	**0.0946**	**0.3705**	**0.1455**	**0.0870**	**0.2325**	**0.0000**	**237.0067**	**237.0067**	**0.0767**	**0.0000**	**238.9230**

3.7 Grading 2 - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8800e-003	2.0600e-003	0.0214	7.0000e-005	6.8700e-003	5.0000e-005	6.9200e-003	1.8300e-003	4.0000e-005	1.8700e-003	0.0000	6.0228	6.0228	1.5000e-004	0.0000	6.0265
Total	**2.8800e-003**	**2.0600e-003**	**0.0214**	**7.0000e-005**	**6.8700e-003**	**5.0000e-005**	**6.9200e-003**	**1.8300e-003**	**4.0000e-005**	**1.8700e-003**	**0.0000**	**6.0228**	**6.0228**	**1.5000e-004**	**0.0000**	**6.0265**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2759	0.0000	0.2759	0.1455	0.0000	0.1455	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0331	0.1436	1.4355	2.7000e-003		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	237.0064	237.0064	0.0767	0.0000	238.9227
Total	**0.0331**	**0.1436**	**1.4355**	**2.7000e-003**	**0.2759**	**4.4200e-003**	**0.2804**	**0.1455**	**4.4200e-003**	**0.1499**	**0.0000**	**237.0064**	**237.0064**	**0.0767**	**0.0000**	**238.9227**

3.7 Grading 2 - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8800e-003	2.0600e-003	0.0214	7.0000e-005	6.8700e-003	5.0000e-005	6.9200e-003	1.8300e-003	4.0000e-005	1.8700e-003	0.0000	6.0228	6.0228	1.5000e-004	0.0000	6.0265
Total	**2.8800e-003**	**2.0600e-003**	**0.0214**	**7.0000e-005**	**6.8700e-003**	**5.0000e-005**	**6.9200e-003**	**1.8300e-003**	**4.0000e-005**	**1.8700e-003**	**0.0000**	**6.0228**	**6.0228**	**1.5000e-004**	**0.0000**	**6.0265**

3.7 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1254	0.0000	0.1254	0.0628	0.0000	0.0628	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0775	0.8584	0.5713	1.1500e-003		0.0367	0.0367		0.0338	0.0338	0.0000	100.8157	100.8157	0.0326	0.0000	101.6309
Total	**0.0775**	**0.8584**	**0.5713**	**1.1500e-003**	**0.1254**	**0.0367**	**0.1621**	**0.0628**	**0.0338**	**0.0965**	**0.0000**	**100.8157**	**100.8157**	**0.0326**	**0.0000**	**101.6309**

3.7 Grading 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	7.8000e-004	8.3000e-003	3.0000e-005	2.9200e-003	2.0000e-005	2.9400e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.4716	2.4716	6.0000e-005	0.0000	2.4730
Total	**1.1400e-003**	**7.8000e-004**	**8.3000e-003**	**3.0000e-005**	**2.9200e-003**	**2.0000e-005**	**2.9400e-003**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.4716**	**2.4716**	**6.0000e-005**	**0.0000**	**2.4730**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1254	0.0000	0.1254	0.0628	0.0000	0.0628	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0141	0.0611	0.6105	1.1500e-003		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	100.8156	100.8156	0.0326	0.0000	101.6307
Total	**0.0141**	**0.0611**	**0.6105**	**1.1500e-003**	**0.1254**	**1.8800e-003**	**0.1273**	**0.0628**	**1.8800e-003**	**0.0646**	**0.0000**	**100.8156**	**100.8156**	**0.0326**	**0.0000**	**101.6307**

3.7 Grading 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	7.8000e-004	8.3000e-003	3.0000e-005	2.9200e-003	2.0000e-005	2.9400e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.4716	2.4716	6.0000e-005	0.0000	2.4730
Total	**1.1400e-003**	**7.8000e-004**	**8.3000e-003**	**3.0000e-005**	**2.9200e-003**	**2.0000e-005**	**2.9400e-003**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.4716**	**2.4716**	**6.0000e-005**	**0.0000**	**2.4730**

3.8 Paving 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0276	0.2842	0.3224	5.0000e-004		0.0149	0.0149		0.0137	0.0137	0.0000	44.0517	44.0517	0.0143	0.0000	44.4078
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0499**	**0.2842**	**0.3224**	**5.0000e-004**		**0.0149**	**0.0149**		**0.0137**	**0.0137**	**0.0000**	**44.0517**	**44.0517**	**0.0143**	**0.0000**	**44.4078**

3.8 Paving 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	7.0000e-004	7.4000e-003	2.0000e-005	2.6100e-003	2.0000e-005	2.6200e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.2044	2.2044	5.0000e-005	0.0000	2.2056
Total	**1.0100e-003**	**7.0000e-004**	**7.4000e-003**	**2.0000e-005**	**2.6100e-003**	**2.0000e-005**	**2.6200e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.2044**	**2.2044**	**5.0000e-005**	**0.0000**	**2.2056**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.1700e-003	0.0267	0.3805	5.0000e-004		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	44.0516	44.0516	0.0143	0.0000	44.4078
Paving	0.0223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0285**	**0.0267**	**0.3805**	**5.0000e-004**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**44.0516**	**44.0516**	**0.0143**	**0.0000**	**44.4078**

3.8 Paving 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	7.0000e-004	7.4000e-003	2.0000e-005	2.6100e-003	2.0000e-005	2.6200e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.2044	2.2044	5.0000e-005	0.0000	2.2056
Total	**1.0100e-003**	**7.0000e-004**	**7.4000e-003**	**2.0000e-005**	**2.6100e-003**	**2.0000e-005**	**2.6200e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.2044**	**2.2044**	**5.0000e-005**	**0.0000**	**2.2056**

3.9 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1711	1.5689	1.4918	2.4200e-003		0.0863	0.0863		0.0811	0.0811	0.0000	208.4736	208.4736	0.0503	0.0000	209.7309
Total	**0.1711**	**1.5689**	**1.4918**	**2.4200e-003**		**0.0863**	**0.0863**		**0.0811**	**0.0811**	**0.0000**	**208.4736**	**208.4736**	**0.0503**	**0.0000**	**209.7309**

3.9 Construction 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0729	2.3971	0.5983	6.1900e-003	0.1505	5.2100e-003	0.1557	0.0435	4.9900e-003	0.0485	0.0000	595.1944	595.1944	0.0293	0.0000	595.9259
Worker	0.1801	0.1242	1.3161	4.3300e-003	0.4637	3.0300e-003	0.4667	0.1234	2.7900e-003	0.1262	0.0000	391.9766	391.9766	8.7900e-003	0.0000	392.1963
Total	**0.2530**	**2.5214**	**1.9145**	**0.0105**	**0.6142**	**8.2400e-003**	**0.6224**	**0.1669**	**7.7800e-003**	**0.1747**	**0.0000**	**987.1709**	**987.1709**	**0.0381**	**0.0000**	**988.1222**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0295	0.2011	1.5714	2.4200e-003		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003	0.0000	208.4733	208.4733	0.0503	0.0000	209.7307
Total	**0.0295**	**0.2011**	**1.5714**	**2.4200e-003**		**3.6700e-003**	**3.6700e-003**		**3.6700e-003**	**3.6700e-003**	**0.0000**	**208.4733**	**208.4733**	**0.0503**	**0.0000**	**209.7307**

3.9 Construction 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0729	2.3971	0.5983	6.1900e-003	0.1505	5.2100e-003	0.1557	0.0435	4.9900e-003	0.0485	0.0000	595.1944	595.1944	0.0293	0.0000	595.9259
Worker	0.1801	0.1242	1.3161	4.3300e-003	0.4637	3.0300e-003	0.4667	0.1234	2.7900e-003	0.1262	0.0000	391.9766	391.9766	8.7900e-003	0.0000	392.1963
Total	**0.2530**	**2.5214**	**1.9145**	**0.0105**	**0.6142**	**8.2400e-003**	**0.6224**	**0.1669**	**7.7800e-003**	**0.1747**	**0.0000**	**987.1709**	**987.1709**	**0.0381**	**0.0000**	**988.1222**

3.9 Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1075	0.9838	1.0309	1.7000e-003		0.0510	0.0510		0.0480	0.0480	0.0000	145.9869	145.9869	0.0350	0.0000	146.8613
Total	**0.1075**	**0.9838**	**1.0309**	**1.7000e-003**		**0.0510**	**0.0510**		**0.0480**	**0.0480**	**0.0000**	**145.9869**	**145.9869**	**0.0350**	**0.0000**	**146.8613**

3.9 Construction 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0476	1.5892	0.3938	4.2900e-003	0.1054	3.1700e-003	0.1085	0.0305	3.0300e-003	0.0335	0.0000	412.5507	412.5507	0.0196	0.0000	413.0401
Worker	0.1175	0.0780	0.8467	2.9200e-003	0.3246	2.0700e-003	0.3267	0.0864	1.9100e-003	0.0883	0.0000	264.3243	264.3243	5.5200e-003	0.0000	264.4622
Total	**0.1651**	**1.6671**	**1.2405**	**7.2100e-003**	**0.4299**	**5.2400e-003**	**0.4352**	**0.1168**	**4.9400e-003**	**0.1218**	**0.0000**	**676.8750**	**676.8750**	**0.0251**	**0.0000**	**677.5023**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0207	0.1408	1.1000	1.7000e-003		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	145.9867	145.9867	0.0350	0.0000	146.8611
Total	**0.0207**	**0.1408**	**1.1000**	**1.7000e-003**		**2.5700e-003**	**2.5700e-003**		**2.5700e-003**	**2.5700e-003**	**0.0000**	**145.9867**	**145.9867**	**0.0350**	**0.0000**	**146.8611**

3.9 Construction 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0476	1.5892	0.3938	4.2900e-003	0.1054	3.1700e-003	0.1085	0.0305	3.0300e-003	0.0335	0.0000	412.5507	412.5507	0.0196	0.0000	413.0401
Worker	0.1175	0.0780	0.8467	2.9200e-003	0.3246	2.0700e-003	0.3267	0.0864	1.9100e-003	0.0883	0.0000	264.3243	264.3243	5.5200e-003	0.0000	264.4622
Total	**0.1651**	**1.6671**	**1.2405**	**7.2100e-003**	**0.4299**	**5.2400e-003**	**0.4352**	**0.1168**	**4.9400e-003**	**0.1218**	**0.0000**	**676.8750**	**676.8750**	**0.0251**	**0.0000**	**677.5023**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1298	0.1545	2.5000e-004		8.0000e-003	8.0000e-003		8.0000e-003	8.0000e-003	0.0000	21.7027	21.7027	1.4900e-003	0.0000	21.7399
Total	**0.0186**	**0.1298**	**0.1545**	**2.5000e-004**		**8.0000e-003**	**8.0000e-003**		**8.0000e-003**	**8.0000e-003**	**0.0000**	**21.7027**	**21.7027**	**1.4900e-003**	**0.0000**	**21.7399**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0339	0.0234	0.2478	8.2000e-004	0.0873	5.7000e-004	0.0879	0.0232	5.3000e-004	0.0238	0.0000	73.8129	73.8129	1.6600e-003	0.0000	73.8543
Total	**0.0339**	**0.0234**	**0.2478**	**8.2000e-004**	**0.0873**	**5.7000e-004**	**0.0879**	**0.0232**	**5.3000e-004**	**0.0238**	**0.0000**	**73.8129**	**73.8129**	**1.6600e-003**	**0.0000**	**73.8543**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5300e-003	0.0109	0.1558	2.5000e-004		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	21.7026	21.7026	1.4900e-003	0.0000	21.7399
Total	**2.5300e-003**	**0.0109**	**0.1558**	**2.5000e-004**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**	**0.0000**	**21.7026**	**21.7026**	**1.4900e-003**	**0.0000**	**21.7399**

3.10 Architectural Coating 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0339	0.0234	0.2478	8.2000e-004	0.0873	5.7000e-004	0.0879	0.0232	5.3000e-004	0.0238	0.0000	73.8129	73.8129	1.6600e-003	0.0000	73.8543
Total	**0.0339**	**0.0234**	**0.2478**	**8.2000e-004**	**0.0873**	**5.7000e-004**	**0.0879**	**0.0232**	**5.3000e-004**	**0.0238**	**0.0000**	**73.8129**	**73.8129**	**1.6600e-003**	**0.0000**	**73.8543**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0139	0.0958	0.1233	2.0000e-004		5.5600e-003	5.5600e-003		5.5600e-003	5.5600e-003	0.0000	17.3621	17.3621	1.1300e-003	0.0000	17.3904
Total	**0.0139**	**0.0958**	**0.1233**	**2.0000e-004**		**5.5600e-003**	**5.5600e-003**		**5.5600e-003**	**5.5600e-003**	**0.0000**	**17.3621**	**17.3621**	**1.1300e-003**	**0.0000**	**17.3904**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0253	0.0168	0.1822	6.3000e-004	0.0699	4.5000e-004	0.0703	0.0186	4.1000e-004	0.0190	0.0000	56.8855	56.8855	1.1900e-003	0.0000	56.9151
Total	**0.0253**	**0.0168**	**0.1822**	**6.3000e-004**	**0.0699**	**4.5000e-004**	**0.0703**	**0.0186**	**4.1000e-004**	**0.0190**	**0.0000**	**56.8855**	**56.8855**	**1.1900e-003**	**0.0000**	**56.9151**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0200e-003	8.7600e-003	0.1246	2.0000e-004		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	17.3621	17.3621	1.1300e-003	0.0000	17.3904
Total	**2.0200e-003**	**8.7600e-003**	**0.1246**	**2.0000e-004**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**	**0.0000**	**17.3621**	**17.3621**	**1.1300e-003**	**0.0000**	**17.3904**

3.10 Architectural Coating 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0253	0.0168	0.1822	6.3000e-004	0.0699	4.5000e-004	0.0703	0.0186	4.1000e-004	0.0190	0.0000	56.8855	56.8855	1.1900e-003	0.0000	56.9151
Total	**0.0253**	**0.0168**	**0.1822**	**6.3000e-004**	**0.0699**	**4.5000e-004**	**0.0703**	**0.0186**	**4.1000e-004**	**0.0190**	**0.0000**	**56.8855**	**56.8855**	**1.1900e-003**	**0.0000**	**56.9151**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4788	2.2007	5.5879	0.0219	2.0301	0.0177	2.0479	0.5448	0.0166	0.5614	0.0000	2,010.4237	2,010.4237	0.0673	0.0000	2,012.1064
Unmitigated	0.4922	2.2813	5.8998	0.0234	2.1806	0.0189	2.1995	0.5852	0.0176	0.6028	0.0000	2,148.8913	2,148.8913	0.0710	0.0000	2,150.6667

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	1,600.80	1,600.80	1600.80	4,197,023	3,907,428
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	569.70	569.70	569.70	1,663,245	1,548,482
Total	2,170.50	2,170.50	2,170.50	5,860,268	5,455,910

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unrefrigerated Warehouse-No Rail	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,697.0766	1,697.0766	0.2002	0.0414	1,714.4214
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,886.1187	1,886.1187	0.2225	0.0460	1,905.3957
NaturalGas Mitigated	0.0581	0.5284	0.4439	3.1700e-003		0.0402	0.0402		0.0402	0.0402	0.0000	575.2266	575.2266	0.0110	0.0106	578.6449
NaturalGas Unmitigated	0.0829	0.7536	0.6330	4.5200e-003		0.0573	0.0573		0.0573	0.0573	0.0000	820.3458	820.3458	0.0157	0.0150	825.2207

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	1.50604e+007	0.0812	0.7383	0.6201	4.4300e-003		0.0561	0.0561		0.0561	0.0561	0.0000	803.6803	803.6803	0.0154	0.0147	808.4562
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	312300	1.6800e-003	0.0153	0.0129	9.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	16.6655	16.6655	3.2000e-004	3.1000e-004	16.7646
Total		**0.0829**	**0.7536**	**0.6330**	**4.5200e-003**		**0.0573**	**0.0573**		**0.0573**	**0.0573**	**0.0000**	**820.3458**	**820.3458**	**0.0157**	**0.0150**	**825.2207**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	1.05588e+007	0.0569	0.5176	0.4348	3.1100e-003		0.0393	0.0393		0.0393	0.0393	0.0000	563.4599	563.4599	0.0108	0.0103	566.8083
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	220500	1.1900e-003	0.0108	9.0800e-003	6.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	11.7667	11.7667	2.3000e-004	2.2000e-004	11.8366
Total		**0.0581**	**0.5284**	**0.4439**	**3.1700e-003**		**0.0402**	**0.0402**		**0.0402**	**0.0402**	**0.0000**	**575.2266**	**575.2266**	**0.0110**	**0.0106**	**578.6449**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	1.64036e +007	1,829.481 9	0.2158	0.0446	1,848.180 0
Parking Lot	190120	21.2040	2.5000e-003	5.2000e-004	21.4207
Unrefrigerated Warehouse-No Rail	317700	35.4329	4.1800e-003	8.6000e-004	35.7950
Total		**1,886.118 7**	**0.2225**	**0.0460**	**1,905.395 7**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	1.47172e +007	1,641.403 4	0.1936	0.0401	1,658.179 2
Parking Lot	190120	21.2040	2.5000e-003	5.2000e-004	21.4207
Unrefrigerated Warehouse-No Rail	309060	34.4692	4.0700e-003	8.4000e-004	34.8215
Total		**1,697.076 6**	**0.2002**	**0.0414**	**1,714.421 4**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.9817	2.0000e-004	0.0217	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0423	0.0423	1.1000e-004	0.0000	0.0451
Unmitigated	4.5197	2.0000e-004	0.0217	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0423	0.0423	1.1000e-004	0.0000	0.0451

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5380					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9797					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0100e-003	2.0000e-004	0.0217	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0423	0.0423	1.1000e-004	0.0000	0.0451
Total	**4.5197**	**2.0000e-004**	**0.0217**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0423**	**0.0423**	**1.1000e-004**	**0.0000**	**0.0451**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9797					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0100e-003	2.0000e-004	0.0217	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0423	0.0423	1.1000e-004	0.0000	0.0451
Total	**3.9817**	**2.0000e-004**	**0.0217**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0423**	**0.0423**	**1.1000e-004**	**0.0000**	**0.0451**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	215.0501	7.6273	0.1831	460.3083
Unmitigated	215.0501	7.6273	0.1831	460.3083

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	212.75 / 0	195.8872	6.9476	0.1668	419.2907
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	20.8125 / 0	19.1629	0.6797	0.0163	41.0176
Total		**215.0501**	**7.6273**	**0.1831**	**460.3083**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	212.75 / 0	195.8872	6.9476	0.1668	419.2907
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	20.8125 / 0	19.1629	0.6797	0.0163	41.0176
Total		**215.0501**	**7.6273**	**0.1831**	**460.3083**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	248.7451	14.7004	0.0000	616.2555
Unmitigated	248.7451	14.7004	0.0000	616.2555

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	1140.8	231.5721	13.6855	0.0000	573.7101
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	84.6	17.1730	1.0149	0.0000	42.5455
Total		**248.7451**	**14.7004**	**0.0000**	**616.2555**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	1140.8	231.5721	13.6855	0.0000	573.7101
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	84.6	17.1730	1.0149	0.0000	42.5455
Total		**248.7451**	**14.7004**	**0.0000**	**616.2555**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Reduced Intensity Alt. Mitigated)

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	920.00	1000sqft	121.35	920,000.00	0
Unrefrigerated Warehouse-No Rail	90.00	1000sqft	3.44	90,000.00	0
Parking Lot	1,358.00	Space	17.01	543,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	245.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - Per description of Alternative

Construction Phase - *

Demolition -

Grading - Based on description of Alternative

Architectural Coating - Mitigation

Vehicle Trips - TIA trip rate

Energy Use -

Construction Off-road Equipment Mitigation - Mitigation

Mobile Land Use Mitigation - applicant provided

Area Mitigation - Mitigation

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	200.00	46.00
tblConstructionPhase	NumDays	310.00	31.00

tblConstructionPhase	NumDays	220.00	11.00
tblConstructionPhase	NumDays	3,100.00	153.00
tblConstructionPhase	NumDays	220.00	153.00
tblConstructionPhase	NumDays	310.00	124.00
tblConstructionPhase	NumDays	220.00	44.00
tblConstructionPhase	NumDays	3,100.00	306.00
tblConstructionPhase	NumDays	220.00	306.00
tblConstructionPhase	PhaseEndDate	12/4/2020	5/4/2020
tblConstructionPhase	PhaseEndDate	2/11/2022	6/16/2020
tblConstructionPhase	PhaseEndDate	11/29/2047	7/1/2020
tblConstructionPhase	PhaseEndDate	3/9/2035	2/1/2021
tblConstructionPhase	PhaseEndDate	8/6/2049	2/15/2021
tblConstructionPhase	PhaseEndDate	4/21/2023	2/22/2021
tblConstructionPhase	PhaseEndDate	10/2/2048	4/23/2021
tblConstructionPhase	PhaseEndDate	1/25/2047	6/27/2022
tblConstructionPhase	PhaseEndDate	6/10/2050	7/11/2022
tblConstructionPhase	PhaseStartDate	12/5/2020	5/5/2020
tblConstructionPhase	PhaseStartDate	1/26/2047	6/17/2020
tblConstructionPhase	PhaseStartDate	4/22/2023	7/2/2020
tblConstructionPhase	PhaseStartDate	10/3/2048	7/16/2020
tblConstructionPhase	PhaseStartDate	2/12/2022	9/2/2020
tblConstructionPhase	PhaseStartDate	11/30/2047	2/23/2021
tblConstructionPhase	PhaseStartDate	3/10/2035	4/24/2021
tblConstructionPhase	PhaseStartDate	8/7/2049	5/8/2021
tblGrading	AcresOfGrading	77.50	40.08
tblGrading	AcresOfGrading	310.00	26.34
tblLandUse	LotAcreage	21.12	121.35

tblLandUse	LotAcreage	2.07	3.44
tblLandUse	LotAcreage	12.22	17.01
tblProjectCharacteristics	CO2IntensityFactor	641.35	245.88
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	6.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	6.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	6.33

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	10.5664	101.8155	79.0882	0.2282	14.5617	3.5870	18.1487	5.5789	3.3368	8.9158	0.0000	22,861.5596	22,861.5596	3.1120	0.0000	22,939.3596
2021	9.6806	93.2178	75.1849	0.2252	14.5617	3.1366	17.6983	5.5790	2.9147	8.4936	0.0000	22,561.8136	22,561.8136	3.0659	0.0000	22,638.4621
2022	4.9887	43.3169	41.7205	0.1586	8.1501	0.9797	9.1298	2.2008	0.9266	3.1274	0.0000	16,098.3082	16,098.3082	1.0853	0.0000	16,125.4395
Maximum	**10.5664**	**101.8155**	**79.0882**	**0.2282**	**14.5617**	**3.5870**	**18.1487**	**5.5790**	**3.3368**	**8.9158**	**0.0000**	**22,861.5596**	**22,861.5596**	**3.1120**	**0.0000**	**22,939.3596**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.8734	36.4116	80.7418	0.2282	14.5617	0.3314	14.8931	5.5789	0.3219	5.9008	0.0000	22,861.5596	22,861.5596	3.1120	0.0000	22,939.3596
2021	4.4886	33.5226	78.2055	0.2252	14.5617	0.2448	14.8066	5.5790	0.2391	5.8180	0.0000	22,561.8136	22,561.8136	3.0659	0.0000	22,638.4621
2022	3.4354	28.6562	42.8362	0.1586	8.1501	0.1337	8.2838	2.2008	0.1284	2.3293	0.0000	16,098.3082	16,098.3082	1.0853	0.0000	16,125.4395
Maximum	**4.8734**	**36.4116**	**80.7418**	**0.2282**	**14.5617**	**0.3314**	**14.8931**	**5.5790**	**0.3219**	**5.9008**	**0.0000**	**22,861.5596**	**22,861.5596**	**3.1120**	**0.0000**	**22,939.3596**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	49.29	58.64	-2.95	0.00	0.00	90.78	15.55	0.00	90.40	31.60	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	24.7765	2.1900e-003	0.2414	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004		0.5182	0.5182	1.3500e-003		0.5521
Energy	0.4542	4.1291	3.4685	0.0248		0.3138	0.3138		0.3138	0.3138		4,954.9396	4,954.9396	0.0950	0.0908	4,984.3843
Mobile	3.0939	12.1436	34.0992	0.1359	12.4479	0.1038	12.5516	3.3298	0.0968	3.4267		13,761.4075	13,761.4075	0.4341		13,772.2589
Total	**28.3246**	**16.2749**	**37.8090**	**0.1607**	**12.4479**	**0.4184**	**12.8663**	**3.3298**	**0.4115**	**3.7413**		**18,716.8653**	**18,716.8653**	**0.5304**	**0.0908**	**18,757.1953**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	21.8287	2.1900e-003	0.2414	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004		0.5182	0.5182	1.3500e-003		0.5521
Energy	0.3185	2.8953	2.4321	0.0174		0.2201	0.2201		0.2201	0.2201		3,474.4045	3,474.4045	0.0666	0.0637	3,495.0512
Mobile	3.0188	11.7279	32.1675	0.1271	11.5890	0.0974	11.6864	3.1001	0.0909	3.1910		12,873.6570	12,873.6570	0.4107		12,883.9242
Total	**25.1660**	**14.6255**	**34.8410**	**0.1445**	**11.5890**	**0.3183**	**11.9073**	**3.1001**	**0.3118**	**3.4119**		**16,348.5797**	**16,348.5797**	**0.4786**	**0.0637**	**16,379.5274**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**11.15**	**10.13**	**7.85**	**10.07**	**6.90**	**23.93**	**7.45**	**6.90**	**24.23**	**8.81**	**0.00**	**12.65**	**12.65**	**9.76**	**29.88**	**12.68**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Paving	Paving	6/17/2020	7/1/2020	5	11	
4	Building Construction	Building Construction	7/2/2020	2/1/2021	5	153	
5	Architectural Coating	Architectural Coating	7/16/2020	2/15/2021	5	153	
6	Grading 2	Grading	9/2/2020	2/22/2021	5	124	
7	Paving 2	Paving	2/23/2021	4/23/2021	5	44	
8	Construction 2	Building Construction	4/24/2021	6/27/2022	5	306	
9	Architectural Coating 2	Architectural Coating	5/8/2021	7/11/2022	5	306	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 40.08

Acres of Paving: 17.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,515,000; Non-Residential Outdoor: 505,000; Striped Parking Area: 32,592 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73

Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74

Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	652.00	255.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	130.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	652.00	255.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	130.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.704 9	3,747.704 9	1.0580		3,774.153 6
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.2140**	**1.6587**	**1.8727**	**0.0324**	**1.5419**	**1.5743**		**3,747.704 9**	**3,747.704 9**	**1.0580**		**3,774.153 6**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.0700e-003	0.2802	0.0557	7.8000e-004	0.0171	9.2000e-004	0.0180	4.6800e-003	8.8000e-004	5.5600e-003		83.2288	83.2288	4.1600e-003		83.3329
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0602**	**0.3118**	**0.4582**	**2.0200e-003**	**0.1403**	**1.7200e-003**	**0.1420**	**0.0374**	**1.6200e-003**	**0.0390**		**206.3453**	**206.3453**	**7.1300e-003**		**206.5236**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	0.4623	2.0032	23.2798	0.0388		0.0616	0.0616		0.0616	0.0616	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**0.4623**	**2.0032**	**23.2798**	**0.0388**	**0.2140**	**0.0616**	**0.2756**	**0.0324**	**0.0616**	**0.0940**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.0700e-003	0.2802	0.0557	7.8000e-004	0.0171	9.2000e-004	0.0180	4.6800e-003	8.8000e-004	5.5600e-003		83.2288	83.2288	4.1600e-003		83.3329
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0602**	**0.3118**	**0.4582**	**2.0200e-003**	**0.1403**	**1.7200e-003**	**0.1420**	**0.0374**	**1.6200e-003**	**0.0390**		**206.3453**	**206.3453**	**7.1300e-003**		**206.5236**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3932	0.0000	7.3932	3.4583	0.0000	3.4583			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.865 3	6,005.865 3	1.9424		6,054.425 7
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.3932**	**2.1739**	**9.5671**	**3.4583**	**2.0000**	**5.4583**		**6,005.865 3**	**6,005.865 3**	**1.9424**		**6,054.425 7**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3932	0.0000	7.3932	3.4583	0.0000	3.4583			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**7.3932**	**0.1015**	**7.4948**	**3.4583**	**0.1015**	**3.5598**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	4.0515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.4080**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0521**	**0.0316**	**0.4025**	**1.2400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**123.1165**	**123.1165**	**2.9700e-003**		**123.1907**

3.4 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	4.0515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.3319**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0521**	**0.0316**	**0.4025**	**1.2400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**123.1165**	**123.1165**	**2.9700e-003**		**123.1907**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9667	29.0604	6.9320	0.0702	1.7261	0.1425	1.8685	0.4969	0.1363	0.6331		7,438.5553	7,438.5553	0.3663		7,447.7131
Worker	2.2662	1.3720	17.4934	0.0537	5.3560	0.0347	5.3907	1.4207	0.0320	1.4526		5,351.4632	5,351.4632	0.1290		5,354.6870
Total	**3.2329**	**30.4324**	**24.4254**	**0.1239**	**7.0821**	**0.1771**	**7.2592**	**1.9175**	**0.1682**	**2.0858**		**12,790.0184**	**12,790.0184**	**0.4953**		**12,802.4000**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9667	29.0604	6.9320	0.0702	1.7261	0.1425	1.8685	0.4969	0.1363	0.6331		7,438.5553	7,438.5553	0.3663		7,447.7131
Worker	2.2662	1.3720	17.4934	0.0537	5.3560	0.0347	5.3907	1.4207	0.0320	1.4526		5,351.4632	5,351.4632	0.1290		5,354.6870
Total	**3.2329**	**30.4324**	**24.4254**	**0.1239**	**7.0821**	**0.1771**	**7.2592**	**1.9175**	**0.1682**	**2.0858**		**12,790.0184**	**12,790.0184**	**0.4953**		**12,802.4000**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7908	26.3520	6.2140	0.0695	1.7261	0.0571	1.7832	0.4969	0.0546	0.5515		7,368.4428	7,368.4428	0.3458		7,377.0886
Worker	2.0964	1.2252	16.0152	0.0518	5.3560	0.0337	5.3897	1.4207	0.0310	1.4517		5,163.5761	5,163.5761	0.1154		5,166.4617
Total	**2.8873**	**27.5772**	**22.2292**	**0.1213**	**7.0822**	**0.0908**	**7.1729**	**1.9176**	**0.0856**	**2.0032**		**12,532.0189**	**12,532.0189**	**0.4613**		**12,543.5504**

3.5 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7908	26.3520	6.2140	0.0695	1.7261	0.0571	1.7832	0.4969	0.0546	0.5515		7,368.4428	7,368.4428	0.3458		7,377.0886
Worker	2.0964	1.2252	16.0152	0.0518	5.3560	0.0337	5.3897	1.4207	0.0310	1.4517		5,163.5761	5,163.5761	0.1154		5,166.4617
Total	**2.8873**	**27.5772**	**22.2292**	**0.1213**	**7.0822**	**0.0908**	**7.1729**	**1.9176**	**0.0856**	**2.0032**		**12,532.0189**	**12,532.0189**	**0.4613**		**12,543.5504**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**0.2422**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4519	0.2736	3.4880	0.0107	1.0679	6.9100e-003	1.0748	0.2833	6.3700e-003	0.2896		1,067.0095	1,067.0095	0.0257		1,067.6523
Total	**0.4519**	**0.2736**	**3.4880**	**0.0107**	**1.0679**	**6.9100e-003**	**1.0748**	**0.2833**	**6.3700e-003**	**0.2896**		**1,067.0095**	**1,067.0095**	**0.0257**		**1,067.6523**

3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4519	0.2736	3.4880	0.0107	1.0679	6.9100e-003	1.0748	0.2833	6.3700e-003	0.2896		1,067.0095	1,067.0095	0.0257		1,067.6523
Total	**0.4519**	**0.2736**	**3.4880**	**0.0107**	**1.0679**	**6.9100e-003**	**1.0748**	**0.2833**	**6.3700e-003**	**0.2896**		**1,067.0095**	**1,067.0095**	**0.0257**		**1,067.6523**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**0.2189**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4180	0.2443	3.1932	0.0103	1.0679	6.7200e-003	1.0746	0.2833	6.1900e-003	0.2895		1,029.5474	1,029.5474	0.0230		1,030.1227
Total	**0.4180**	**0.2443**	**3.1932**	**0.0103**	**1.0679**	**6.7200e-003**	**1.0746**	**0.2833**	**6.1900e-003**	**0.2895**		**1,029.5474**	**1,029.5474**	**0.0230**		**1,030.1227**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4180	0.2443	3.1932	0.0103	1.0679	6.7200e-003	1.0746	0.2833	6.1900e-003	0.2895		1,029.5474	1,029.5474	0.0230		1,030.1227
Total	**0.4180**	**0.2443**	**3.1932**	**0.0103**	**1.0679**	**6.7200e-003**	**1.0746**	**0.2833**	**6.1900e-003**	**0.2895**		**1,029.5474**	**1,029.5474**	**0.0230**		**1,030.1227**

3.7 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2474	0.0000	6.2474	3.3346	0.0000	3.3346			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.865 3	6,005.865 3	1.9424		6,054.425 7
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**6.2474**	**2.1739**	**8.4213**	**3.3346**	**2.0000**	**5.3345**		**6,005.865 3**	**6,005.865 3**	**1.9424**		**6,054.425 7**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.7 Grading 2 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2474	0.0000	6.2474	3.3346	0.0000	3.3346			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,005.865 3	6,005.865 3	1.9424		6,054.425 7
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**6.2474**	**0.1015**	**6.3489**	**3.3346**	**0.1015**	**3.4361**	**0.0000**	**6,005.865 3**	**6,005.865 3**	**1.9424**		**6,054.425 7**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.7 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2474	0.0000	6.2474	3.3346	0.0000	3.3346			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**6.2474**	**1.9853**	**8.2327**	**3.3346**	**1.8265**	**5.1611**		**6,007.043 4**	**6,007.043 4**	**1.9428**		**6,055.613 4**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0376	0.4913	1.5900e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		158.3919	158.3919	3.5400e-003		158.4804
Total	**0.0643**	**0.0376**	**0.4913**	**1.5900e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**158.3919**	**158.3919**	**3.5400e-003**		**158.4804**

3.7 Grading 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2474	0.0000	6.2474	3.3346	0.0000	3.3346			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**6.2474**	**0.1015**	**6.3489**	**3.3346**	**0.1015**	**3.4361**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0376	0.4913	1.5900e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		158.3919	158.3919	3.5400e-003		158.4804
Total	**0.0643**	**0.0376**	**0.4913**	**1.5900e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**158.3919**	**158.3919**	**3.5400e-003**		**158.4804**

3.8 Paving 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2684**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0482**	**0.0282**	**0.3685**	**1.1900e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**118.7939**	**118.7939**	**2.6600e-003**		**118.8603**

3.8 Paving 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2933**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0482**	**0.0282**	**0.3685**	**1.1900e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**118.7939**	**118.7939**	**2.6600e-003**		**118.8603**

3.9 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7908	26.3520	6.2140	0.0695	1.7261	0.0571	1.7832	0.4969	0.0546	0.5515		7,368.4428	7,368.4428	0.3458		7,377.0886
Worker	2.0964	1.2252	16.0152	0.0518	5.3560	0.0337	5.3897	1.4207	0.0310	1.4517		5,163.5761	5,163.5761	0.1154		5,166.4617
Total	**2.8873**	**27.5772**	**22.2292**	**0.1213**	**7.0822**	**0.0908**	**7.1729**	**1.9176**	**0.0856**	**2.0032**		**12,532.0189**	**12,532.0189**	**0.4613**		**12,543.5504**

3.9 Construction 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7908	26.3520	6.2140	0.0695	1.7261	0.0571	1.7832	0.4969	0.0546	0.5515		7,368.4428	7,368.4428	0.3458		7,377.0886
Worker	2.0964	1.2252	16.0152	0.0518	5.3560	0.0337	5.3897	1.4207	0.0310	1.4517		5,163.5761	5,163.5761	0.1154		5,166.4617
Total	**2.8873**	**27.5772**	**22.2292**	**0.1213**	**7.0822**	**0.0908**	**7.1729**	**1.9176**	**0.0856**	**2.0032**		**12,532.0189**	**12,532.0189**	**0.4613**		**12,543.5504**

3.9 Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7376	24.9748	5.8441	0.0688	1.7262	0.0495	1.7757	0.4969	0.0473	0.5442		7,296.6848	7,296.6848	0.3307		7,304.9513
Worker	1.9513	1.0989	14.7571	0.0499	5.3560	0.0329	5.3889	1.4207	0.0303	1.4510		4,974.0778	4,974.0778	0.1037		4,976.6692
Total	**2.6888**	**26.0737**	**20.6012**	**0.1187**	**7.0822**	**0.0824**	**7.1646**	**1.9176**	**0.0776**	**1.9952**		**12,270.7626**	**12,270.7626**	**0.4343**		**12,281.6204**

3.9 Construction 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7376	24.9748	5.8441	0.0688	1.7262	0.0495	1.7757	0.4969	0.0473	0.5442		7,296.6848	7,296.6848	0.3307		7,304.9513
Worker	1.9513	1.0989	14.7571	0.0499	5.3560	0.0329	5.3889	1.4207	0.0303	1.4510		4,974.0778	4,974.0778	0.1037		4,976.6692
Total	**2.6888**	**26.0737**	**20.6012**	**0.1187**	**7.0822**	**0.0824**	**7.1646**	**1.9176**	**0.0776**	**1.9952**		**12,270.7626**	**12,270.7626**	**0.4343**		**12,281.6204**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**0.2189**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4180	0.2443	3.1932	0.0103	1.0679	6.7200e-003	1.0746	0.2833	6.1900e-003	0.2895		1,029.547 4	1,029.547 4	0.0230		1,030.122 7
Total	**0.4180**	**0.2443**	**3.1932**	**0.0103**	**1.0679**	**6.7200e-003**	**1.0746**	**0.2833**	**6.1900e-003**	**0.2895**		**1,029.547 4**	**1,029.547 4**	**0.0230**		**1,030.122 7**

3.10 Architectural Coating 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4180	0.2443	3.1932	0.0103	1.0679	6.7200e-003	1.0746	0.2833	6.1900e-003	0.2895		1,029.5474	1,029.5474	0.0230		1,030.1227
Total	**0.4180**	**0.2443**	**3.1932**	**0.0103**	**1.0679**	**6.7200e-003**	**1.0746**	**0.2833**	**6.1900e-003**	**0.2895**		**1,029.5474**	**1,029.5474**	**0.0230**		**1,030.1227**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**0.2045**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3891	0.2191	2.9424	9.9500e-003	1.0679	6.5600e-003	1.0745	0.2833	6.0400e-003	0.2893		991.7640	991.7640	0.0207		992.2807
Total	**0.3891**	**0.2191**	**2.9424**	**9.9500e-003**	**1.0679**	**6.5600e-003**	**1.0745**	**0.2833**	**6.0400e-003**	**0.2893**		**991.7640**	**991.7640**	**0.0207**		**992.2807**

3.10 Architectural Coating 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3891	0.2191	2.9424	9.9500e-003	1.0679	6.5600e-003	1.0745	0.2833	6.0400e-003	0.2893		991.7640	991.7640	0.0207		992.2807
Total	**0.3891**	**0.2191**	**2.9424**	**9.9500e-003**	**1.0679**	**6.5600e-003**	**1.0745**	**0.2833**	**6.0400e-003**	**0.2893**		**991.7640**	**991.7640**	**0.0207**		**992.2807**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.0188	11.7279	32.1675	0.1271	11.5890	0.0974	11.6864	3.1001	0.0909	3.1910		12,873.6570	12,873.6570	0.4107		12,883.9242
Unmitigated	3.0939	12.1436	34.0992	0.1359	12.4479	0.1038	12.5516	3.3298	0.0968	3.4267		13,761.4075	13,761.4075	0.4341		13,772.2589

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	1,600.80	1,600.80	1600.80	4,197,023	3,907,428
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	569.70	569.70	569.70	1,663,245	1,548,482
Total	2,170.50	2,170.50	2,170.50	5,860,268	5,455,910

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unrefrigerated Warehouse-No Rail	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3185	2.8953	2.4321	0.0174		0.2201	0.2201		0.2201	0.2201		3,474.404 5	3,474.404 5	0.0666	0.0637	3,495.051 2
NaturalGas Unmitigated	0.4542	4.1291	3.4685	0.0248		0.3138	0.3138		0.3138	0.3138		4,954.939 6	4,954.939 6	0.0950	0.0908	4,984.384 3

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	41261.4	0.4450	4.0452	3.3980	0.0243		0.3074	0.3074		0.3074	0.3074		4,854.278 8	4,854.278 8	0.0930	0.0890	4,883.125 4
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	855.616	9.2300e-003	0.0839	0.0705	5.0000e-004		6.3800e-003	6.3800e-003		6.3800e-003	6.3800e-003		100.6608	100.6608	1.9300e-003	1.8500e-003	101.2589
Total		**0.4542**	**4.1291**	**3.4685**	**0.0248**		**0.3138**	**0.3138**		**0.3138**	**0.3138**		**4,954.939 6**	**4,954.939 6**	**0.0950**	**0.0909**	**4,984.384 3**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	28.9283	0.3120	2.8361	2.3823	0.0170		0.2155	0.2155		0.2155	0.2155		3,403.3328	3,403.3328	0.0652	0.0624	3,423.5571
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.60411	6.5100e-003	0.0592	0.0498	3.6000e-004		4.5000e-003	4.5000e-003		4.5000e-003	4.5000e-003		71.0717	71.0717	1.3600e-003	1.3000e-003	71.4941
Total		**0.3185**	**2.8953**	**2.4321**	**0.0174**		**0.2200**	**0.2200**		**0.2200**	**0.2200**		**3,474.4045**	**3,474.4045**	**0.0666**	**0.0637**	**3,495.0512**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	21.8287	2.1900e-003	0.2414	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004		0.5182	0.5182	1.3500e-003		0.5521
Unmitigated	24.7765	2.1900e-003	0.2414	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004		0.5182	0.5182	1.3500e-003		0.5521

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.9478					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	21.8064					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0223	2.1900e-003	0.2414	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004		0.5182	0.5182	1.3500e-003		0.5521
Total	**24.7765**	**2.1900e-003**	**0.2414**	**2.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**		**0.5182**	**0.5182**	**1.3500e-003**		**0.5521**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	21.8064					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0223	2.1900e-003	0.2414	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004		0.5182	0.5182	1.3500e-003		0.5521
Total	**21.8287**	**2.1900e-003**	**0.2414**	**2.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**		**0.5182**	**0.5182**	**1.3500e-003**		**0.5521**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Reduced Intensity Alt. Mitigated)

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	920.00	1000sqft	121.35	920,000.00	0
Unrefrigerated Warehouse-No Rail	90.00	1000sqft	3.44	90,000.00	0
Parking Lot	1,358.00	Space	17.01	543,200.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 64

Climate Zone 4 **Operational Year** 2024

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 245.88 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - Per description of Alternative

Construction Phase - *

Demolition -

Grading - Based on description of Alternative

Architectural Coating - Mitigation

Vehicle Trips - TIA trip rate

Energy Use -

Construction Off-road Equipment Mitigation - Mitigation

Mobile Land Use Mitigation - applicant provided

Area Mitigation - Mitigation

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	200.00	46.00
tblConstructionPhase	NumDays	310.00	31.00

tblConstructionPhase	NumDays	220.00	11.00
tblConstructionPhase	NumDays	3,100.00	153.00
tblConstructionPhase	NumDays	220.00	153.00
tblConstructionPhase	NumDays	310.00	124.00
tblConstructionPhase	NumDays	220.00	44.00
tblConstructionPhase	NumDays	3,100.00	306.00
tblConstructionPhase	NumDays	220.00	306.00
tblConstructionPhase	PhaseEndDate	12/4/2020	5/4/2020
tblConstructionPhase	PhaseEndDate	2/11/2022	6/16/2020
tblConstructionPhase	PhaseEndDate	11/29/2047	7/1/2020
tblConstructionPhase	PhaseEndDate	3/9/2035	2/1/2021
tblConstructionPhase	PhaseEndDate	8/6/2049	2/15/2021
tblConstructionPhase	PhaseEndDate	4/21/2023	2/22/2021
tblConstructionPhase	PhaseEndDate	10/2/2048	4/23/2021
tblConstructionPhase	PhaseEndDate	1/25/2047	6/27/2022
tblConstructionPhase	PhaseEndDate	6/10/2050	7/11/2022
tblConstructionPhase	PhaseStartDate	12/5/2020	5/5/2020
tblConstructionPhase	PhaseStartDate	1/26/2047	6/17/2020
tblConstructionPhase	PhaseStartDate	4/22/2023	7/2/2020
tblConstructionPhase	PhaseStartDate	10/3/2048	7/16/2020
tblConstructionPhase	PhaseStartDate	2/12/2022	9/2/2020
tblConstructionPhase	PhaseStartDate	11/30/2047	2/23/2021
tblConstructionPhase	PhaseStartDate	3/10/2035	4/24/2021
tblConstructionPhase	PhaseStartDate	8/7/2049	5/8/2021
tblGrading	AcresOfGrading	77.50	40.08
tblGrading	AcresOfGrading	310.00	26.34
tblLandUse	LotAcreage	21.12	121.35

tblLandUse	LotAcreage	2.07	3.44
tblLandUse	LotAcreage	12.22	17.01
tblProjectCharacteristics	CO2IntensityFactor	641.35	245.88
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	6.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	6.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	6.33

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	10.7779	102.5380	78.7779	0.2212	14.5617	3.5894	18.1511	5.5789	3.3391	8.9181	0.0000	22,154.3656	22,154.3656	3.1316	0.0000	22,232.6555
2021	9.8805	93.7989	74.8445	0.2184	14.5617	3.1386	17.7003	5.5790	2.9166	8.4955	0.0000	21,874.2315	21,874.2315	3.0847	0.0000	21,951.3482
2022	5.1781	43.8147	41.3825	0.1521	8.1501	0.9815	9.1316	2.2008	0.9283	3.1291	0.0000	15,442.0073	15,442.0073	1.1033	0.0000	15,469.5886
Maximum	**10.7779**	**102.5380**	**78.7779**	**0.2212**	**14.5617**	**3.5894**	**18.1511**	**5.5790**	**3.3391**	**8.9181**	**0.0000**	**22,154.3656**	**22,154.3656**	**3.1316**	**0.0000**	**22,232.6555**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	5.0849	37.1341	80.4315	0.2212	14.5617	0.3338	14.8955	5.5789	0.3242	5.9031	0.0000	22,154.3656	22,154.3656	3.1316	0.0000	22,232.6555
2021	4.6886	34.1036	77.8651	0.2184	14.5617	0.2468	14.8086	5.5790	0.2410	5.8199	0.0000	21,874.2315	21,874.2315	3.0847	0.0000	21,951.3481
2022	3.6249	29.1541	42.4982	0.1521	8.1501	0.1355	8.2856	2.2008	0.1302	2.3310	0.0000	15,442.0073	15,442.0073	1.1033	0.0000	15,469.5886
Maximum	**5.0849**	**37.1341**	**80.4315**	**0.2212**	**14.5617**	**0.3338**	**14.8955**	**5.5790**	**0.3242**	**5.9031**	**0.0000**	**22,154.3656**	**22,154.3656**	**3.1316**	**0.0000**	**22,232.6555**

Oakley Logistics Center (Reduced Intensity Alt. Mitigated) - Bay Area AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	48.14	58.20	-2.97	0.00	0.00	90.71	15.55	0.00	90.32	31.59	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	24.7765	2.1900e-003	0.2414	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004		0.5182	0.5182	1.3500e-003		0.5521
Energy	0.4542	4.1291	3.4685	0.0248		0.3138	0.3138		0.3138	0.3138		4,954.9396	4,954.9396	0.0950	0.0908	4,984.3843
Mobile	2.6777	12.7824	33.7372	0.1273	12.4479	0.1042	12.5521	3.3298	0.0972	3.4271		12,898.2263	12,898.2263	0.4396		12,909.2155
Total	**27.9084**	**16.9137**	**37.4470**	**0.1521**	**12.4479**	**0.4189**	**12.8667**	**3.3298**	**0.4119**	**3.7417**		**17,853.6841**	**17,853.6841**	**0.5359**	**0.0908**	**17,894.1519**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	21.8287	2.1900e-003	0.2414	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004		0.5182	0.5182	1.3500e-003		0.5521
Energy	0.3185	2.8953	2.4321	0.0174		0.2201	0.2201		0.2201	0.2201		3,474.4045	3,474.4045	0.0666	0.0637	3,495.0512
Mobile	2.6035	12.3202	32.0172	0.1191	11.5890	0.0978	11.6868	3.1001	0.0913	3.1914		12,064.5005	12,064.5005	0.4171		12,074.9290
Total	**24.7507**	**15.2177**	**34.6907**	**0.1365**	**11.5890**	**0.3187**	**11.9077**	**3.1001**	**0.3122**	**3.4123**		**15,539.4233**	**15,539.4233**	**0.4851**	**0.0637**	**15,570.5323**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	11.31	10.03	7.36	10.28	6.90	23.91	7.45	6.90	24.21	8.81	0.00	12.96	12.96	9.48	29.88	12.99

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Paving	Paving	6/17/2020	7/1/2020	5	11	
4	Building Construction	Building Construction	7/2/2020	2/1/2021	5	153	
5	Architectural Coating	Architectural Coating	7/16/2020	2/15/2021	5	153	
6	Grading 2	Grading	9/2/2020	2/22/2021	5	124	
7	Paving 2	Paving	2/23/2021	4/23/2021	5	44	
8	Construction 2	Building Construction	4/24/2021	6/27/2022	5	306	
9	Architectural Coating 2	Architectural Coating	5/8/2021	7/11/2022	5	306	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 40.08

Acres of Paving: 17.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,515,000; Non-Residential Outdoor: 505,000; Striped Parking Area: 32,592 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73

Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74

Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	652.00	255.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	130.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	652.00	255.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	130.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.704 9	3,747.704 9	1.0580		3,774.153 6
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.2140**	**1.6587**	**1.8727**	**0.0324**	**1.5419**	**1.5743**		**3,747.704 9**	**3,747.704 9**	**1.0580**		**3,774.153 6**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2900e-003	0.2871	0.0600	7.7000e-004	0.0171	9.3000e-004	0.0180	4.6800e-003	8.9000e-004	5.5700e-003		81.8309	81.8309	4.3700e-003		81.9402
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0634**	**0.3261**	**0.4379**	**1.9100e-003**	**0.1403**	**1.7300e-003**	**0.1420**	**0.0374**	**1.6300e-003**	**0.0390**		**195.2407**	**195.2407**	**7.1400e-003**		**195.4194**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	0.4623	2.0032	23.2798	0.0388		0.0616	0.0616		0.0616	0.0616	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**0.4623**	**2.0032**	**23.2798**	**0.0388**	**0.2140**	**0.0616**	**0.2756**	**0.0324**	**0.0616**	**0.0940**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2900e-003	0.2871	0.0600	7.7000e-004	0.0171	9.3000e-004	0.0180	4.6800e-003	8.9000e-004	5.5700e-003		81.8309	81.8309	4.3700e-003		81.9402
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0634**	**0.3261**	**0.4379**	**1.9100e-003**	**0.1403**	**1.7300e-003**	**0.1420**	**0.0374**	**1.6300e-003**	**0.0390**		**195.2407**	**195.2407**	**7.1400e-003**		**195.4194**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3932	0.0000	7.3932	3.4583	0.0000	3.4583			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**7.3932**	**2.1739**	**9.5671**	**3.4583**	**2.0000**	**5.4583**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3932	0.0000	7.3932	3.4583	0.0000	3.4583			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,005.865 3	6,005.865 3	1.9424		6,054.425 7
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**7.3932**	**0.1015**	**7.4948**	**3.4583**	**0.1015**	**3.5598**	**0.0000**	**6,005.865 3**	**6,005.865 3**	**1.9424**		**6,054.425 7**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	4.0515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.4080**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0552**	**0.0390**	**0.3780**	**1.1400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**113.4098**	**113.4098**	**2.7700e-003**		**113.4792**

3.4 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.733 4	2,207.733 4	0.7140		2,225.584 1
Paving	4.0515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.3319**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.733 4**	**2,207.733 4**	**0.7140**		**2,225.584 1**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0552**	**0.0390**	**0.3780**	**1.1400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**113.4098**	**113.4098**	**2.7700e-003**		**113.4792**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.0173	29.3855	7.9303	0.0685	1.7261	0.1449	1.8709	0.4969	0.1386	0.6354		7,250.3447	7,250.3447	0.3962		7,260.2501
Worker	2.3970	1.6952	16.4296	0.0495	5.3560	0.0347	5.3907	1.4207	0.0320	1.4526		4,929.5465	4,929.5465	0.1206		4,932.5608
Total	**3.4143**	**31.0806**	**24.3599**	**0.1180**	**7.0821**	**0.1796**	**7.2616**	**1.9175**	**0.1705**	**2.0881**		**12,179.8912**	**12,179.8912**	**0.5168**		**12,192.8109**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.0173	29.3855	7.9303	0.0685	1.7261	0.1449	1.8709	0.4969	0.1386	0.6354		7,250.3447	7,250.3447	0.3962		7,260.2501
Worker	2.3970	1.6952	16.4296	0.0495	5.3560	0.0347	5.3907	1.4207	0.0320	1.4526		4,929.5465	4,929.5465	0.1206		4,932.5608
Total	**3.4143**	**31.0806**	**24.3599**	**0.1180**	**7.0821**	**0.1796**	**7.2616**	**1.9175**	**0.1705**	**2.0881**		**12,179.8912**	**12,179.8912**	**0.5168**		**12,192.8109**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.363 9	2,553.363 9	0.6160		2,568.764 3
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.363 9**	**2,553.363 9**	**0.6160**		**2,568.764 3**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8377	26.5786	7.1424	0.0678	1.7261	0.0591	1.7852	0.4969	0.0565	0.5534		7,181.492 3	7,181.492 3	0.3742		7,190.845 9
Worker	2.2209	1.5134	14.9837	0.0477	5.3560	0.0337	5.3897	1.4207	0.0310	1.4517		4,756.578 9	4,756.578 9	0.1076		4,759.269 6
Total	**3.0586**	**28.0920**	**22.1261**	**0.1155**	**7.0822**	**0.0928**	**7.1749**	**1.9176**	**0.0875**	**2.0051**		**11,938.07 11**	**11,938.07 11**	**0.4818**		**11,950.11 56**

3.5 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8377	26.5786	7.1424	0.0678	1.7261	0.0591	1.7852	0.4969	0.0565	0.5534		7,181.4923	7,181.4923	0.3742		7,190.8459
Worker	2.2209	1.5134	14.9837	0.0477	5.3560	0.0337	5.3897	1.4207	0.0310	1.4517		4,756.5789	4,756.5789	0.1076		4,759.2696
Total	**3.0586**	**28.0920**	**22.1261**	**0.1155**	**7.0822**	**0.0928**	**7.1749**	**1.9176**	**0.0875**	**2.0051**		**11,938.0711**	**11,938.0711**	**0.4818**		**11,950.1156**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**0.2422**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4779	0.3380	3.2759	9.8600e-003	1.0679	6.9100e-003	1.0748	0.2833	6.3700e-003	0.2896		982.8850	982.8850	0.0240		983.4860
Total	**0.4779**	**0.3380**	**3.2759**	**9.8600e-003**	**1.0679**	**6.9100e-003**	**1.0748**	**0.2833**	**6.3700e-003**	**0.2896**		**982.8850**	**982.8850**	**0.0240**		**983.4860**

3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4779	0.3380	3.2759	9.8600e-003	1.0679	6.9100e-003	1.0748	0.2833	6.3700e-003	0.2896		982.8850	982.8850	0.0240		983.4860
Total	**0.4779**	**0.3380**	**3.2759**	**9.8600e-003**	**1.0679**	**6.9100e-003**	**1.0748**	**0.2833**	**6.3700e-003**	**0.2896**		**982.8850**	**982.8850**	**0.0240**		**983.4860**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**0.2189**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4428	0.3017	2.9876	9.5100e-003	1.0679	6.7200e-003	1.0746	0.2833	6.1900e-003	0.2895		948.3976	948.3976	0.0215		948.9341
Total	**0.4428**	**0.3017**	**2.9876**	**9.5100e-003**	**1.0679**	**6.7200e-003**	**1.0746**	**0.2833**	**6.1900e-003**	**0.2895**		**948.3976**	**948.3976**	**0.0215**		**948.9341**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4428	0.3017	2.9876	9.5100e-003	1.0679	6.7200e-003	1.0746	0.2833	6.1900e-003	0.2895		948.3976	948.3976	0.0215		948.9341
Total	**0.4428**	**0.3017**	**2.9876**	**9.5100e-003**	**1.0679**	**6.7200e-003**	**1.0746**	**0.2833**	**6.1900e-003**	**0.2895**		**948.3976**	**948.3976**	**0.0215**		**948.9341**

3.7 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2474	0.0000	6.2474	3.3346	0.0000	3.3346			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**6.2474**	**2.1739**	**8.4213**	**3.3346**	**2.0000**	**5.3345**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.7 Grading 2 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2474	0.0000	6.2474	3.3346	0.0000	3.3346			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,005.865 3	6,005.865 3	1.9424		6,054.425 7
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**6.2474**	**0.1015**	**6.3489**	**3.3346**	**0.1015**	**3.4361**	**0.0000**	**6,005.865 3**	**6,005.865 3**	**1.9424**		**6,054.425 7**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.7 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2474	0.0000	6.2474	3.3346	0.0000	3.3346			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**6.2474**	**1.9853**	**8.2327**	**3.3346**	**1.8265**	**5.1611**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0681	0.0464	0.4596	1.4600e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		145.9073	145.9073	3.3000e-003		145.9899
Total	**0.0681**	**0.0464**	**0.4596**	**1.4600e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**145.9073**	**145.9073**	**3.3000e-003**		**145.9899**

3.7 Grading 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2474	0.0000	6.2474	3.3346	0.0000	3.3346			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**6.2474**	**0.1015**	**6.3489**	**3.3346**	**0.1015**	**3.4361**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0681	0.0464	0.4596	1.4600e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		145.9073	145.9073	3.3000e-003		145.9899
Total	**0.0681**	**0.0464**	**0.4596**	**1.4600e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**145.9073**	**145.9073**	**3.3000e-003**		**145.9899**

3.8 Paving 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.2684**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0511**	**0.0348**	**0.3447**	**1.1000e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**109.4305**	**109.4305**	**2.4800e-003**		**109.4924**

3.8 Paving 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	1.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2933**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0511**	**0.0348**	**0.3447**	**1.1000e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**109.4305**	**109.4305**	**2.4800e-003**		**109.4924**

3.9 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8377	26.5786	7.1424	0.0678	1.7261	0.0591	1.7852	0.4969	0.0565	0.5534		7,181.4923	7,181.4923	0.3742		7,190.8459
Worker	2.2209	1.5134	14.9837	0.0477	5.3560	0.0337	5.3897	1.4207	0.0310	1.4517		4,756.5789	4,756.5789	0.1076		4,759.2696
Total	**3.0586**	**28.0920**	**22.1261**	**0.1155**	**7.0822**	**0.0928**	**7.1749**	**1.9176**	**0.0875**	**2.0051**		**11,938.0711**	**11,938.0711**	**0.4818**		**11,950.1156**

3.9 Construction 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8377	26.5786	7.1424	0.0678	1.7261	0.0591	1.7852	0.4969	0.0565	0.5534		7,181.4923	7,181.4923	0.3742		7,190.8459
Worker	2.2209	1.5134	14.9837	0.0477	5.3560	0.0337	5.3897	1.4207	0.0310	1.4517		4,756.5789	4,756.5789	0.1076		4,759.2696
Total	**3.0586**	**28.0920**	**22.1261**	**0.1155**	**7.0822**	**0.0928**	**7.1749**	**1.9176**	**0.0875**	**2.0051**		**11,938.0711**	**11,938.0711**	**0.4818**		**11,950.1156**

3.9 Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.333 6**	**2,554.333 6**	**0.6120**		**2,569.632 2**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7812	25.1632	6.7142	0.0671	1.7262	0.0513	1.7775	0.4969	0.0491	0.5460		7,110.3921	7,110.3921	0.3574		7,119.3272
Worker	2.0729	1.3569	13.7498	0.0460	5.3560	0.0329	5.3889	1.4207	0.0303	1.4510		4,582.204 0	4,582.204 0	0.0964		4,584.613 1
Total	**2.8540**	**26.5201**	**20.4640**	**0.1130**	**7.0822**	**0.0842**	**7.1664**	**1.9176**	**0.0794**	**1.9969**		**11,692.59 60**	**11,692.59 60**	**0.4538**		**11,703.94 03**

3.9 Construction 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7812	25.1632	6.7142	0.0671	1.7262	0.0513	1.7775	0.4969	0.0491	0.5460		7,110.3921	7,110.3921	0.3574		7,119.3272
Worker	2.0729	1.3569	13.7498	0.0460	5.3560	0.0329	5.3889	1.4207	0.0303	1.4510		4,582.2040	4,582.2040	0.0964		4,584.6131
Total	**2.8540**	**26.5201**	**20.4640**	**0.1130**	**7.0822**	**0.0842**	**7.1664**	**1.9176**	**0.0794**	**1.9969**		**11,692.5960**	**11,692.5960**	**0.4538**		**11,703.9403**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**0.2189**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4428	0.3017	2.9876	9.5100e-003	1.0679	6.7200e-003	1.0746	0.2833	6.1900e-003	0.2895		948.3976	948.3976	0.0215		948.9341
Total	**0.4428**	**0.3017**	**2.9876**	**9.5100e-003**	**1.0679**	**6.7200e-003**	**1.0746**	**0.2833**	**6.1900e-003**	**0.2895**		**948.3976**	**948.3976**	**0.0215**		**948.9341**

3.10 Architectural Coating 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4428	0.3017	2.9876	9.5100e-003	1.0679	6.7200e-003	1.0746	0.2833	6.1900e-003	0.2895		948.3976	948.3976	0.0215		948.9341
Total	**0.4428**	**0.3017**	**2.9876**	**9.5100e-003**	**1.0679**	**6.7200e-003**	**1.0746**	**0.2833**	**6.1900e-003**	**0.2895**		**948.3976**	**948.3976**	**0.0215**		**948.9341**

3.10 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**0.2045**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4133	0.2706	2.7415	9.1600e-003	1.0679	6.5600e-003	1.0745	0.2833	6.0400e-003	0.2893		913.6296	913.6296	0.0192		914.1100
Total	**0.4133**	**0.2706**	**2.7415**	**9.1600e-003**	**1.0679**	**6.5600e-003**	**1.0745**	**0.2833**	**6.0400e-003**	**0.2893**		**913.6296**	**913.6296**	**0.0192**		**914.1100**

3.10 Architectural Coating 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4133	0.2706	2.7415	9.1600e-003	1.0679	6.5600e-003	1.0745	0.2833	6.0400e-003	0.2893		913.6296	913.6296	0.0192		914.1100
Total	**0.4133**	**0.2706**	**2.7415**	**9.1600e-003**	**1.0679**	**6.5600e-003**	**1.0745**	**0.2833**	**6.0400e-003**	**0.2893**		**913.6296**	**913.6296**	**0.0192**		**914.1100**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.6035	12.3202	32.0172	0.1191	11.5890	0.0978	11.6868	3.1001	0.0913	3.1914		12,064.50 05	12,064.50 05	0.4171		12,074.92 90
Unmitigated	2.6777	12.7824	33.7372	0.1273	12.4479	0.1042	12.5521	3.3298	0.0972	3.4271		12,898.22 63	12,898.22 63	0.4396		12,909.21 55

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	1,600.80	1,600.80	1600.80	4,197,023	3,907,428
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	569.70	569.70	569.70	1,663,245	1,548,482
Total	2,170.50	2,170.50	2,170.50	5,860,268	5,455,910

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unrefrigerated Warehouse-No Rail	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3185	2.8953	2.4321	0.0174		0.2201	0.2201		0.2201	0.2201		3,474.404 5	3,474.404 5	0.0666	0.0637	3,495.051 2
NaturalGas Unmitigated	0.4542	4.1291	3.4685	0.0248		0.3138	0.3138		0.3138	0.3138		4,954.939 6	4,954.939 6	0.0950	0.0908	4,984.384 3

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	41261.4	0.4450	4.0452	3.3980	0.0243		0.3074	0.3074		0.3074	0.3074		4,854.278 8	4,854.278 8	0.0930	0.0890	4,883.125 4
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	855.616	9.2300e-003	0.0839	0.0705	5.0000e-004		6.3800e-003	6.3800e-003		6.3800e-003	6.3800e-003		100.6608	100.6608	1.9300e-003	1.8500e-003	101.2589
Total		**0.4542**	**4.1291**	**3.4685**	**0.0248**		**0.3138**	**0.3138**		**0.3138**	**0.3138**		**4,954.939 6**	**4,954.939 6**	**0.0950**	**0.0909**	**4,984.384 3**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	28.9283	0.3120	2.8361	2.3823	0.0170		0.2155	0.2155		0.2155	0.2155		3,403.3328	3,403.3328	0.0652	0.0624	3,423.5571
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.60411	6.5100e-003	0.0592	0.0498	3.6000e-004		4.5000e-003	4.5000e-003		4.5000e-003	4.5000e-003		71.0717	71.0717	1.3600e-003	1.3000e-003	71.4941
Total		**0.3185**	**2.8953**	**2.4321**	**0.0174**		**0.2200**	**0.2200**		**0.2200**	**0.2200**		**3,474.4045**	**3,474.4045**	**0.0666**	**0.0637**	**3,495.0512**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	21.8287	2.1900e-003	0.2414	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004		0.5182	0.5182	1.3500e-003		0.5521
Unmitigated	24.7765	2.1900e-003	0.2414	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004		0.5182	0.5182	1.3500e-003		0.5521

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.9478					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	21.8064					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0223	2.1900e-003	0.2414	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004		0.5182	0.5182	1.3500e-003		0.5521
Total	**24.7765**	**2.1900e-003**	**0.2414**	**2.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**		**0.5182**	**0.5182**	**1.3500e-003**		**0.5521**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	21.8064					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0223	2.1900e-003	0.2414	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004		0.5182	0.5182	1.3500e-003		0.5521
Total	**21.8287**	**2.1900e-003**	**0.2414**	**2.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**		**0.5182**	**0.5182**	**1.3500e-003**		**0.5521**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Reduced Intensity Alt. Mitigated)

Bay Area AQMD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.31	0.78	0.00	0.00	0.91	0.91	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating 2	0.30	0.77	0.00	0.00	0.89	0.89	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.34	0.34	-0.02	0.00	0.84	0.83	0.00	0.00	0.00	0.00	0.00	0.00
Construction 2	0.33	0.33	-0.03	0.00	0.87	0.87	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.85	0.93	-0.07	0.00	0.96	0.96	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.82	0.93	-0.03	0.00	0.95	0.95	0.00	0.00	0.00	0.00	0.00	0.00
Grading 2	0.81	0.93	-0.04	0.00	0.95	0.95	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.20	0.91	-0.18	0.00	0.95	0.94	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	0.42	0.90	-0.18	0.00	0.94	0.94	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	Tier 4 Final	2	2	No Change	0.00
Concrete/Industrial Saws	Diesel	Tier 4 Final	1	1	No Change	0.00
Cranes	Diesel	Tier 4 Final	2	2	No Change	0.00
Excavators	Diesel	Tier 4 Final	7	7	No Change	0.00
Forklifts	Diesel	Tier 4 Final	6	6	No Change	0.00
Generator Sets	Diesel	Tier 4 Final	2	2	No Change	0.00
Graders	Diesel	Tier 4 Final	2	2	No Change	0.00
Pavers	Diesel	Tier 4 Final	4	4	No Change	0.00
Paving Equipment	Diesel	Tier 4 Final	4	4	No Change	0.00
Rollers	Diesel	Tier 4 Final	4	4	No Change	0.00
Rubber Tired Dozers	Diesel	Tier 4 Final	4	4	No Change	0.00
Scrapers	Diesel	Tier 4 Final	4	4	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	10	10	No Change	0.00
Welders	Diesel	Tier 4 Final	2	2	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	5.06700E-002	3.51860E-001	4.17700E-001	6.80000E-004	2.17700E-002	2.17700E-002	0.00000E+000	5.85972E+001	5.85972E+001	4.10000E-003	0.00000E+000	5.86996E+001
Concrete/Industrial Saws	9.62000E-003	7.58700E-002	8.47900E-002	1.40000E-004	4.56000E-003	4.56000E-003	0.00000E+000	1.23661E+001	1.23661E+001	7.80000E-004	0.00000E+000	1.23857E+001
Cranes	8.30400E-002	9.68220E-001	4.00790E-001	1.16000E-003	3.97200E-002	3.65400E-002	0.00000E+000	1.01795E+002	1.01795E+002	3.29200E-002	0.00000E+000	1.02618E+002
Excavators	5.42900E-002	5.30840E-001	7.32140E-001	1.16000E-003	2.57200E-002	2.36600E-002	0.00000E+000	1.01631E+002	1.01631E+002	3.28700E-002	0.00000E+000	1.02453E+002
Forklifts	8.89500E-002	8.11610E-001	8.03840E-001	1.05000E-003	5.75600E-002	5.29600E-002	0.00000E+000	9.24596E+001	9.24596E+001	2.99000E-002	0.00000E+000	9.32072E+001
Generator Sets	8.30300E-002	7.32110E-001	8.46450E-001	1.51000E-003	3.90500E-002	3.90500E-002	0.00000E+000	1.29715E+002	1.29715E+002	6.69000E-003	0.00000E+000	1.29882E+002
Graders	3.64500E-002	4.82810E-001	1.39750E-001	5.10000E-004	1.54000E-002	1.41700E-002	0.00000E+000	4.51701E+001	4.51701E+001	1.46100E-002	0.00000E+000	4.55354E+001
Pavers	1.37200E-002	1.45090E-001	1.59690E-001	2.60000E-004	7.02000E-003	6.46000E-003	0.00000E+000	2.27074E+001	2.27074E+001	7.34000E-003	0.00000E+000	2.28910E+001
Paving Equipment	1.07300E-002	1.08930E-001	1.39700E-001	2.20000E-004	5.39000E-003	4.96000E-003	0.00000E+000	1.96822E+001	1.96822E+001	6.37000E-003	0.00000E+000	1.98413E+001
Rollers	1.06300E-002	1.07560E-001	1.03570E-001	1.40000E-004	6.64000E-003	6.10000E-003	0.00000E+000	1.26776E+001	1.26776E+001	4.10000E-003	0.00000E+000	1.27801E+001
Rubber Tired Dozers	1.32700E-001	1.39285E+000	5.08520E-001	1.05000E-003	6.81200E-002	6.26700E-002	0.00000E+000	9.26934E+001	9.26934E+001	2.99800E-002	0.00000E+000	9.34429E+001
Scrapers	1.51550E-001	1.78275E+000	1.13929E+000	2.35000E-003	6.94900E-002	6.39300E-002	0.00000E+000	2.06312E+002	2.06312E+002	6.67300E-002	0.00000E+000	2.07981E+002
Tractors/Loaders/Backhoes	1.44560E-001	1.46024E+000	1.71394E+000	2.35000E-003	8.72700E-002	8.02900E-002	0.00000E+000	2.06775E+002	2.06775E+002	6.68800E-002	0.00000E+000	2.08447E+002
Welders	7.04100E-002	3.47480E-001	3.96180E-001	5.90000E-004	1.72000E-002	1.72000E-002	0.00000E+000	4.31966E+001	4.31966E+001	5.72000E-003	0.00000E+000	4.33396E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	6.82000E-003	2.95500E-002	4.20540E-001	6.80000E-004	9.10000E-004	9.10000E-004	0.00000E+000	5.85971E+001	5.85971E+001	4.10000E-003	0.00000E+000	5.86995E+001
Concrete/Industrial Saws	1.44000E-003	6.24000E-003	8.87500E-002	1.40000E-004	1.90000E-004	1.90000E-004	0.00000E+000	1.23661E+001	1.23661E+001	7.80000E-004	0.00000E+000	1.23857E+001
Cranes	1.42400E-002	6.16900E-002	5.21970E-001	1.16000E-003	1.90000E-003	1.90000E-003	0.00000E+000	1.01795E+002	1.01795E+002	3.29200E-002	0.00000E+000	1.02618E+002
Excavators	1.42300E-002	6.16700E-002	8.77640E-001	1.16000E-003	1.90000E-003	1.90000E-003	0.00000E+000	1.01631E+002	1.01631E+002	3.28700E-002	0.00000E+000	1.02453E+002
Forklifts	1.29700E-002	5.62000E-002	7.99740E-001	1.05000E-003	1.73000E-003	1.73000E-003	0.00000E+000	9.24595E+001	9.24595E+001	2.99000E-002	0.00000E+000	9.32070E+001
Generator Sets	1.51000E-002	6.54200E-002	9.30930E-001	1.51000E-003	2.01000E-003	2.01000E-003	0.00000E+000	1.29715E+002	1.29715E+002	6.69000E-003	0.00000E+000	1.29882E+002
Graders	6.29000E-003	2.72500E-002	2.30550E-001	5.10000E-004	8.40000E-004	8.40000E-004	0.00000E+000	4.51701E+001	4.51701E+001	1.46100E-002	0.00000E+000	4.55353E+001
Pavers	3.18000E-003	1.37700E-002	1.95970E-001	2.60000E-004	4.20000E-004	4.20000E-004	0.00000E+000	2.27074E+001	2.27074E+001	7.34000E-003	0.00000E+000	2.28910E+001
Paving Equipment	2.77000E-003	1.19800E-002	1.70560E-001	2.20000E-004	3.70000E-004	3.70000E-004	0.00000E+000	1.96821E+001	1.96821E+001	6.37000E-003	0.00000E+000	1.98413E+001
Rollers	1.77000E-003	7.67000E-003	1.09110E-001	1.40000E-004	2.40000E-004	2.40000E-004	0.00000E+000	1.26776E+001	1.26776E+001	4.10000E-003	0.00000E+000	1.27801E+001
Rubber Tired Dozers	1.29100E-002	5.59500E-002	4.73450E-001	1.05000E-003	1.72000E-003	1.72000E-003	0.00000E+000	9.26933E+001	9.26933E+001	2.99800E-002	0.00000E+000	9.34428E+001
Scrapers	2.88900E-002	1.25210E-001	1.05946E+000	2.35000E-003	3.85000E-003	3.85000E-003	0.00000E+000	2.06312E+002	2.06312E+002	6.67300E-002	0.00000E+000	2.07980E+002
Tractors/Loaders/Backhoes	2.87700E-002	1.24660E-001	1.77397E+000	2.35000E-003	3.84000E-003	3.84000E-003	0.00000E+000	2.06775E+002	2.06775E+002	6.68800E-002	0.00000E+000	2.08447E+002
Welders	1.00500E-002	2.30410E-001	3.43530E-001	5.90000E-004	6.70000E-004	6.70000E-004	0.00000E+000	4.31966E+001	4.31966E+001	5.72000E-003	0.00000E+000	4.33395E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	8.65404E-001	9.16018E-001	-6.79914E-003	0.00000E+000	9.58199E-001	9.58199E-001	0.00000E+000	1.19460E-006	1.19460E-006	0.00000E+000	0.00000E+000	1.19251E-006
Concrete/Industrial Saws	8.50312E-001	9.17754E-001	-4.67036E-002	0.00000E+000	9.58333E-001	9.58333E-001	0.00000E+000	1.61732E-006	1.61732E-006	0.00000E+000	0.00000E+000	1.61477E-006
Cranes	8.28516E-001	9.36285E-001	-3.02353E-001	0.00000E+000	9.52165E-001	9.48002E-001	0.00000E+000	1.17884E-006	1.17884E-006	0.00000E+000	0.00000E+000	1.16939E-006
Excavators	7.37889E-001	8.83826E-001	-1.98732E-001	0.00000E+000	9.26128E-001	9.19696E-001	0.00000E+000	1.18074E-006	1.18074E-006	0.00000E+000	0.00000E+000	1.17127E-006
Forklifts	8.54188E-001	9.30755E-001	5.10052E-003	0.00000E+000	9.69944E-001	9.67334E-001	0.00000E+000	1.18971E-006	1.18971E-006	0.00000E+000	0.00000E+000	1.18017E-006
Generator Sets	8.18138E-001	9.10642E-001	-9.98051E-002	0.00000E+000	9.48528E-001	9.48528E-001	0.00000E+000	1.15638E-006	1.15638E-006	0.00000E+000	0.00000E+000	1.23188E-006
Graders	8.27435E-001	9.43560E-001	-6.49732E-001	0.00000E+000	9.45455E-001	9.40720E-001	0.00000E+000	1.10693E-006	1.10693E-006	0.00000E+000	0.00000E+000	1.09805E-006
Pavers	7.68222E-001	9.05093E-001	-2.27190E-001	0.00000E+000	9.40171E-001	9.34985E-001	0.00000E+000	8.80769E-007	8.80769E-007	0.00000E+000	0.00000E+000	8.73704E-007
Paving Equipment	7.41845E-001	8.90021E-001	-2.20902E-001	0.00000E+000	9.31354E-001	9.25403E-001	0.00000E+000	1.01615E-006	1.01615E-006	0.00000E+000	0.00000E+000	1.00800E-006
Rollers	8.33490E-001	9.28691E-001	-5.34904E-002	0.00000E+000	9.63855E-001	9.60656E-001	0.00000E+000	7.88794E-007	7.88794E-007	0.00000E+000	0.00000E+000	1.56493E-006
Rubber Tired Dozers	9.02713E-001	9.59831E-001	6.89648E-002	0.00000E+000	9.74750E-001	9.72555E-001	0.00000E+000	1.18671E-006	1.18671E-006	0.00000E+000	0.00000E+000	1.17719E-006
Scrapers	8.09370E-001	9.29766E-001	7.00700E-002	0.00000E+000	9.44596E-001	9.39778E-001	0.00000E+000	1.21175E-006	1.21175E-006	0.00000E+000	0.00000E+000	1.20204E-006
Tractors/Loaders/Backhoes	8.00982E-001	9.14630E-001	-3.50246E-002	0.00000E+000	9.55999E-001	9.52173E-001	0.00000E+000	1.20904E-006	1.20904E-006	0.00000E+000	0.00000E+000	1.15137E-006
Welders	8.57265E-001	3.36911E-001	1.32894E-001	0.00000E+000	9.61047E-001	9.61047E-001	0.00000E+000	1.15750E-006	1.15750E-006	0.00000E+000	0.00000E+000	1.15368E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Water Exposed Area	PM10 Reduction	0.00	PM2.5 Reduction	0.00	Frequency (per day)	

No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	0.00			
No	Clean Paved Road	% PM Reduction	0.00					

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.08	0.02	0.08	0.02	0.00	0.00
Architectural Coating 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating 2	Roads	0.16	0.04	0.16	0.04	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.52	0.14	0.52	0.14	0.00	0.00
Construction 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Construction 2	Roads	1.04	0.28	1.04	0.28	0.00	0.00
Demolition	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading	Fugitive Dust	0.11	0.05	0.11	0.05	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading 2	Fugitive Dust	0.40	0.21	0.40	0.21	0.00	0.00
Grading 2	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
						Percent Reduction						
Architectural Coating	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.02	10.02	10.02	10.02	10.02
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	2.72	3.54	5.29	6.46	6.09	6.13	0.00	6.44	6.44	5.21	0.00	6.44
Natural Gas	29.88	29.88	29.88	29.87	29.88	29.88	0.00	29.88	29.88	29.83	29.85	29.88
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Low Density Suburban

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.08	0.28		
No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
Yes	Land Use	Increase Transit Accessibility	0.08	0.50		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.05			

Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures	0.00			
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.02			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
No	Transit Improvements	Expand Transit Network	0.00	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.07			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"	3.00			
No	Commute	Workplace Parking Charge		0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program	5.00			
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.07			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	150.00
Yes	Use Low VOC Paint (Non-residential Interior)	0.00
Yes	Use Low VOC Paint (Non-residential Exterior)	0.00
Yes	Use Low VOC Paint (Parking)	0.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	30.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value

Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Mitigated Reduced Footprint Alternative Emissions Modeling

Oakley Logistics Center (Reduced Footprint Alt. Mitigated)

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	460.00	1000sqft	60.68	460,000.00	0
Unrefrigerated Warehouse-No Rail	40.00	1000sqft	1.72	40,000.00	0
Parking Lot	679.00	Space	8.51	271,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	245.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - Based on description of Alternative

Construction Phase - *

Demolition -

Grading - applicant provided

Architectural Coating - Mitigation

Vehicle Trips - TIA trip rate

Energy Use -

Construction Off-road Equipment Mitigation - Mitigation

Mobile Land Use Mitigation - applicant provided

Area Mitigation - Mitigation

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	70.00	46.00
tblConstructionPhase	NumDays	110.00	31.00

tblConstructionPhase	NumDays	75.00	11.00
tblConstructionPhase	NumDays	1,110.00	100.00
tblConstructionPhase	NumDays	75.00	100.00
tblConstructionPhase	NumDays	110.00	62.00
tblConstructionPhase	NumDays	75.00	22.00
tblConstructionPhase	NumDays	1,110.00	153.00
tblConstructionPhase	NumDays	75.00	153.00
tblConstructionPhase	PhaseEndDate	6/5/2020	5/4/2020
tblConstructionPhase	PhaseEndDate	11/6/2020	6/16/2020
tblConstructionPhase	PhaseEndDate	1/25/2030	7/1/2020
tblConstructionPhase	PhaseEndDate	7/11/2025	11/18/2020
tblConstructionPhase	PhaseEndDate	8/23/2030	12/2/2020
tblConstructionPhase	PhaseEndDate	4/9/2021	11/26/2020
tblConstructionPhase	PhaseEndDate	5/10/2030	12/28/2020
tblConstructionPhase	PhaseEndDate	10/12/2029	7/29/2021
tblConstructionPhase	PhaseEndDate	12/6/2030	8/12/2021
tblConstructionPhase	PhaseStartDate	6/6/2020	5/5/2020
tblConstructionPhase	PhaseStartDate	10/13/2029	6/17/2020
tblConstructionPhase	PhaseStartDate	4/10/2021	7/2/2020
tblConstructionPhase	PhaseStartDate	5/11/2030	7/16/2020
tblConstructionPhase	PhaseStartDate	11/7/2020	9/2/2020
tblConstructionPhase	PhaseStartDate	1/26/2030	11/27/2020
tblConstructionPhase	PhaseStartDate	7/12/2025	12/29/2020
tblConstructionPhase	PhaseStartDate	8/24/2030	1/12/2021
tblGrading	AcresOfGrading	77.50	20.08
tblGrading	AcresOfGrading	155.00	50.90
tblLandUse	LotAcreage	10.56	60.68

tblLandUse	LotAcreage	0.92	1.72
tblLandUse	LotAcreage	6.11	8.51
tblProjectCharacteristics	CO2IntensityFactor	641.35	245.88
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	6.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	6.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	6.33

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.5455	5.2083	3.9040	9.1200e-003	0.5351	0.2196	0.7546	0.2163	0.2041	0.4204	0.0000	816.8127	816.8127	0.1572	0.0000	820.7437
2021	0.2792	2.4732	2.2851	6.9600e-003	0.2933	0.0828	0.3760	0.0795	0.0782	0.1577	0.0000	633.8778	633.8778	0.0597	0.0000	635.3699
Maximum	**0.5455**	**5.2083**	**3.9040**	**9.1200e-003**	**0.5351**	**0.2196**	**0.7546**	**0.2163**	**0.2041**	**0.4204**	**0.0000**	**816.8127**	**816.8127**	**0.1572**	**0.0000**	**820.7437**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1878	1.1473	4.0627	9.1200e-003	0.5351	0.0139	0.5490	0.2163	0.0136	0.2299	0.0000	816.8122	816.8122	0.1572	0.0000	820.7431
2021	0.1467	1.2265	2.3526	6.9600e-003	0.2933	7.0200e-003	0.3003	0.0795	6.8100e-003	0.0863	0.0000	633.8775	633.8775	0.0597	0.0000	635.3697
Maximum	**0.1878**	**1.2265**	**4.0627**	**9.1200e-003**	**0.5351**	**0.0139**	**0.5490**	**0.2163**	**0.0136**	**0.2299**	**0.0000**	**816.8122**	**816.8122**	**0.1572**	**0.0000**	**820.7431**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**59.44**	**69.10**	**-3.65**	**0.00**	**0.00**	**93.09**	**24.89**	**0.00**	**92.76**	**45.31**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-2-2020	6-1-2020	1.9385	0.1485
2	6-2-2020	9-1-2020	1.6487	0.5122
3	9-2-2020	12-1-2020	2.8515	0.6933
4	12-2-2020	3-1-2021	0.9827	0.4406
5	3-2-2021	6-1-2021	1.2025	0.5993
6	6-2-2021	9-1-2021	0.7659	0.3777
		Highest	2.8515	0.6933

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.2377	1.0000e-004	0.0108	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0211	0.0211	5.0000e-005	0.0000	0.0224
Energy	0.0414	0.3759	0.3158	2.2600e-003		0.0286	0.0286		0.0286	0.0286	0.0000	1,350.3379	1,350.3379	0.1188	0.0305	1,362.3882
Mobile	0.2387	1.1060	2.8585	0.0113	1.0559	9.1500e-003	1.0651	0.2834	8.5400e-003	0.2919	0.0000	1,040.7313	1,040.7313	0.0344	0.0000	1,041.5915
Waste						0.0000	0.0000		0.0000	0.0000	123.4185	0.0000	123.4185	7.2938	0.0000	305.7641
Water						0.0000	0.0000		0.0000	0.0000	36.6825	69.7780	106.4604	3.7759	0.0907	227.8754
Total	**2.5177**	**1.4821**	**3.1851**	**0.0136**	**1.0559**	**0.0378**	**1.0937**	**0.2834**	**0.0372**	**0.3205**	**160.1010**	**2,460.8682**	**2,620.9692**	**11.2230**	**0.1211**	**2,937.6416**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.9713	1.0000e-004	0.0108	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0211	0.0211	5.0000e-005	0.0000	0.0224
Energy	0.0290	0.2636	0.2214	1.5800e-003		0.0200	0.0200		0.0200	0.0200	0.0000	1,133.5829	1,133.5829	0.1054	0.0259	1,143.9410
Mobile	0.2322	1.0670	2.7075	0.0106	0.9831	8.5900e-003	0.9917	0.2638	8.0200e-003	0.2718	0.0000	973.6807	973.6807	0.0326	0.0000	974.4961
Waste						0.0000	0.0000		0.0000	0.0000	123.4185	0.0000	123.4185	7.2938	0.0000	305.7641
Water						0.0000	0.0000		0.0000	0.0000	36.6825	69.7780	106.4604	3.7759	0.0907	227.8754
Total	**2.2325**	**1.3307**	**2.9397**	**0.0122**	**0.9831**	**0.0287**	**1.0117**	**0.2638**	**0.0281**	**0.2919**	**160.1010**	**2,177.0627**	**2,337.1637**	**11.2077**	**0.1166**	**2,652.0991**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**11.33**	**10.21**	**7.70**	**10.38**	**6.90**	**24.10**	**7.49**	**6.90**	**24.39**	**8.93**	**0.00**	**11.53**	**10.83**	**0.14**	**3.76**	**9.72**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Grading 2	Grading	9/2/2020	11/26/2020	5	62	
4	Building Construction	Building Construction	7/2/2020	11/18/2020	5	100	
5	Construction 2	Building Construction	12/29/2020	7/29/2021	5	153	
6	Paving	Paving	6/17/2020	7/1/2020	5	11	
7	Paving 2	Paving	11/27/2020	12/28/2020	5	22	
8	Architectural Coating	Architectural Coating	7/16/2020	12/2/2020	5	100	
9	Architectural Coating 2	Architectural Coating	1/12/2021	8/12/2021	5	153	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 20.08

Acres of Paving: 8.51

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 750,000; Non-Residential Outdoor: 250,000; Striped Parking Area: 16,296 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74
Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36
Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	324.00	126.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	324.00	126.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	65.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	65.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9200e-003	0.0000	4.9200e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0762	0.7636	0.5003	8.9000e-004		0.0382	0.0382		0.0355	0.0355	0.0000	78.1968	78.1968	0.0221	0.0000	78.7487
Total	**0.0762**	**0.7636**	**0.5003**	**8.9000e-004**	**4.9200e-003**	**0.0382**	**0.0431**	**7.5000e-004**	**0.0355**	**0.0362**	**0.0000**	**78.1968**	**78.1968**	**0.0221**	**0.0000**	**78.7487**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-004	6.5800e-003	1.3200e-003	2.0000e-005	3.8000e-004	2.0000e-005	4.0000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.7243	1.7243	9.0000e-005	0.0000	1.7266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	8.2000e-004	8.4700e-003	3.0000e-005	2.7300e-003	2.0000e-005	2.7400e-003	7.3000e-004	2.0000e-005	7.4000e-004	0.0000	2.3884	2.3884	6.0000e-005	0.0000	2.3898
Total	**1.3300e-003**	**7.4000e-003**	**9.7900e-003**	**5.0000e-005**	**3.1100e-003**	**4.0000e-005**	**3.1400e-003**	**8.3000e-004**	**4.0000e-005**	**8.6000e-004**	**0.0000**	**4.1127**	**4.1127**	**1.5000e-004**	**0.0000**	**4.1164**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9200e-003	0.0000	4.9200e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0106	0.0461	0.5354	8.9000e-004		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003	0.0000	78.1967	78.1967	0.0221	0.0000	78.7486
Total	**0.0106**	**0.0461**	**0.5354**	**8.9000e-004**	**4.9200e-003**	**1.4200e-003**	**6.3400e-003**	**7.5000e-004**	**1.4200e-003**	**2.1700e-003**	**0.0000**	**78.1967**	**78.1967**	**0.0221**	**0.0000**	**78.7486**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9000e-004	6.5800e-003	1.3200e-003	2.0000e-005	3.8000e-004	2.0000e-005	4.0000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.7243	1.7243	9.0000e-005	0.0000	1.7266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	8.2000e-004	8.4700e-003	3.0000e-005	2.7300e-003	2.0000e-005	2.7400e-003	7.3000e-004	2.0000e-005	7.4000e-004	0.0000	2.3884	2.3884	6.0000e-005	0.0000	2.3898
Total	**1.3300e-003**	**7.4000e-003**	**9.7900e-003**	**5.0000e-005**	**3.1100e-003**	**4.0000e-005**	**3.1400e-003**	**8.3000e-004**	**4.0000e-005**	**8.6000e-004**	**0.0000**	**4.1127**	**4.1127**	**1.5000e-004**	**0.0000**	**4.1164**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1040	0.0000	0.1040	0.0525	0.0000	0.0525	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0690	0.7781	0.4954	9.6000e-004		0.0337	0.0337		0.0310	0.0310	0.0000	84.4507	84.4507	0.0273	0.0000	85.1335
Total	**0.0690**	**0.7781**	**0.4954**	**9.6000e-004**	**0.1040**	**0.0337**	**0.1377**	**0.0525**	**0.0310**	**0.0835**	**0.0000**	**84.4507**	**84.4507**	**0.0273**	**0.0000**	**85.1335**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	7.4000e-004	7.6100e-003	2.0000e-005	2.4500e-003	2.0000e-005	2.4700e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.1461	2.1461	5.0000e-005	0.0000	2.1474
Total	**1.0300e-003**	**7.4000e-004**	**7.6100e-003**	**2.0000e-005**	**2.4500e-003**	**2.0000e-005**	**2.4700e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.1461**	**2.1461**	**5.0000e-005**	**0.0000**	**2.1474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1040	0.0000	0.1040	0.0525	0.0000	0.0525	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0118	0.0512	0.5115	9.6000e-004		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	84.4506	84.4506	0.0273	0.0000	85.1334
Total	**0.0118**	**0.0512**	**0.5115**	**9.6000e-004**	**0.1040**	**1.5700e-003**	**0.1056**	**0.0525**	**1.5700e-003**	**0.0540**	**0.0000**	**84.4506**	**84.4506**	**0.0273**	**0.0000**	**85.1334**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	7.4000e-004	7.6100e-003	2.0000e-005	2.4500e-003	2.0000e-005	2.4700e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.1461	2.1461	5.0000e-005	0.0000	2.1474
Total	**1.0300e-003**	**7.4000e-004**	**7.6100e-003**	**2.0000e-005**	**2.4500e-003**	**2.0000e-005**	**2.4700e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.1461**	**2.1461**	**5.0000e-005**	**0.0000**	**2.1474**

3.4 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2137	0.0000	0.2137	0.1055	0.0000	0.1055	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1380	1.5561	0.9907	1.9200e-003		0.0674	0.0674		0.0620	0.0620	0.0000	168.9013	168.9013	0.0546	0.0000	170.2670
Total	**0.1380**	**1.5561**	**0.9907**	**1.9200e-003**	**0.2137**	**0.0674**	**0.2811**	**0.1055**	**0.0620**	**0.1675**	**0.0000**	**168.9013**	**168.9013**	**0.0546**	**0.0000**	**170.2670**

3.4 Grading 2 - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0500e-003	1.4700e-003	0.0152	5.0000e-005	4.9000e-003	3.0000e-005	4.9300e-003	1.3000e-003	3.0000e-005	1.3300e-003	0.0000	4.2921	4.2921	1.0000e-004	0.0000	4.2947
Total	**2.0500e-003**	**1.4700e-003**	**0.0152**	**5.0000e-005**	**4.9000e-003**	**3.0000e-005**	**4.9300e-003**	**1.3000e-003**	**3.0000e-005**	**1.3300e-003**	**0.0000**	**4.2921**	**4.2921**	**1.0000e-004**	**0.0000**	**4.2947**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2137	0.0000	0.2137	0.1055	0.0000	0.1055	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0236	0.1023	1.0230	1.9200e-003		3.1500e-003	3.1500e-003		3.1500e-003	3.1500e-003	0.0000	168.9011	168.9011	0.0546	0.0000	170.2668
Total	**0.0236**	**0.1023**	**1.0230**	**1.9200e-003**	**0.2137**	**3.1500e-003**	**0.2168**	**0.1055**	**3.1500e-003**	**0.1087**	**0.0000**	**168.9011**	**168.9011**	**0.0546**	**0.0000**	**170.2668**

3.4 Grading 2 - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0500e-003	1.4700e-003	0.0152	5.0000e-005	4.9000e-003	3.0000e-005	4.9300e-003	1.3000e-003	3.0000e-005	1.3300e-003	0.0000	4.2921	4.2921	1.0000e-004	0.0000	4.2947
Total	**2.0500e-003**	**1.4700e-003**	**0.0152**	**5.0000e-005**	**4.9000e-003**	**3.0000e-005**	**4.9300e-003**	**1.3000e-003**	**3.0000e-005**	**1.3300e-003**	**0.0000**	**4.2921**	**4.2921**	**1.0000e-004**	**0.0000**	**4.2947**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1060	0.9593	0.8424	1.3500e-003		0.0559	0.0559		0.0525	0.0525	0.0000	115.8050	115.8050	0.0283	0.0000	116.5113
Total	**0.1060**	**0.9593**	**0.8424**	**1.3500e-003**		**0.0559**	**0.0559**		**0.0525**	**0.0525**	**0.0000**	**115.8050**	**115.8050**	**0.0283**	**0.0000**	**116.5113**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0244	0.7269	0.1828	1.7200e-003	0.0413	3.5400e-003	0.0449	0.0120	3.3900e-003	0.0153	0.0000	164.9462	164.9462	8.5100e-003	0.0000	165.1589
Worker	0.0537	0.0384	0.3979	1.2400e-003	0.1280	8.6000e-004	0.1289	0.0341	7.9000e-004	0.0349	0.0000	112.1495	112.1495	2.7100e-003	0.0000	112.2173
Total	**0.0781**	**0.7653**	**0.5806**	**2.9600e-003**	**0.1693**	**4.4000e-003**	**0.1737**	**0.0460**	**4.1800e-003**	**0.0502**	**0.0000**	**277.0957**	**277.0957**	**0.0112**	**0.0000**	**277.3763**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0164	0.1117	0.8730	1.3500e-003		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	115.8049	115.8049	0.0283	0.0000	116.5112
Total	**0.0164**	**0.1117**	**0.8730**	**1.3500e-003**		**2.0400e-003**	**2.0400e-003**		**2.0400e-003**	**2.0400e-003**	**0.0000**	**115.8049**	**115.8049**	**0.0283**	**0.0000**	**116.5112**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0244	0.7269	0.1828	1.7200e-003	0.0413	3.5400e-003	0.0449	0.0120	3.3900e-003	0.0153	0.0000	164.9462	164.9462	8.5100e-003	0.0000	165.1589
Worker	0.0537	0.0384	0.3979	1.2400e-003	0.1280	8.6000e-004	0.1289	0.0341	7.9000e-004	0.0349	0.0000	112.1495	112.1495	2.7100e-003	0.0000	112.2173
Total	**0.0781**	**0.7653**	**0.5806**	**2.9600e-003**	**0.1693**	**4.4000e-003**	**0.1737**	**0.0460**	**4.1800e-003**	**0.0502**	**0.0000**	**277.0957**	**277.0957**	**0.0112**	**0.0000**	**277.3763**

3.6 Construction 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.1800e-003	0.0288	0.0253	4.0000e-005		1.6800e-003	1.6800e-003		1.5800e-003	1.5800e-003	0.0000	3.4742	3.4742	8.5000e-004	0.0000	3.4953
Total	**3.1800e-003**	**0.0288**	**0.0253**	**4.0000e-005**		**1.6800e-003**	**1.6800e-003**		**1.5800e-003**	**1.5800e-003**	**0.0000**	**3.4742**	**3.4742**	**8.5000e-004**	**0.0000**	**3.4953**

3.6 Construction 2 - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.3000e-004	0.0218	5.4800e-003	5.0000e-005	1.2400e-003	1.1000e-004	1.3500e-003	3.6000e-004	1.0000e-004	4.6000e-004	0.0000	4.9484	4.9484	2.6000e-004	0.0000	4.9548
Worker	1.6100e-003	1.1500e-003	0.0119	4.0000e-005	3.8400e-003	3.0000e-005	3.8700e-003	1.0200e-003	2.0000e-005	1.0500e-003	0.0000	3.3645	3.3645	8.0000e-005	0.0000	3.3665
Total	**2.3400e-003**	**0.0230**	**0.0174**	**9.0000e-005**	**5.0800e-003**	**1.4000e-004**	**5.2200e-003**	**1.3800e-003**	**1.2000e-004**	**1.5100e-003**	**0.0000**	**8.3129**	**8.3129**	**3.4000e-004**	**0.0000**	**8.3213**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.9000e-004	3.3500e-003	0.0262	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.4742	3.4742	8.5000e-004	0.0000	3.4953
Total	**4.9000e-004**	**3.3500e-003**	**0.0262**	**4.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**3.4742**	**3.4742**	**8.5000e-004**	**0.0000**	**3.4953**

3.6 Construction 2 - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.3000e-004	0.0218	5.4800e-003	5.0000e-005	1.2400e-003	1.1000e-004	1.3500e-003	3.6000e-004	1.0000e-004	4.6000e-004	0.0000	4.9484	4.9484	2.6000e-004	0.0000	4.9548
Worker	1.6100e-003	1.1500e-003	0.0119	4.0000e-005	3.8400e-003	3.0000e-005	3.8700e-003	1.0200e-003	2.0000e-005	1.0500e-003	0.0000	3.3645	3.3645	8.0000e-005	0.0000	3.3665
Total	**2.3400e-003**	**0.0230**	**0.0174**	**9.0000e-005**	**5.0800e-003**	**1.4000e-004**	**5.2200e-003**	**1.3800e-003**	**1.2000e-004**	**1.5100e-003**	**0.0000**	**8.3129**	**8.3129**	**3.4000e-004**	**0.0000**	**8.3213**

3.6 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1426	1.3074	1.2431	2.0200e-003		0.0719	0.0719		0.0676	0.0676	0.0000	173.7280	173.7280	0.0419	0.0000	174.7758
Total	**0.1426**	**1.3074**	**1.2431**	**2.0200e-003**		**0.0719**	**0.0719**		**0.0676**	**0.0676**	**0.0000**	**173.7280**	**173.7280**	**0.0419**	**0.0000**	**174.7758**

3.6 Construction 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0300	0.9871	0.2464	2.5500e-003	0.0620	2.1500e-003	0.0641	0.0179	2.0500e-003	0.0200	0.0000	245.0800	245.0800	0.0121	0.0000	245.3812
Worker	0.0746	0.0515	0.5450	1.7900e-003	0.1920	1.2600e-003	0.1933	0.0511	1.1600e-003	0.0522	0.0000	162.3216	162.3216	3.6400e-003	0.0000	162.4126
Total	**0.1046**	**1.0385**	**0.7914**	**4.3400e-003**	**0.2540**	**3.4100e-003**	**0.2574**	**0.0690**	**3.2100e-003**	**0.0722**	**0.0000**	**407.4016**	**407.4016**	**0.0157**	**0.0000**	**407.7938**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0246	0.1676	1.3095	2.0200e-003		3.0600e-003	3.0600e-003		3.0600e-003	3.0600e-003	0.0000	173.7278	173.7278	0.0419	0.0000	174.7756
Total	**0.0246**	**0.1676**	**1.3095**	**2.0200e-003**		**3.0600e-003**	**3.0600e-003**		**3.0600e-003**	**3.0600e-003**	**0.0000**	**173.7278**	**173.7278**	**0.0419**	**0.0000**	**174.7756**

3.6 Construction 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0300	0.9871	0.2464	2.5500e-003	0.0620	2.1500e-003	0.0641	0.0179	2.0500e-003	0.0200	0.0000	245.0800	245.0800	0.0121	0.0000	245.3812
Worker	0.0746	0.0515	0.5450	1.7900e-003	0.1920	1.2600e-003	0.1933	0.0511	1.1600e-003	0.0522	0.0000	162.3216	162.3216	3.6400e-003	0.0000	162.4126
Total	**0.1046**	**1.0385**	**0.7914**	**4.3400e-003**	**0.2540**	**3.4100e-003**	**0.2574**	**0.0690**	**3.2100e-003**	**0.0722**	**0.0000**	**407.4016**	**407.4016**	**0.0157**	**0.0000**	**407.7938**

3.7 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.4600e-003	0.0774	0.0806	1.3000e-004		4.1400e-003	4.1400e-003		3.8100e-003	3.8100e-003	0.0000	11.0155	11.0155	3.5600e-003	0.0000	11.1046
Paving	0.0112					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0186**	**0.0774**	**0.0806**	**1.3000e-004**		**4.1400e-003**	**4.1400e-003**		**3.8100e-003**	**3.8100e-003**	**0.0000**	**11.0155**	**11.0155**	**3.5600e-003**	**0.0000**	**11.1046**

3.7 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**2.7000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5711**	**0.5711**	**1.0000e-005**	**0.0000**	**0.5715**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5400e-003	6.6800e-003	0.0951	1.3000e-004		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	11.0155	11.0155	3.5600e-003	0.0000	11.1046
Paving	0.0112					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0127**	**6.6800e-003**	**0.0951**	**1.3000e-004**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**	**0.0000**	**11.0155**	**11.0155**	**3.5600e-003**	**0.0000**	**11.1046**

3.7 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**2.7000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5711**	**0.5711**	**1.0000e-005**	**0.0000**	**0.5715**

3.8 Paving 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0149	0.1547	0.1612	2.5000e-004		8.2800e-003	8.2800e-003		7.6200e-003	7.6200e-003	0.0000	22.0310	22.0310	7.1300e-003	0.0000	22.2092
Paving	0.0112					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0261**	**0.1547**	**0.1612**	**2.5000e-004**		**8.2800e-003**	**8.2800e-003**		**7.6200e-003**	**7.6200e-003**	**0.0000**	**22.0310**	**22.0310**	**7.1300e-003**	**0.0000**	**22.2092**

3.8 Paving 2 - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.9000e-004	4.0500e-003	1.0000e-005	1.3000e-003	1.0000e-005	1.3100e-003	3.5000e-004	1.0000e-005	3.5000e-004	0.0000	1.1423	1.1423	3.0000e-005	0.0000	1.1430
Total	**5.5000e-004**	**3.9000e-004**	**4.0500e-003**	**1.0000e-005**	**1.3000e-003**	**1.0000e-005**	**1.3100e-003**	**3.5000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.1423**	**1.1423**	**3.0000e-005**	**0.0000**	**1.1430**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0900e-003	0.0134	0.1903	2.5000e-004		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	22.0310	22.0310	7.1300e-003	0.0000	22.2092
Paving	0.0112					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0142**	**0.0134**	**0.1903**	**2.5000e-004**		**4.1000e-004**	**4.1000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**22.0310**	**22.0310**	**7.1300e-003**	**0.0000**	**22.2092**

3.8 Paving 2 - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.9000e-004	4.0500e-003	1.0000e-005	1.3000e-003	1.0000e-005	1.3100e-003	3.5000e-004	1.0000e-005	3.5000e-004	0.0000	1.1423	1.1423	3.0000e-005	0.0000	1.1430
Total	**5.5000e-004**	**3.9000e-004**	**4.0500e-003**	**1.0000e-005**	**1.3000e-003**	**1.0000e-005**	**1.3100e-003**	**3.5000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.1423**	**1.1423**	**3.0000e-005**	**0.0000**	**1.1430**

3.9 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0121	0.0842	0.0916	1.5000e-004		5.5500e-003	5.5500e-003		5.5500e-003	5.5500e-003	0.0000	12.7663	12.7663	9.9000e-004	0.0000	12.7910
Total	**0.0121**	**0.0842**	**0.0916**	**1.5000e-004**		**5.5500e-003**	**5.5500e-003**		**5.5500e-003**	**5.5500e-003**	**0.0000**	**12.7663**	**12.7663**	**9.9000e-004**	**0.0000**	**12.7910**

3.9 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0108	7.7100e-003	0.0798	2.5000e-004	0.0257	1.7000e-004	0.0259	6.8300e-003	1.6000e-004	6.9900e-003	0.0000	22.4991	22.4991	5.4000e-004	0.0000	22.5127
Total	**0.0108**	**7.7100e-003**	**0.0798**	**2.5000e-004**	**0.0257**	**1.7000e-004**	**0.0259**	**6.8300e-003**	**1.6000e-004**	**6.9900e-003**	**0.0000**	**22.4991**	**22.4991**	**5.4000e-004**	**0.0000**	**22.5127**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4900e-003	6.4400e-003	0.0916	1.5000e-004		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	12.7663	12.7663	9.9000e-004	0.0000	12.7910
Total	**1.4900e-003**	**6.4400e-003**	**0.0916**	**1.5000e-004**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**12.7663**	**12.7663**	**9.9000e-004**	**0.0000**	**12.7910**

3.9 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0108	7.7100e-003	0.0798	2.5000e-004	0.0257	1.7000e-004	0.0259	6.8300e-003	1.6000e-004	6.9900e-003	0.0000	22.4991	22.4991	5.4000e-004	0.0000	22.5127
Total	**0.0108**	**7.7100e-003**	**0.0798**	**2.5000e-004**	**0.0257**	**1.7000e-004**	**0.0259**	**6.8300e-003**	**1.6000e-004**	**6.9900e-003**	**0.0000**	**22.4991**	**22.4991**	**5.4000e-004**	**0.0000**	**22.5127**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0168	0.1168	0.1390	2.3000e-004		7.2000e-003	7.2000e-003		7.2000e-003	7.2000e-003	0.0000	19.5324	19.5324	1.3400e-003	0.0000	19.5659
Total	**0.0168**	**0.1168**	**0.1390**	**2.3000e-004**		**7.2000e-003**	**7.2000e-003**		**7.2000e-003**	**7.2000e-003**	**0.0000**	**19.5324**	**19.5324**	**1.3400e-003**	**0.0000**	**19.5659**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0153	0.0105	0.1115	3.7000e-004	0.0393	2.6000e-004	0.0396	0.0105	2.4000e-004	0.0107	0.0000	33.2158	33.2158	7.4000e-004	0.0000	33.2344
Total	**0.0153**	**0.0105**	**0.1115**	**3.7000e-004**	**0.0393**	**2.6000e-004**	**0.0396**	**0.0105**	**2.4000e-004**	**0.0107**	**0.0000**	**33.2158**	**33.2158**	**7.4000e-004**	**0.0000**	**33.2344**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2700e-003	9.8500e-003	0.1402	2.3000e-004		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	19.5324	19.5324	1.3400e-003	0.0000	19.5659
Total	**2.2700e-003**	**9.8500e-003**	**0.1402**	**2.3000e-004**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**19.5324**	**19.5324**	**1.3400e-003**	**0.0000**	**19.5659**

3.10 Architectural Coating 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0153	0.0105	0.1115	3.7000e-004	0.0393	2.6000e-004	0.0396	0.0105	2.4000e-004	0.0107	0.0000	33.2158	33.2158	7.4000e-004	0.0000	33.2344
Total	**0.0153**	**0.0105**	**0.1115**	**3.7000e-004**	**0.0393**	**2.6000e-004**	**0.0396**	**0.0105**	**2.4000e-004**	**0.0107**	**0.0000**	**33.2158**	**33.2158**	**7.4000e-004**	**0.0000**	**33.2344**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2322	1.0670	2.7075	0.0106	0.9831	8.5900e-003	0.9917	0.2638	8.0200e-003	0.2718	0.0000	973.6807	973.6807	0.0326	0.0000	974.4961
Unmitigated	0.2387	1.1060	2.8585	0.0113	1.0559	9.1500e-003	1.0651	0.2834	8.5400e-003	0.2919	0.0000	1,040.7313	1,040.7313	0.0344	0.0000	1,041.5915

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	800.40	800.40	800.40	2,098,511	1,953,714
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	253.20	253.20	253.20	739,220	688,214
Total	1,053.60	1,053.60	1,053.60	2,837,732	2,641,928

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unrefrigerated Warehouse-No Rail	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	846.6233	846.6233	0.0999	0.0207	855.2762
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	941.0909	941.0909	0.1110	0.0230	950.7092
NaturalGas Mitigated	0.0290	0.2636	0.2214	1.5800e-003		0.0200	0.0200		0.0200	0.0200	0.0000	286.9596	286.9596	5.5000e-003	5.2600e-003	288.6649
NaturalGas Unmitigated	0.0414	0.3759	0.3158	2.2600e-003		0.0286	0.0286		0.0286	0.0286	0.0000	409.2471	409.2471	7.8400e-003	7.5000e-003	411.6790

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	7.5302e+006	0.0406	0.3691	0.3101	2.2100e-003		0.0281	0.0281		0.0281	0.0281	0.0000	401.8402	401.8402	7.7000e-003	7.3700e-003	404.2281
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	138800	7.5000e-004	6.8000e-003	5.7200e-003	4.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	7.4069	7.4069	1.4000e-004	1.4000e-004	7.4509
Total		**0.0414**	**0.3759**	**0.3158**	**2.2500e-003**		**0.0286**	**0.0286**		**0.0286**	**0.0286**	**0.0000**	**409.2471**	**409.2471**	**7.8400e-003**	**7.5100e-003**	**411.6790**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	5.27942e+006	0.0285	0.2588	0.2174	1.5500e-003		0.0197	0.0197		0.0197	0.0197	0.0000	281.7300	281.7300	5.4000e-003	5.1700e-003	283.4041
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	98000	5.3000e-004	4.8000e-003	4.0400e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.2297	5.2297	1.0000e-004	1.0000e-004	5.2607
Total		**0.0290**	**0.2636**	**0.2214**	**1.5800e-003**		**0.0200**	**0.0200**		**0.0200**	**0.0200**	**0.0000**	**286.9596**	**286.9596**	**5.5000e-003**	**5.2700e-003**	**288.6649**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	8.2018e+006	914.7410	0.1079	0.0223	924.0900
Parking Lot	95060	10.6020	1.2500e-003	2.6000e-004	10.7103
Unrefrigerated Warehouse-No Rail	141200	15.7479	1.8600e-003	3.8000e-004	15.9089
Total		**941.0909**	**0.1110**	**0.0230**	**950.7092**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	7.35862e+006	820.7017	0.0968	0.0200	829.0896
Parking Lot	95060	10.6020	1.2500e-003	2.6000e-004	10.7103
Unrefrigerated Warehouse-No Rail	137360	15.3197	1.8100e-003	3.7000e-004	15.4762
Total		**846.6233**	**0.0999**	**0.0207**	**855.2762**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.9713	1.0000e-004	0.0108	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0211	0.0211	5.0000e-005	0.0000	0.0224
Unmitigated	2.2377	1.0000e-004	0.0108	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0211	0.0211	5.0000e-005	0.0000	0.0224

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2664					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9703					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-003	1.0000e-004	0.0108	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0211	0.0211	5.0000e-005	0.0000	0.0224
Total	**2.2377**	**1.0000e-004**	**0.0108**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0211**	**0.0211**	**5.0000e-005**	**0.0000**	**0.0224**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9703					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-003	1.0000e-004	0.0108	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0211	0.0211	5.0000e-005	0.0000	0.0224
Total	**1.9713**	**1.0000e-004**	**0.0108**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0211**	**0.0211**	**5.0000e-005**	**0.0000**	**0.0224**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	106.4604	3.7759	0.0907	227.8754
Unmitigated	106.4604	3.7759	0.0907	227.8754

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	106.375 / 0	97.9436	3.4738	0.0834	209.6454
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	9.25 / 0	8.5168	0.3021	7.2500e-003	18.2300
Total		**106.4604**	**3.7759**	**0.0907**	**227.8754**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	106.375 / 0	97.9436	3.4738	0.0834	209.6454
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	9.25 / 0	8.5168	0.3021	7.2500e-003	18.2300
Total		**106.4604**	**3.7759**	**0.0907**	**227.8754**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	123.4185	7.2938	0.0000	305.7641
Unmitigated	123.4185	7.2938	0.0000	305.7641

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	570.4	115.7861	6.8428	0.0000	286.8550
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	37.6	7.6325	0.4511	0.0000	18.9091
Total		**123.4185**	**7.2938**	**0.0000**	**305.7641**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	570.4	115.7861	6.8428	0.0000	286.8550
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	37.6	7.6325	0.4511	0.0000	18.9091
Total		**123.4185**	**7.2938**	**0.0000**	**305.7641**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Reduced Footprint Alt. Mitigated)

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	460.00	1000sqft	60.68	460,000.00	0
Unrefrigerated Warehouse-No Rail	40.00	1000sqft	1.72	40,000.00	0
Parking Lot	679.00	Space	8.51	271,600.00	0

1.2 Other Project Characteristics

Urbanization Urban | **Wind Speed (m/s)** 2.2 | **Precipitation Freq (Days)** 64

Climate Zone 4 | **Operational Year** 2024

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 245.88 | **CH4 Intensity (lb/MWhr)** 0.029 | **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - Based on description of Alternative

Construction Phase - *

Demolition -

Grading - applicant provided

Architectural Coating - Mitigation

Vehicle Trips - TIA trip rate

Energy Use -

Construction Off-road Equipment Mitigation - Mitigation

Mobile Land Use Mitigation - applicant provided

Area Mitigation - Mitigation

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	70.00	46.00
tblConstructionPhase	NumDays	110.00	31.00

tblConstructionPhase	NumDays	75.00	11.00
tblConstructionPhase	NumDays	1,110.00	100.00
tblConstructionPhase	NumDays	75.00	100.00
tblConstructionPhase	NumDays	110.00	62.00
tblConstructionPhase	NumDays	75.00	22.00
tblConstructionPhase	NumDays	1,110.00	153.00
tblConstructionPhase	NumDays	75.00	153.00
tblConstructionPhase	PhaseEndDate	6/5/2020	5/4/2020
tblConstructionPhase	PhaseEndDate	11/6/2020	6/16/2020
tblConstructionPhase	PhaseEndDate	1/25/2030	7/1/2020
tblConstructionPhase	PhaseEndDate	7/11/2025	11/18/2020
tblConstructionPhase	PhaseEndDate	8/23/2030	12/2/2020
tblConstructionPhase	PhaseEndDate	4/9/2021	11/26/2020
tblConstructionPhase	PhaseEndDate	5/10/2030	12/28/2020
tblConstructionPhase	PhaseEndDate	10/12/2029	7/29/2021
tblConstructionPhase	PhaseEndDate	12/6/2030	8/12/2021
tblConstructionPhase	PhaseStartDate	6/6/2020	5/5/2020
tblConstructionPhase	PhaseStartDate	10/13/2029	6/17/2020
tblConstructionPhase	PhaseStartDate	4/10/2021	7/2/2020
tblConstructionPhase	PhaseStartDate	5/11/2030	7/16/2020
tblConstructionPhase	PhaseStartDate	11/7/2020	9/2/2020
tblConstructionPhase	PhaseStartDate	1/26/2030	11/27/2020
tblConstructionPhase	PhaseStartDate	7/12/2025	12/29/2020
tblConstructionPhase	PhaseStartDate	8/24/2030	1/12/2021
tblGrading	AcresOfGrading	77.50	20.08
tblGrading	AcresOfGrading	155.00	50.90
tblLandUse	LotAcreage	10.56	60.68

tblLandUse	LotAcreage	0.92	1.72
tblLandUse	LotAcreage	6.11	8.51
tblProjectCharacteristics	CO2IntensityFactor	641.35	245.88
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	6.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	6.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	6.33

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	8.7114	86.2873	65.0371	0.1603	11.1054	3.4940	14.5995	4.5409	3.2486	7.7896	0.0000	15,872.8739	15,872.8739	2.8490	0.0000	15,944.0979
2021	3.7614	32.7109	31.0183	0.0952	4.0485	1.1010	5.1495	1.0931	1.0409	2.1340	0.0000	9,556.4121	9,556.4121	0.8751	0.0000	9,578.2890
Maximum	**8.7114**	**86.2873**	**65.0371**	**0.1603**	**11.1054**	**3.4940**	**14.5995**	**4.5409**	**3.2486**	**7.7896**	**0.0000**	**15,872.8739**	**15,872.8739**	**2.8490**	**0.0000**	**15,944.0979**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	3.0184	20.8835	66.6907	0.1603	11.1054	0.2384	11.3439	4.5409	0.2337	4.7746	0.0000	15,872.8739	15,872.8739	2.8490	0.0000	15,944.0979
2021	1.9991	16.1154	31.9182	0.0952	4.0485	0.0931	4.1415	1.0931	0.0903	1.1834	0.0000	9,556.4121	9,556.4121	0.8751	0.0000	9,578.2890
Maximum	**3.0184**	**20.8835**	**66.6907**	**0.1603**	**11.1054**	**0.2384**	**11.3439**	**4.5409**	**0.2337**	**4.7746**	**0.0000**	**15,872.8739**	**15,872.8739**	**2.8490**	**0.0000**	**15,944.0979**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**59.77**	**68.91**	**-2.66**	**0.00**	**0.00**	**92.79**	**21.59**	**0.00**	**92.45**	**39.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	12.2669	1.0900e-003	0.1202	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2580	0.2580	6.7000e-004		0.2749
Energy	0.2266	2.0599	1.7303	0.0124		0.1566	0.1566		0.1566	0.1566		2,471.8775	2,471.8775	0.0474	0.0453	2,486.5667
Mobile	1.5005	5.8876	16.5192	0.0658	6.0277	0.0503	6.0779	1.6124	0.0469	1.6593		6,664.7808	6,664.7808	0.2103		6,670.0382
Total	**13.9941**	**7.9486**	**18.3697**	**0.0782**	**6.0277**	**0.2072**	**6.2349**	**1.6124**	**0.2039**	**1.8163**		**9,136.9163**	**9,136.9163**	**0.2584**	**0.0453**	**9,156.8797**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.8073	1.0900e-003	0.1202	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2580	0.2580	6.7000e-004		0.2749
Energy	0.1589	1.4444	1.2133	8.6700e-003		0.1098	0.1098		0.1098	0.1098		1,733.2538	1,733.2538	0.0332	0.0318	1,743.5537
Mobile	1.4642	5.6863	15.5838	0.0616	5.6118	0.0472	5.6589	1.5012	0.0440	1.5452		6,234.9032	6,234.9032	0.1990		6,239.8778
Total	**12.4304**	**7.1318**	**16.9172**	**0.0702**	**5.6118**	**0.1574**	**5.7691**	**1.5012**	**0.1542**	**1.6554**		**7,968.4151**	**7,968.4151**	**0.2329**	**0.0318**	**7,983.7064**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**11.17**	**10.28**	**7.91**	**10.17**	**6.90**	**24.06**	**7.47**	**6.90**	**24.36**	**8.86**	**0.00**	**12.79**	**12.79**	**9.86**	**29.88**	**12.81**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Grading 2	Grading	9/2/2020	11/26/2020	5	62	
4	Building Construction	Building Construction	7/2/2020	11/18/2020	5	100	
5	Construction 2	Building Construction	12/29/2020	7/29/2021	5	153	
6	Paving	Paving	6/17/2020	7/1/2020	5	11	
7	Paving 2	Paving	11/27/2020	12/28/2020	5	22	
8	Architectural Coating	Architectural Coating	7/16/2020	12/2/2020	5	100	
9	Architectural Coating 2	Architectural Coating	1/12/2021	8/12/2021	5	153	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 20.08

Acres of Paving: 8.51

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 750,000; Non-Residential Outdoor: 250,000; Striped Parking Area: 16,296 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73

Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74
Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36

Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	324.00	126.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	324.00	126.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	65.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	65.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.704 9	3,747.704 9	1.0580		3,774.153 6
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.2140**	**1.6587**	**1.8727**	**0.0324**	**1.5419**	**1.5743**		**3,747.704 9**	**3,747.704 9**	**1.0580**		**3,774.153 6**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.0700e-003	0.2802	0.0557	7.8000e-004	0.0171	9.2000e-004	0.0180	4.6800e-003	8.8000e-004	5.5600e-003		83.2288	83.2288	4.1600e-003		83.3329
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0602**	**0.3118**	**0.4582**	**2.0200e-003**	**0.1403**	**1.7200e-003**	**0.1420**	**0.0374**	**1.6200e-003**	**0.0390**		**206.3453**	**206.3453**	**7.1300e-003**		**206.5236**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	0.4623	2.0032	23.2798	0.0388		0.0616	0.0616		0.0616	0.0616	0.0000	3,747.704 9	3,747.704 9	1.0580		3,774.153 6
Total	**0.4623**	**2.0032**	**23.2798**	**0.0388**	**0.2140**	**0.0616**	**0.2756**	**0.0324**	**0.0616**	**0.0940**	**0.0000**	**3,747.704 9**	**3,747.704 9**	**1.0580**		**3,774.153 6**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.0700e-003	0.2802	0.0557	7.8000e-004	0.0171	9.2000e-004	0.0180	4.6800e-003	8.8000e-004	5.5600e-003		83.2288	83.2288	4.1600e-003		83.3329
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0602**	**0.3118**	**0.4582**	**2.0200e-003**	**0.1403**	**1.7200e-003**	**0.1420**	**0.0374**	**1.6200e-003**	**0.0390**		**206.3453**	**206.3453**	**7.1300e-003**		**206.5236**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7090	0.0000	6.7090	3.3844	0.0000	3.3844			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.865 3	6,005.865 3	1.9424		6,054.425 7
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**6.7090**	**2.1739**	**8.8829**	**3.3844**	**2.0000**	**5.3844**		**6,005.865 3**	**6,005.865 3**	**1.9424**		**6,054.425 7**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7090	0.0000	6.7090	3.3844	0.0000	3.3844			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**6.7090**	**0.1015**	**6.8106**	**3.3844**	**0.1015**	**3.4859**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.4 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.8927	0.0000	6.8927	3.4042	0.0000	3.4042			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**6.8927**	**2.1739**	**9.0666**	**3.4042**	**2.0000**	**5.4042**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.4 Grading 2 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.8927	0.0000	6.8927	3.4042	0.0000	3.4042			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,005.865 3	6,005.865 3	1.9424		6,054.425 7
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**6.8927**	**0.1015**	**6.9943**	**3.4042**	**0.1015**	**3.5058**	**0.0000**	**6,005.865 3**	**6,005.865 3**	**1.9424**		**6,054.425 7**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	**0.0695**	**0.0421**	**0.5366**	**1.6500e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**164.1553**	**164.1553**	**3.9600e-003**		**164.2542**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.063 1**	**2,553.063 1**	**0.6229**		**2,568.634 5**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4777	14.3593	3.4252	0.0347	0.8529	0.0704	0.9233	0.2455	0.0673	0.3129		3,675.521 4	3,675.521 4	0.1810		3,680.046 5
Worker	1.1262	0.6818	8.6931	0.0267	2.6616	0.0172	2.6788	0.7060	0.0159	0.7219		2,659.316 0	2,659.316 0	0.0641		2,660.918 1
Total	**1.6038**	**15.0411**	**12.1183**	**0.0614**	**3.5145**	**0.0876**	**3.6021**	**0.9515**	**0.0832**	**1.0347**		**6,334.837 5**	**6,334.837 5**	**0.2451**		**6,340.964 5**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4777	14.3593	3.4252	0.0347	0.8529	0.0704	0.9233	0.2455	0.0673	0.3129		3,675.5214	3,675.5214	0.1810		3,680.0465
Worker	1.1262	0.6818	8.6931	0.0267	2.6616	0.0172	2.6788	0.7060	0.0159	0.7219		2,659.3160	2,659.3160	0.0641		2,660.9181
Total	**1.6038**	**15.0411**	**12.1183**	**0.0614**	**3.5145**	**0.0876**	**3.6021**	**0.9515**	**0.0832**	**1.0347**		**6,334.8375**	**6,334.8375**	**0.2451**		**6,340.9645**

3.6 Construction 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.063 1**	**2,553.063 1**	**0.6229**		**2,568.634 5**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4777	14.3593	3.4252	0.0347	0.8529	0.0704	0.9233	0.2455	0.0673	0.3129		3,675.521 4	3,675.521 4	0.1810		3,680.046 5
Worker	1.1262	0.6818	8.6931	0.0267	2.6616	0.0172	2.6788	0.7060	0.0159	0.7219		2,659.316 0	2,659.316 0	0.0641		2,660.918 1
Total	**1.6038**	**15.0411**	**12.1183**	**0.0614**	**3.5145**	**0.0876**	**3.6021**	**0.9515**	**0.0832**	**1.0347**		**6,334.837 5**	**6,334.837 5**	**0.2451**		**6,340.964 5**

3.6 Construction 2 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.063 1**	**2,553.063 1**	**0.6229**		**2,568.634 5**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4777	14.3593	3.4252	0.0347	0.8529	0.0704	0.9233	0.2455	0.0673	0.3129		3,675.521 4	3,675.521 4	0.1810		3,680.046 5
Worker	1.1262	0.6818	8.6931	0.0267	2.6616	0.0172	2.6788	0.7060	0.0159	0.7219		2,659.316 0	2,659.316 0	0.0641		2,660.918 1
Total	**1.6038**	**15.0411**	**12.1183**	**0.0614**	**3.5145**	**0.0876**	**3.6021**	**0.9515**	**0.0832**	**1.0347**		**6,334.837 5**	**6,334.837 5**	**0.2451**		**6,340.964 5**

3.6 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day									lb/day		
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day									lb/day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3908	13.0210	3.0705	0.0344	0.8529	0.0282	0.8811	0.2455	0.0270	0.2725		3,640.8776	3,640.8776	0.1709		3,645.1497
Worker	1.0418	0.6089	7.9585	0.0257	2.6616	0.0168	2.6783	0.7060	0.0154	0.7214		2,565.9488	2,565.9488	0.0574		2,567.3828
Total	**1.4325**	**13.6298**	**11.0289**	**0.0601**	**3.5145**	**0.0450**	**3.5595**	**0.9515**	**0.0424**	**0.9939**		**6,206.8265**	**6,206.8265**	**0.2282**		**6,212.5325**

3.6 Construction 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3908	13.0210	3.0705	0.0344	0.8529	0.0282	0.8811	0.2455	0.0270	0.2725		3,640.8776	3,640.8776	0.1709		3,645.1497
Worker	1.0418	0.6089	7.9585	0.0257	2.6616	0.0168	2.6783	0.7060	0.0154	0.7214		2,565.9488	2,565.9488	0.0574		2,567.3828
Total	**1.4325**	**13.6298**	**11.0289**	**0.0601**	**3.5145**	**0.0450**	**3.5595**	**0.9515**	**0.0424**	**0.9939**		**6,206.8265**	**6,206.8265**	**0.2282**		**6,212.5325**

3.7 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.733 4	2,207.733 4	0.7140		2,225.584 1
Paving	2.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.3835**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.733 4**	**2,207.733 4**	**0.7140**		**2,225.584 1**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0521**	**0.0316**	**0.4025**	**1.2400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**123.1165**	**123.1165**	**2.9700e-003**		**123.1907**

3.7 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	2.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3074**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0521**	**0.0316**	**0.4025**	**1.2400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**123.1165**	**123.1165**	**2.9700e-003**		**123.1907**

3.8 Paving 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	1.0135					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3700**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0521**	**0.0316**	**0.4025**	**1.2400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**123.1165**	**123.1165**	**2.9700e-003**		**123.1907**

3.8 Paving 2 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.733 4	2,207.733 4	0.7140		2,225.584 1
Paving	1.0135					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2939**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.733 4**	**2,207.733 4**	**0.7140**		**2,225.584 1**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0521**	**0.0316**	**0.4025**	**1.2400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**123.1165**	**123.1165**	**2.9700e-003**		**123.1907**

3.9 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**0.2422**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2259	0.1368	1.7440	5.3500e-003	0.5340	3.4600e-003	0.5374	0.1416	3.1900e-003	0.1448		533.5048	533.5048	0.0129		533.8262
Total	**0.2259**	**0.1368**	**1.7440**	**5.3500e-003**	**0.5340**	**3.4600e-003**	**0.5374**	**0.1416**	**3.1900e-003**	**0.1448**		**533.5048**	**533.5048**	**0.0129**		**533.8262**

3.9 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2259	0.1368	1.7440	5.3500e-003	0.5340	3.4600e-003	0.5374	0.1416	3.1900e-003	0.1448		533.5048	533.5048	0.0129		533.8262
Total	**0.2259**	**0.1368**	**1.7440**	**5.3500e-003**	**0.5340**	**3.4600e-003**	**0.5374**	**0.1416**	**3.1900e-003**	**0.1448**		**533.5048**	**533.5048**	**0.0129**		**533.8262**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**0.2189**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2090	0.1222	1.5966	5.1600e-003	0.5340	3.3600e-003	0.5373	0.1416	3.0900e-003	0.1447		514.7737	514.7737	0.0115		515.0614
Total	**0.2090**	**0.1222**	**1.5966**	**5.1600e-003**	**0.5340**	**3.3600e-003**	**0.5373**	**0.1416**	**3.0900e-003**	**0.1447**		**514.7737**	**514.7737**	**0.0115**		**515.0614**

3.10 Architectural Coating 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2090	0.1222	1.5966	5.1600e-003	0.5340	3.3600e-003	0.5373	0.1416	3.0900e-003	0.1447		514.7737	514.7737	0.0115		515.0614
Total	**0.2090**	**0.1222**	**1.5966**	**5.1600e-003**	**0.5340**	**3.3600e-003**	**0.5373**	**0.1416**	**3.0900e-003**	**0.1447**		**514.7737**	**514.7737**	**0.0115**		**515.0614**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4642	5.6863	15.5838	0.0616	5.6118	0.0472	5.6589	1.5012	0.0440	1.5452		6,234.903 2	6,234.903 2	0.1990		6,239.877 8
Unmitigated	1.5005	5.8876	16.5192	0.0658	6.0277	0.0503	6.0779	1.6124	0.0469	1.6593		6,664.780 8	6,664.780 8	0.2103		6,670.038 2

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	800.40	800.40	800.40	2,098,511	1,953,714
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	253.20	253.20	253.20	739,220	688,214
Total	1,053.60	1,053.60	1,053.60	2,837,732	2,641,928

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unrefrigerated Warehouse-No Rail	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1589	1.4444	1.2133	8.6700e-003		0.1098	0.1098		0.1098	0.1098		1,733.2538	1,733.2538	0.0332	0.0318	1,743.5537
NaturalGas Unmitigated	0.2266	2.0599	1.7303	0.0124		0.1566	0.1566		0.1566	0.1566		2,471.8775	2,471.8775	0.0474	0.0453	2,486.5667

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	20630.7	0.2225	2.0226	1.6990	0.0121		0.1537	0.1537		0.1537	0.1537		2,427.1394	2,427.1394	0.0465	0.0445	2,441.5627
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	380.274	4.1000e-003	0.0373	0.0313	2.2000e-004		2.8300e-003	2.8300e-003		2.8300e-003	2.8300e-003		44.7381	44.7381	8.6000e-004	8.2000e-004	45.0040
Total		**0.2266**	**2.0599**	**1.7303**	**0.0124**		**0.1566**	**0.1566**		**0.1566**	**0.1566**		**2,471.8775**	**2,471.8775**	**0.0474**	**0.0453**	**2,486.5667**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	14.4642	0.1560	1.4181	1.1912	8.5100e-003		0.1078	0.1078		0.1078	0.1078		1,701.6664	1,701.6664	0.0326	0.0312	1,711.7786
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.268493	2.9000e-003	0.0263	0.0221	1.6000e-004		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003		31.5874	31.5874	6.1000e-004	5.8000e-004	31.7751
Total		**0.1589**	**1.4444**	**1.2133**	**8.6700e-003**		**0.1098**	**0.1098**		**0.1098**	**0.1098**		**1,733.2538**	**1,733.2538**	**0.0332**	**0.0318**	**1,743.5537**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.8073	1.0900e-003	0.1202	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2580	0.2580	6.7000e-004		0.2749
Unmitigated	12.2669	1.0900e-003	0.1202	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2580	0.2580	6.7000e-004		0.2749

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4596					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.7962					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0111	1.0900e-003	0.1202	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2580	0.2580	6.7000e-004		0.2749
Total	**12.2669**	**1.0900e-003**	**0.1202**	**1.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**		**0.2580**	**0.2580**	**6.7000e-004**		**0.2749**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.7962					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0111	1.0900e-003	0.1202	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2580	0.2580	6.7000e-004		0.2749
Total	**10.8073**	**1.0900e-003**	**0.1202**	**1.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**		**0.2580**	**0.2580**	**6.7000e-004**		**0.2749**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Reduced Footprint Alt. Mitigated)

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	460.00	1000sqft	60.68	460,000.00	0
Unrefrigerated Warehouse-No Rail	40.00	1000sqft	1.72	40,000.00	0
Parking Lot	679.00	Space	8.51	271,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	245.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E calculator

Land Use - Based on description of Alternative

Construction Phase - *

Demolition -

Grading - applicant provided

Architectural Coating - Mitigation

Vehicle Trips - TIA trip rate

Energy Use -

Construction Off-road Equipment Mitigation - Mitigation

Mobile Land Use Mitigation - applicant provided

Area Mitigation - Mitigation

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	70.00	46.00
tblConstructionPhase	NumDays	110.00	31.00

tblConstructionPhase	NumDays	75.00	11.00
tblConstructionPhase	NumDays	1,110.00	100.00
tblConstructionPhase	NumDays	75.00	100.00
tblConstructionPhase	NumDays	110.00	62.00
tblConstructionPhase	NumDays	75.00	22.00
tblConstructionPhase	NumDays	1,110.00	153.00
tblConstructionPhase	NumDays	75.00	153.00
tblConstructionPhase	PhaseEndDate	6/5/2020	5/4/2020
tblConstructionPhase	PhaseEndDate	11/6/2020	6/16/2020
tblConstructionPhase	PhaseEndDate	1/25/2030	7/1/2020
tblConstructionPhase	PhaseEndDate	7/11/2025	11/18/2020
tblConstructionPhase	PhaseEndDate	8/23/2030	12/2/2020
tblConstructionPhase	PhaseEndDate	4/9/2021	11/26/2020
tblConstructionPhase	PhaseEndDate	5/10/2030	12/28/2020
tblConstructionPhase	PhaseEndDate	10/12/2029	7/29/2021
tblConstructionPhase	PhaseEndDate	12/6/2030	8/12/2021
tblConstructionPhase	PhaseStartDate	6/6/2020	5/5/2020
tblConstructionPhase	PhaseStartDate	10/13/2029	6/17/2020
tblConstructionPhase	PhaseStartDate	4/10/2021	7/2/2020
tblConstructionPhase	PhaseStartDate	5/11/2030	7/16/2020
tblConstructionPhase	PhaseStartDate	11/7/2020	9/2/2020
tblConstructionPhase	PhaseStartDate	1/26/2030	11/27/2020
tblConstructionPhase	PhaseStartDate	7/12/2025	12/29/2020
tblConstructionPhase	PhaseStartDate	8/24/2030	1/12/2021
tblGrading	AcresOfGrading	77.50	20.08
tblGrading	AcresOfGrading	155.00	50.90
tblLandUse	LotAcreage	10.56	60.68

tblLandUse	LotAcreage	0.92	1.72
tblLandUse	LotAcreage	6.11	8.51
tblProjectCharacteristics	CO2IntensityFactor	641.35	245.88
tblVehicleTrips	ST_TR	2.49	1.74
tblVehicleTrips	ST_TR	1.68	6.33
tblVehicleTrips	SU_TR	0.73	1.74
tblVehicleTrips	SU_TR	1.68	6.33
tblVehicleTrips	WD_TR	6.83	1.74
tblVehicleTrips	WD_TR	1.68	6.33

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	8.8185	86.6507	64.8630	0.1568	11.1054	3.4952	14.6007	4.5409	3.2498	7.7907	0.0000	15,515.2072	15,515.2072	2.8585	0.0000	15,586.6691
2021	3.8588	32.9948	30.8616	0.0919	4.0485	1.1020	5.1505	1.0931	1.0418	2.1350	0.0000	9,221.2115	9,221.2115	0.8844	0.0000	9,243.3219
Maximum	**8.8185**	**86.6507**	**64.8630**	**0.1568**	**11.1054**	**3.4952**	**14.6007**	**4.5409**	**3.2498**	**7.7907**	**0.0000**	**15,515.2072**	**15,515.2072**	**2.8585**	**0.0000**	**15,586.6691**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	3.1254	21.2468	66.5166	0.1568	11.1054	0.2396	11.3451	4.5409	0.2348	4.7757	0.0000	15,515.2071	15,515.2071	2.8585	0.0000	15,586.6691
2021	2.0965	16.3993	31.7615	0.0919	4.0485	0.0941	4.1425	1.0931	0.0912	1.1843	0.0000	9,221.2115	9,221.2115	0.8844	0.0000	9,243.3219
Maximum	**3.1254**	**21.2468**	**66.5166**	**0.1568**	**11.1054**	**0.2396**	**11.3451**	**4.5409**	**0.2348**	**4.7757**	**0.0000**	**15,515.2071**	**15,515.2071**	**2.8585**	**0.0000**	**15,586.6691**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**58.81**	**68.54**	**-2.67**	**0.00**	**0.00**	**92.74**	**21.59**	**0.00**	**92.40**	**39.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	12.2669	1.0900e-003	0.1202	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2580	0.2580	6.7000e-004		0.2749
Energy	0.2266	2.0599	1.7303	0.0124		0.1566	0.1566		0.1566	0.1566		2,471.8775	2,471.8775	0.0474	0.0453	2,486.5667
Mobile	1.2985	6.1969	16.3471	0.0617	6.0277	0.0505	6.0781	1.6124	0.0471	1.6595		6,246.7054	6,246.7054	0.2130		6,252.0301
Total	**13.7921**	**8.2579**	**18.1976**	**0.0740**	**6.0277**	**0.2074**	**6.2351**	**1.6124**	**0.2041**	**1.8165**		**8,718.8410**	**8,718.8410**	**0.2610**	**0.0453**	**8,738.8716**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.8073	1.0900e-003	0.1202	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2580	0.2580	6.7000e-004		0.2749
Energy	0.1589	1.4444	1.2133	8.6700e-003		0.1098	0.1098		0.1098	0.1098		1,733.2538	1,733.2538	0.0332	0.0318	1,743.5537
Mobile	1.2626	5.9730	15.5142	0.0577	5.6118	0.0474	5.6591	1.5012	0.0442	1.5454		5,842.9884	5,842.9884	0.2021		5,848.0416
Total	**12.2288**	**7.4185**	**16.8477**	**0.0663**	**5.6118**	**0.1576**	**5.7693**	**1.5012**	**0.1544**	**1.6556**		**7,576.5002**	**7,576.5002**	**0.2360**	**0.0318**	**7,591.8702**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	11.33	10.16	7.42	10.38	6.90	24.04	7.47	6.90	24.33	8.86	0.00	13.10	13.10	9.58	29.88	13.13

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/2/2020	5/4/2020	5	46	
2	Grading	Grading	5/5/2020	6/16/2020	5	31	
3	Grading 2	Grading	9/2/2020	11/26/2020	5	62	
4	Building Construction	Building Construction	7/2/2020	11/18/2020	5	100	
5	Construction 2	Building Construction	12/29/2020	7/29/2021	5	153	
6	Paving	Paving	6/17/2020	7/1/2020	5	11	
7	Paving 2	Paving	11/27/2020	12/28/2020	5	22	
8	Architectural Coating	Architectural Coating	7/16/2020	12/2/2020	5	100	
9	Architectural Coating 2	Architectural Coating	1/12/2021	8/12/2021	5	153	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 20.08

Acres of Paving: 8.51

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 750,000; Non-Residential Outdoor: 250,000; Striped Parking Area: 16,296 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73

Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading 2	Excavators	2	8.00	158	0.38
Grading 2	Graders	1	8.00	187	0.41
Grading 2	Rubber Tired Dozers	1	8.00	247	0.40
Grading 2	Scrapers	2	8.00	367	0.48
Grading 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Construction 2	Cranes	1	7.00	231	0.29
Construction 2	Forklifts	3	8.00	89	0.20
Construction 2	Generator Sets	1	8.00	84	0.74
Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction 2	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving 2	Pavers	2	8.00	130	0.42
Paving 2	Paving Equipment	2	8.00	132	0.36

Paving 2	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Architectural Coating 2	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	324.00	126.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction 2	9	324.00	126.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	65.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	65.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.704 9	3,747.704 9	1.0580		3,774.153 6
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.2140**	**1.6587**	**1.8727**	**0.0324**	**1.5419**	**1.5743**		**3,747.704 9**	**3,747.704 9**	**1.0580**		**3,774.153 6**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2900e-003	0.2871	0.0600	7.7000e-004	0.0171	9.3000e-004	0.0180	4.6800e-003	8.9000e-004	5.5700e-003		81.8309	81.8309	4.3700e-003		81.9402
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0634**	**0.3261**	**0.4379**	**1.9100e-003**	**0.1403**	**1.7300e-003**	**0.1420**	**0.0374**	**1.6300e-003**	**0.0390**		**195.2407**	**195.2407**	**7.1400e-003**		**195.4194**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324			0.0000			0.0000
Off-Road	0.4623	2.0032	23.2798	0.0388		0.0616	0.0616		0.0616	0.0616	0.0000	3,747.704 9	3,747.704 9	1.0580		3,774.153 6
Total	**0.4623**	**2.0032**	**23.2798**	**0.0388**	**0.2140**	**0.0616**	**0.2756**	**0.0324**	**0.0616**	**0.0940**	**0.0000**	**3,747.704 9**	**3,747.704 9**	**1.0580**		**3,774.153 6**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2900e-003	0.2871	0.0600	7.7000e-004	0.0171	9.3000e-004	0.0180	4.6800e-003	8.9000e-004	5.5700e-003		81.8309	81.8309	4.3700e-003		81.9402
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0634**	**0.3261**	**0.4379**	**1.9100e-003**	**0.1403**	**1.7300e-003**	**0.1420**	**0.0374**	**1.6300e-003**	**0.0390**		**195.2407**	**195.2407**	**7.1400e-003**		**195.4194**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7090	0.0000	6.7090	3.3844	0.0000	3.3844			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**6.7090**	**2.1739**	**8.8829**	**3.3844**	**2.0000**	**5.3844**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7090	0.0000	6.7090	3.3844	0.0000	3.3844			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**6.7090**	**0.1015**	**6.8106**	**3.3844**	**0.1015**	**3.4859**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.4 Grading 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.8927	0.0000	6.8927	3.4042	0.0000	3.4042			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**6.8927**	**2.1739**	**9.0666**	**3.4042**	**2.0000**	**5.4042**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.4 Grading 2 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.8927	0.0000	6.8927	3.4042	0.0000	3.4042			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0620		0.1015	0.1015		0.1015	0.1015	0.0000	6,005.865 3	6,005.865 3	1.9424		6,054.425 7
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**6.8927**	**0.1015**	**6.9943**	**3.4042**	**0.1015**	**3.5058**	**0.0000**	**6,005.865 3**	**6,005.865 3**	**1.9424**		**6,054.425 7**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	**0.0735**	**0.0520**	**0.5040**	**1.5200e-003**	**0.1643**	**1.0600e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**151.2131**	**151.2131**	**3.7000e-003**		**151.3055**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5027	14.5199	3.9185	0.0338	0.8529	0.0716	0.9245	0.2455	0.0685	0.3140		3,582.5233	3,582.5233	0.1958		3,587.4177
Worker	1.1912	0.8424	8.1644	0.0246	2.6616	0.0172	2.6788	0.7060	0.0159	0.7219		2,449.6519	2,449.6519	0.0599		2,451.1498
Total	**1.6938**	**15.3623**	**12.0829**	**0.0584**	**3.5145**	**0.0888**	**3.6033**	**0.9515**	**0.0844**	**1.0358**		**6,032.1752**	**6,032.1752**	**0.2557**		**6,038.5675**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5027	14.5199	3.9185	0.0338	0.8529	0.0716	0.9245	0.2455	0.0685	0.3140		3,582.5233	3,582.5233	0.1958		3,587.4177
Worker	1.1912	0.8424	8.1644	0.0246	2.6616	0.0172	2.6788	0.7060	0.0159	0.7219		2,449.6519	2,449.6519	0.0599		2,451.1498
Total	**1.6938**	**15.3623**	**12.0829**	**0.0584**	**3.5145**	**0.0888**	**3.6033**	**0.9515**	**0.0844**	**1.0358**		**6,032.1752**	**6,032.1752**	**0.2557**		**6,038.5675**

3.6 Construction 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5027	14.5199	3.9185	0.0338	0.8529	0.0716	0.9245	0.2455	0.0685	0.3140		3,582.5233	3,582.5233	0.1958		3,587.4177
Worker	1.1912	0.8424	8.1644	0.0246	2.6616	0.0172	2.6788	0.7060	0.0159	0.7219		2,449.6519	2,449.6519	0.0599		2,451.1498
Total	**1.6938**	**15.3623**	**12.0829**	**0.0584**	**3.5145**	**0.0888**	**3.6033**	**0.9515**	**0.0844**	**1.0358**		**6,032.1752**	**6,032.1752**	**0.2557**		**6,038.5675**

3.6 Construction 2 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5027	14.5199	3.9185	0.0338	0.8529	0.0716	0.9245	0.2455	0.0685	0.3140		3,582.5233	3,582.5233	0.1958		3,587.4177
Worker	1.1912	0.8424	8.1644	0.0246	2.6616	0.0172	2.6788	0.7060	0.0159	0.7219		2,449.6519	2,449.6519	0.0599		2,451.1498
Total	**1.6938**	**15.3623**	**12.0829**	**0.0584**	**3.5145**	**0.0888**	**3.6033**	**0.9515**	**0.0844**	**1.0358**		**6,032.1752**	**6,032.1752**	**0.2557**		**6,038.5675**

3.6 Construction 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4139	13.1330	3.5292	0.0335	0.8529	0.0292	0.8821	0.2455	0.0279	0.2734		3,548.5021	3,548.5021	0.1849		3,553.1239
Worker	1.1036	0.7520	7.4459	0.0237	2.6616	0.0168	2.6783	0.7060	0.0154	0.7214		2,363.6987	2,363.6987	0.0535		2,365.0358
Total	**1.5176**	**13.8850**	**10.9751**	**0.0572**	**3.5145**	**0.0459**	**3.5604**	**0.9515**	**0.0434**	**0.9948**		**5,912.2008**	**5,912.2008**	**0.2384**		**5,918.1597**

3.6 Construction 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4139	13.1330	3.5292	0.0335	0.8529	0.0292	0.8821	0.2455	0.0279	0.2734		3,548.5021	3,548.5021	0.1849		3,553.1239
Worker	1.1036	0.7520	7.4459	0.0237	2.6616	0.0168	2.6783	0.7060	0.0154	0.7214		2,363.6987	2,363.6987	0.0535		2,365.0358
Total	**1.5176**	**13.8850**	**10.9751**	**0.0572**	**3.5145**	**0.0459**	**3.5604**	**0.9515**	**0.0434**	**0.9948**		**5,912.2008**	**5,912.2008**	**0.2384**		**5,918.1597**

3.7 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	2.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.3835**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0552**	**0.0390**	**0.3780**	**1.1400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**113.4098**	**113.4098**	**2.7700e-003**		**113.4792**

3.7 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.733 4	2,207.733 4	0.7140		2,225.584 1
Paving	2.0269					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3074**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.733 4**	**2,207.733 4**	**0.7140**		**2,225.584 1**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0552**	**0.0390**	**0.3780**	**1.1400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**113.4098**	**113.4098**	**2.7700e-003**		**113.4792**

3.8 Paving 2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	1.0135					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3700**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0552**	**0.0390**	**0.3780**	**1.1400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**113.4098**	**113.4098**	**2.7700e-003**		**113.4792**

3.8 Paving 2 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	1.0135					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2939**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0552**	**0.0390**	**0.3780**	**1.1400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**113.4098**	**113.4098**	**2.7700e-003**		**113.4792**

3.9 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**0.2422**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2390	0.1690	1.6379	4.9300e-003	0.5340	3.4600e-003	0.5374	0.1416	3.1900e-003	0.1448		491.4425	491.4425	0.0120		491.7430
Total	**0.2390**	**0.1690**	**1.6379**	**4.9300e-003**	**0.5340**	**3.4600e-003**	**0.5374**	**0.1416**	**3.1900e-003**	**0.1448**		**491.4425**	**491.4425**	**0.0120**		**491.7430**

3.9 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2390	0.1690	1.6379	4.9300e-003	0.5340	3.4600e-003	0.5374	0.1416	3.1900e-003	0.1448		491.4425	491.4425	0.0120		491.7430
Total	**0.2390**	**0.1690**	**1.6379**	**4.9300e-003**	**0.5340**	**3.4600e-003**	**0.5374**	**0.1416**	**3.1900e-003**	**0.1448**		**491.4425**	**491.4425**	**0.0120**		**491.7430**

3.10 Architectural Coating 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**0.2189**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2214	0.1509	1.4938	4.7600e-003	0.5340	3.3600e-003	0.5373	0.1416	3.0900e-003	0.1447		474.1988	474.1988	0.0107		474.4671
Total	**0.2214**	**0.1509**	**1.4938**	**4.7600e-003**	**0.5340**	**3.3600e-003**	**0.5373**	**0.1416**	**3.0900e-003**	**0.1447**		**474.1988**	**474.1988**	**0.0107**		**474.4671**

3.10 Architectural Coating 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**0.0297**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2214	0.1509	1.4938	4.7600e-003	0.5340	3.3600e-003	0.5373	0.1416	3.0900e-003	0.1447		474.1988	474.1988	0.0107		474.4671
Total	**0.2214**	**0.1509**	**1.4938**	**4.7600e-003**	**0.5340**	**3.3600e-003**	**0.5373**	**0.1416**	**3.0900e-003**	**0.1447**		**474.1988**	**474.1988**	**0.0107**		**474.4671**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2626	5.9730	15.5142	0.0577	5.6118	0.0474	5.6591	1.5012	0.0442	1.5454		5,842.988 4	5,842.988 4	0.2021		5,848.041 6
Unmitigated	1.2985	6.1969	16.3471	0.0617	6.0277	0.0505	6.0781	1.6124	0.0471	1.6595		6,246.705 4	6,246.705 4	0.2130		6,252.030 1

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	800.40	800.40	800.40	2,098,511	1,953,714
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	253.20	253.20	253.20	739,220	688,214
Total	1,053.60	1,053.60	1,053.60	2,837,732	2,641,928

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unrefrigerated Warehouse-No Rail	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1589	1.4444	1.2133	8.6700e-003		0.1098	0.1098		0.1098	0.1098		1,733.2538	1,733.2538	0.0332	0.0318	1,743.5537
NaturalGas Unmitigated	0.2266	2.0599	1.7303	0.0124		0.1566	0.1566		0.1566	0.1566		2,471.8775	2,471.8775	0.0474	0.0453	2,486.5667

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	20630.7	0.2225	2.0226	1.6990	0.0121		0.1537	0.1537		0.1537	0.1537		2,427.1394	2,427.1394	0.0465	0.0445	2,441.5627
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	380.274	4.1000e-003	0.0373	0.0313	2.2000e-004		2.8300e-003	2.8300e-003		2.8300e-003	2.8300e-003		44.7381	44.7381	8.6000e-004	8.2000e-004	45.0040
Total		**0.2266**	**2.0599**	**1.7303**	**0.0124**		**0.1566**	**0.1566**		**0.1566**	**0.1566**		**2,471.8775**	**2,471.8775**	**0.0474**	**0.0453**	**2,486.5667**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Industrial Park	14.4642	0.1560	1.4181	1.1912	8.5100e-003		0.1078	0.1078		0.1078	0.1078		1,701.6664	1,701.6664	0.0326	0.0312	1,711.7786
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.268493	2.9000e-003	0.0263	0.0221	1.6000e-004		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003		31.5874	31.5874	6.1000e-004	5.8000e-004	31.7751
Total		**0.1589**	**1.4444**	**1.2133**	**8.6700e-003**		**0.1098**	**0.1098**		**0.1098**	**0.1098**		**1,733.2538**	**1,733.2538**	**0.0332**	**0.0318**	**1,743.5537**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.8073	1.0900e-003	0.1202	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2580	0.2580	6.7000e-004		0.2749
Unmitigated	12.2669	1.0900e-003	0.1202	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2580	0.2580	6.7000e-004		0.2749

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4596					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.7962					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0111	1.0900e-003	0.1202	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2580	0.2580	6.7000e-004		0.2749
Total	**12.2669**	**1.0900e-003**	**0.1202**	**1.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**		**0.2580**	**0.2580**	**6.7000e-004**		**0.2749**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.7962					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0111	1.0900e-003	0.1202	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2580	0.2580	6.7000e-004		0.2749
Total	**10.8073**	**1.0900e-003**	**0.1202**	**1.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**		**0.2580**	**0.2580**	**6.7000e-004**		**0.2749**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Logistics Center (Reduced Footprint Alt. Mitigated)

Bay Area AQMD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.46	0.85	0.00	0.00	0.94	0.94	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating 2	0.45	0.84	0.00	0.00	0.92	0.93	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.49	0.49	-0.02	0.00	0.89	0.89	0.00	0.00	0.00	0.00	0.00	0.00
Construction 2	0.48	0.49	-0.03	0.00	0.91	0.91	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.85	0.93	-0.07	0.00	0.96	0.96	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.82	0.93	-0.03	0.00	0.95	0.95	0.00	0.00	0.00	0.00	0.00	0.00
Grading 2	0.82	0.93	-0.03	0.00	0.95	0.95	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.31	0.91	-0.18	0.00	0.95	0.94	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	0.44	0.91	-0.18	0.00	0.95	0.94	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	Tier 4 Final	2	2	No Change	0.00
Concrete/Industrial Saws	Diesel	Tier 4 Final	1	1	No Change	0.00
Cranes	Diesel	Tier 4 Final	2	2	No Change	0.00
Excavators	Diesel	Tier 4 Final	7	7	No Change	0.00
Forklifts	Diesel	Tier 4 Final	6	6	No Change	0.00
Generator Sets	Diesel	Tier 4 Final	2	2	No Change	0.00
Graders	Diesel	Tier 4 Final	2	2	No Change	0.00
Pavers	Diesel	Tier 4 Final	4	4	No Change	0.00
Paving Equipment	Diesel	Tier 4 Final	4	4	No Change	0.00
Rollers	Diesel	Tier 4 Final	4	4	No Change	0.00
Rubber Tired Dozers	Diesel	Tier 4 Final	4	4	No Change	0.00
Scrapers	Diesel	Tier 4 Final	4	4	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	10	10	No Change	0.00
Welders	Diesel	Tier 4 Final	2	2	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	2.88500E-002	2.01000E-001	2.30610E-001	3.80000E-004	1.27500E-002	1.27500E-002	0.00000E+000	3.22987E+001	3.22987E+001	2.33000E-003	0.00000E+000	3.23569E+001
Concrete/Industrial Saws	9.62000E-003	7.58700E-002	8.47900E-002	1.40000E-004	4.56000E-003	4.56000E-003	0.00000E+000	1.23661E+001	1.23661E+001	7.80000E-004	0.00000E+000	1.23857E+001
Cranes	4.75300E-002	5.61190E-001	2.25450E-001	6.40000E-004	2.29400E-002	2.11000E-002	0.00000E+000	5.61073E+001	5.61073E+001	1.81500E-002	0.00000E+000	5.65609E+001
Excavators	3.96900E-002	3.90850E-001	5.29380E-001	8.40000E-004	1.89300E-002	1.74200E-002	0.00000E+000	7.34994E+001	7.34994E+001	2.37700E-002	0.00000E+000	7.40937E+001
Forklifts	5.13500E-002	4.65770E-001	4.45120E-001	5.80000E-004	3.37700E-002	3.10600E-002	0.00000E+000	5.09636E+001	5.09636E+001	1.64800E-002	0.00000E+000	5.13756E+001
Generator Sets	4.73600E-002	4.16610E-001	4.67190E-001	8.30000E-004	2.26900E-002	2.26900E-002	0.00000E+000	7.14987E+001	7.14987E+001	3.80000E-003	0.00000E+000	7.15938E+001
Graders	2.21300E-002	2.94140E-001	8.43700E-002	3.10000E-004	9.40000E-003	8.65000E-003	0.00000E+000	2.71125E+001	2.71125E+001	8.77000E-003	0.00000E+000	2.73317E+001
Pavers	8.67000E-003	9.27400E-002	9.56400E-002	1.60000E-004	4.51000E-003	4.15000E-003	0.00000E+000	1.36295E+001	1.36295E+001	4.41000E-003	0.00000E+000	1.37397E+001
Paving Equipment	6.85000E-003	7.06600E-002	8.36300E-002	1.30000E-004	3.53000E-003	3.25000E-003	0.00000E+000	1.18110E+001	1.18110E+001	3.82000E-003	0.00000E+000	1.19065E+001
Rollers	6.87000E-003	6.86800E-002	6.24800E-002	9.00000E-005	4.38000E-003	4.03000E-003	0.00000E+000	7.60601E+000	7.60601E+000	2.46000E-003	0.00000E+000	7.66751E+000
Rubber Tired Dozers	9.98500E-002	1.04823E+000	3.82170E-001	7.90000E-004	5.13400E-002	4.72300E-002	0.00000E+000	6.94261E+001	6.94261E+001	2.24500E-002	0.00000E+000	6.99875E+001
Scrapers	9.23400E-002	1.09294E+000	6.93650E-001	1.41000E-003	4.26300E-002	3.92200E-002	0.00000E+000	1.23769E+002	1.23769E+002	4.00300E-002	0.00000E+000	1.24770E+002
Tractors/Loaders/Backhoes	8.46800E-002	8.53610E-001	9.65180E-001	1.32000E-003	5.23800E-002	4.81900E-002	0.00000E+000	1.16003E+002	1.16003E+002	3.75200E-002	0.00000E+000	1.16941E+002
Welders	4.03200E-002	1.94090E-001	2.19910E-001	3.20000E-004	1.00300E-002	1.00300E-002	0.00000E+000	2.38099E+001	2.38099E+001	3.27000E-003	0.00000E+000	2.38917E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	3.76000E-003	1.62900E-002	2.31800E-001	3.80000E-004	5.00000E-004	5.00000E-004	0.00000E+000	3.22986E+001	3.22986E+001	2.33000E-003	0.00000E+000	3.23568E+001
Concrete/Industrial Saws	1.44000E-003	6.24000E-003	8.87500E-002	1.40000E-004	1.90000E-004	1.90000E-004	0.00000E+000	1.23661E+001	1.23661E+001	7.80000E-004	0.00000E+000	1.23857E+001
Cranes	7.85000E-003	3.40000E-002	2.87710E-001	6.40000E-004	1.05000E-003	1.05000E-003	0.00000E+000	5.61072E+001	5.61072E+001	1.81500E-002	0.00000E+000	5.65609E+001
Excavators	1.02900E-002	4.46000E-002	6.34720E-001	8.40000E-004	1.37000E-003	1.37000E-003	0.00000E+000	7.34993E+001	7.34993E+001	2.37700E-002	0.00000E+000	7.40936E+001
Forklifts	7.15000E-003	3.09800E-002	4.40820E-001	5.80000E-004	9.50000E-004	9.50000E-004	0.00000E+000	5.09635E+001	5.09635E+001	1.64800E-002	0.00000E+000	5.13756E+001
Generator Sets	8.32000E-003	3.60600E-002	5.13130E-001	8.30000E-004	1.11000E-003	1.11000E-003	0.00000E+000	7.14987E+001	7.14987E+001	3.80000E-003	0.00000E+000	7.15937E+001
Graders	3.77000E-003	1.63500E-002	1.38330E-001	3.10000E-004	5.00000E-004	5.00000E-004	0.00000E+000	2.71125E+001	2.71125E+001	8.77000E-003	0.00000E+000	2.73317E+001
Pavers	1.91000E-003	8.26000E-003	1.17580E-001	1.60000E-004	2.50000E-004	2.50000E-004	0.00000E+000	1.36295E+001	1.36295E+001	4.41000E-003	0.00000E+000	1.37397E+001
Paving Equipment	1.66000E-003	7.19000E-003	1.02330E-001	1.30000E-004	2.20000E-004	2.20000E-004	0.00000E+000	1.18110E+001	1.18110E+001	3.82000E-003	0.00000E+000	1.19065E+001
Rollers	1.06000E-003	4.60000E-003	6.54700E-002	9.00000E-005	1.40000E-004	1.40000E-004	0.00000E+000	7.60600E+000	7.60600E+000	2.46000E-003	0.00000E+000	7.66750E+000
Rubber Tired Dozers	9.67000E-003	4.19100E-002	3.54610E-001	7.90000E-004	1.29000E-003	1.29000E-003	0.00000E+000	6.94260E+001	6.94260E+001	2.24500E-002	0.00000E+000	6.99874E+001
Scrapers	1.73400E-002	7.51300E-002	6.35680E-001	1.41000E-003	2.31000E-003	2.31000E-003	0.00000E+000	1.23769E+002	1.23769E+002	4.00300E-002	0.00000E+000	1.24770E+002
Tractors/Loaders/Backhoes	1.61400E-002	6.99600E-002	9.95520E-001	1.32000E-003	2.15000E-003	2.15000E-003	0.00000E+000	1.16003E+002	1.16003E+002	3.75200E-002	0.00000E+000	1.16941E+002
Welders	5.54000E-003	1.27000E-001	1.89350E-001	3.20000E-004	3.70000E-004	3.70000E-004	0.00000E+000	2.38099E+001	2.38099E+001	3.27000E-003	0.00000E+000	2.38917E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	8.69671E-001	9.18955E-001	-5.16023E-003	0.00000E+000	9.60784E-001	9.60784E-001	0.00000E+000	1.23844E-006	1.23844E-006	0.00000E+000	0.00000E+000	1.23621E-006
Concrete/Industrial Saws	8.50312E-001	9.17754E-001	-4.67036E-002	0.00000E+000	9.58333E-001	9.58333E-001	0.00000E+000	1.61732E-006	1.61732E-006	0.00000E+000	0.00000E+000	1.61477E-006
Cranes	8.34841E-001	9.39414E-001	-2.76159E-001	0.00000E+000	9.54228E-001	9.50237E-001	0.00000E+000	1.24761E-006	1.24761E-006	0.00000E+000	0.00000E+000	1.23760E-006
Excavators	7.40741E-001	8.85890E-001	-1.98987E-001	0.00000E+000	9.27628E-001	9.21355E-001	0.00000E+000	1.22450E-006	1.22450E-006	0.00000E+000	0.00000E+000	1.21468E-006
Forklifts	8.60759E-001	9.33486E-001	9.66032E-003	0.00000E+000	9.71869E-001	9.69414E-001	0.00000E+000	1.17731E-006	1.17731E-006	0.00000E+000	0.00000E+000	1.16787E-006
Generator Sets	8.24324E-001	9.13444E-001	-9.83326E-002	0.00000E+000	9.51080E-001	9.51080E-001	0.00000E+000	1.11890E-006	1.11890E-006	0.00000E+000	0.00000E+000	1.25709E-006
Graders	8.29643E-001	9.44414E-001	-6.39564E-001	0.00000E+000	9.46809E-001	9.42197E-001	0.00000E+000	1.10650E-006	1.10650E-006	0.00000E+000	0.00000E+000	1.09763E-006
Pavers	7.79700E-001	9.10934E-001	-2.29402E-001	0.00000E+000	9.44568E-001	9.39759E-001	0.00000E+000	7.33702E-007	7.33702E-007	0.00000E+000	0.00000E+000	1.45563E-006
Paving Equipment	7.57664E-001	8.98245E-001	-2.23604E-001	0.00000E+000	9.37677E-001	9.32308E-001	0.00000E+000	1.69333E-006	1.69333E-006	0.00000E+000	0.00000E+000	1.67975E-006
Rollers	8.45706E-001	9.33023E-001	-4.78553E-002	0.00000E+000	9.68037E-001	9.65261E-001	0.00000E+000	1.31475E-006	1.31475E-006	0.00000E+000	0.00000E+000	1.30420E-006
Rubber Tired Dozers	9.03155E-001	9.60018E-001	7.21145E-002	0.00000E+000	9.74873E-001	9.72687E-001	0.00000E+000	1.29634E-006	1.29634E-006	0.00000E+000	0.00000E+000	1.14306E-006
Scrapers	8.12216E-001	9.31259E-001	8.35724E-002	0.00000E+000	9.45813E-001	9.41101E-001	0.00000E+000	1.21193E-006	1.21193E-006	0.00000E+000	0.00000E+000	1.12206E-006
Tractors/Loaders/Backhoes	8.09400E-001	9.18042E-001	-3.14346E-002	0.00000E+000	9.58954E-001	9.55385E-001	0.00000E+000	1.20687E-006	1.20687E-006	0.00000E+000	0.00000E+000	1.19719E-006
Welders	8.62599E-001	3.45664E-001	1.38966E-001	0.00000E+000	9.63111E-001	9.63111E-001	0.00000E+000	1.25998E-006	1.25998E-006	0.00000E+000	0.00000E+000	1.25567E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Water Exposed Area	PM10 Reduction	0.00	PM2.5 Reduction	0.00	Frequency (per day)	

No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	0.00		
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.03	0.01	0.03	0.01	0.00	0.00
Architectural Coating 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating 2	Roads	0.04	0.01	0.04	0.01	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.17	0.05	0.17	0.05	0.00	0.00
Construction 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Construction 2	Roads	0.26	0.07	0.26	0.07	0.00	0.00
Demolition	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading	Fugitive Dust	0.10	0.05	0.10	0.05	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading 2	Fugitive Dust	0.21	0.11	0.21	0.11	0.00	0.00
Grading 2	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving 2	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
	Percent Reduction											
Architectural Coating	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.04	10.04	10.04	10.02	10.04
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	2.72	3.53	5.28	6.45	6.12	6.09	0.00	6.44	6.44	5.23	0.00	6.44
Natural Gas	29.87	29.88	29.88	29.78	29.86	29.86	0.00	29.88	29.88	29.85	29.83	29.88
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Low Density Suburban

Mitigation Selected	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.08	0.29		
No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
Yes	Land Use	Increase Transit Accessibility	0.08	0.50		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.05			

Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures	0.00			
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.02			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
No	Transit Improvements	Expand Transit Network	0.00	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.07			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"	3.00			
No	Commute	Workplace Parking Charge		0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program	5.00			
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.07			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	150.00
Yes	Use Low VOC Paint (Non-residential Interior)	0.00
Yes	Use Low VOC Paint (Non-residential Exterior)	0.00
Yes	Use Low VOC Paint (Parking)	0.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	30.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value

Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Appendix E

Application Form and Planning Survey Report

To Comply With and Receive Permit Coverage Under The East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan

Please complete this application to apply for take authorization under the state and federal East Contra Costa County HCP/NCCP incidental take permits. The East Contra Costa County Habitat Conservancy ("Conservancy") or local jurisdiction (City of Brentwood, City of Clayton, City of Oakley, City of Pittsburg, and Contra Costa County) may request more information in order to deem the application complete.

I. PROJECT OVERVIEW

PROJECT INFORMATION	
PROJECT NAME: Oakley Logistics Center	
PROJECT TYPE: ☐ Residential ☒ Commercial ☐ Transportation ☐ Utility ☐ Other	
PROJECT DESCRIPTION (BRIEF): The project is to construct an approximate 150-acre logistics center to transport and distribute goods by various operators on a commercial basis. A detailed project description is included in Attachment A.	
PROJECT ADDRESS/LOCATION: East of Highway 160, located at 6000 Bridgehead Road, Oakley, CA.	
PARCEL/PROJECT SIZE (ACRES): The overall 375.70+/- acre Property spans the ECCCHCP Permit boundary. Development will occur in 164.91+/- acres in the south part of the property, and 1.51+/- acres for off-site road improvements. This PSR addresses the 142.10+/- acres of the site (i.e., the "Study Area") that is within the ECCCHCP Permit Area (140.59+/- acres of the property and 1.51+/- acres of off-site road improvements).	
PROJECT APN(S): Parcels Within ECCCHCP: 037 -020-008, 037-020-009, 037-020-014, 037-020-015, 037-020-016 (portion), 037-020-018, 037-020-019, 037-020-020, 037-020-021, and 037-020-022 (portion). **Parcels Outside ECCCHCP:** 037-020-010, 037-020-016 (portion), 037-020-017, and 037-020-022 (portion).	
APPLICATION SUBMITTAL DATE: July 2019	**FINAL PSR DATE:** (City/County/Conservancy use)
LEAD PLANNER: Joshua McMurray **JURISDICTION:** ☐ City of Brentwood ☐ City of Clayton ☒ City of Oakley ☐ City of Pittsburg ☐ Contra Costa County ☐ Participating Special Entity* *Participating Special Entities are organizations not subject to the authority of a local jurisdiction. Such organizations may include school districts, irrigation districts, transportation agencies, local park districts, geological hazard abatement districts, or other utilities or special districts that own land or provide public services.	
DEVELOPMENT FEE ZONE: ☒ Zone I ☐ Zone II ☐ Zone III ☐ Zone IV See figure 9-1 of the HCP/NCCP at www.cocohcp.org for a generalized development fee zone map. Detailed development fee zone maps by jurisdiction are available from the jurisdiction.	

PROJECT APPLICANT INFORMATION	
APPLICANT'S NAME: NorthPoint Development	
AUTHORIZED AGENT'S NAME AND TITLE: Andrew Grunloh, Project Manager	
PHONE NO.: (816) 381-2903	**APPLICANT'S E-MAIL:** agrunloh@northpointkc.com
MAILING ADDRESS: 12977 N. Outer Forty, Suite 203, St. Louis, MO 63141	

BIOLOGIST INFORMATION[1]	
BIOLOGICAL/ENVIRONMENTAL FIRM: Moore Biological Consultants	
CONTACT NAME AND TITLE: Diane S. Moore, M.S., Principal Biologist	
PHONE NO.: (209) 745-1159	**CONTACT'S E-MAIL:** moorebio@softcom.net
MAILING ADDRESS: 10330 Twin Cities Rd., Ste 30, Galt, CA 95632	

[1] A USFWS/CDFW-approved biologist (project-specific) is required to conduct the surveys. Please submit biologist(s) approval request to the Conservancy.

[2] For PSEs and city or county public works projects, please also identify permanent and temporary impact areas by overlaying crosshatching (permanent impacts) and

II. PROJECT DETAILS

Please complete and/or provide the following attachments:

1) **Project Description**
   Attach as **Attachment A: Project Description**. Provide a detailed written description that concisely and completely describes the project and location. Include the following information:
   - All activities proposed for the site or project, including roads utilized, construction staging areas, and the installation of underground facilities, to ensure the entire project is covered by the HCP/NCCP permit
   - Proposed construction dates, including details on construction phases, if applicable
   - Reference a City/County application number for the project, if applicable
   - General Best Management Practices, if applicable
   - If the project will have temporary impacts, please provide a restoration plan describing how the site will be restored to pre-project conditions, including revegetation seed mixes or plantings and timing

2) **Project Vicinity Map**
   Provide a project vicinity map. Attach as **Figure 1** in **Attachment B: Figures**.

3) **Project Site Plans**
   Provide any project site plans for the project. Attach as **Figure 2** in **Attachment B: Figures**.

4) **CEQA Document**
   Indicate the status of CEQA documents prepared for the project. Provide additional comments below table if necessary.

Type of Document	Status	Date Completed
☒ Initial Study	Complete	February 2019
☒ Notice of Preparation	Complete	February 2019
☒ Draft EIR	In preparation	
☐ Final EIR		
☐ Notice of Categorical Exemption		
☐ Notice of Statutory Exemption		
☐ Other (describe)		

III. EXISTING CONDITIONS AND IMPACTS

Please complete and/or provide the following attachments:

1) **Field-Verified Land Cover Map**[2]
   Attach a field-verified land cover map in **Attachment B: Figures** and label as **Figure 3**. The map should contain all land cover types present on-site overlaid on aerial/satellite imagery. Map colors for the land cover types should conform to the HCP/NCCP (see *Figure 3-3: Landcover in the Inventory Area* for land cover type legend).

2) **Photographs of the Project Site**
   Attach representative photos of the project site in **Attachment B: Figures** and label as **Figure 4**. Please provide captions for each photo.

[2] For PSEs and city or county public works projects, please also identify permanent and temporary impact areas by overlaying crosshatching (permanent impacts) and hatching (temporary impacts) on the land cover map.

3) Land Cover Types and Impacts and Supplemental Tables

- For all terrestrial land cover types please provide calculations to the nearest **hundredth of an acre (0.01)**.
  For aquatic land cover types please provide calculations to the nearest **thousandth of an acre (0.001)**.
- **Permanent Impacts** are broadly defined in the ECCC HCP/NCCP to include all areas removed from an undeveloped or habitat-providing state and includes land in the same parcel or project that is not developed, graded, physically altered, or directly affected in any way but is isolated from natural areas by the covered activity. Unless such undeveloped land is dedicated to the Preserve System or is a deed-restricted creek setback, the development mitigation fee will apply (if proposed, would require Conservancy approval).
- **Temporary Impacts** are broadly defined in the ECCC HCP/NCCP as any impact on vegetation or habitat that does not result in permanent habitat removal (i.e. vegetation can eventually recover).
- If **wetland (riparian woodland/scrub, wetland, or aquatic)** land cover types are present on the parcel but will not be impacted please discuss in the following section 4) Jurisdictional Wetlands and Waters. Wetland impact fees will only be charged if wetland features are impacted. However, development fees will apply to the entire parcel.
- **Stream** land cover type is considered a linear feature where impacts are calculated based on length impacted. The acreage within a stream, below Top of Bank (TOB), must be assigned to the adjacent land cover type(s). Insert area of impact to stream below TOB in parentheses after the Land Cover acreage number (e.g., Riparian Woodland/Scrub: 10 (0.036) – where 10 is the total impacted acreage including 0.036 acre, which is the acreage within stream TOB). Complete following supplemental **Stream Feature Detail** table to provide information for linear feet.
- **Total Impacts** acreage should be the total parcel acreage (development project) or project footprint acreage (rural infrastructure or utility project).

Table 1: Land Cover Types and Impacts

Land Cover Type	Permanent Impacts	Temporary Impacts	*Proposed for HCP/NCCP Dedication on the Parcel (Requires Conservancy Approval)* Stream Setback	*Proposed for HCP/NCCP Dedication on the Parcel (Requires Conservancy Approval)* Preserve System Dedication
Grassland				
Annual Grassland				
Alkali Grassland				
Ruderal	61.63			
Shrubland				
Chaparral and Scrub				
Woodland				
Oak Savannah				
Oak Woodland				
Riparian				
Riparian Woodland/Scrub				
Wetland				
Permanent Wetland				
Seasonal Wetland (SW-D, SW-E & SW-F)	0.983 impacted; 0.627 preserved			
Alkali Wetland				
Aquatic				
Aquatic (Reservoir/Open Water)				
Slough/Channel				
Pond				
Stream (in linear feet)	-	-	-	-
Irrigated Agriculture				
Pasture				
Cropland				
Orchard				
Vineyard	0.86			
Other				
Nonnative woodland				
Wind turbines				
Developed (not counted toward Fees)				
Urban	78.00			
Aqueduct				
Turf				
Landfill				
TOTAL IMPACTS	142.10			

Identify any uncommon vegetation and uncommon landscape features[3]:

Supplemental to Table 1: Uncommon Vegetation and Landscape Features

	Permanent Impacts	Temporary Impacts
Uncommon Grassland Alliances		
Purple Needlegrass Grassland		
Blue Wildrye Grassland		
Creeping Ryegrass Grassland		
Wildflower Fields		
Squirreltail Grassland		
One-sided Bluegrass Grassland		
Serpentine Bunchgrass Grassland		
Saltgrass Grassland		
Alkali Sacaton Bunchgrass Grassland		
☐ Other		
Uncommon Landscape Features		
Rock Outcrops		
Caves		
Springs and seeps		
Scalds		
Sand Deposits		
☐ Mines[4]		
☐ Buildings (bat roosts)[3]		
☒ Potential nest sites (trees or cliffs)[3]	595 Trees (most will be removed)	

Please provide details of impacts to stream features: Not Applicable.

Stream Name:

Watershed:

Supplemental to Table 1: Stream Feature Detail[5]

Stream Width	Stream Type[6]	Permanent Impacts (linear feet)[7]	Temporary Impacts (linear feet)[7]
☐ ≤ 25 feet wide ☐ > 25 feet wide	☐ Perennial ☐ Intermittent ☐ Ephemeral, 3rd or higher order ☐ Ephemeral, 1st or 2nd order		
☐ ≤ 25 feet wide ☐ > 25 feet wide	☐ Perennial ☐ Intermittent ☐ Ephemeral, 3rd or higher order ☐ Ephemeral, 1st or 2nd order		
☐ ≤ 25 feet wide ☐ > 25 feet wide	☐ Perennial ☐ Intermittent ☐ Ephemeral, 3rd or higher order ☐ Ephemeral, 1st or 2nd order		

[3] These acreages are for Conservancy tracking purposes. Impacts to these uncommon vegetation and landscape features should be accounted for within the land cover types in Table 1 (e.g., x acres of purple needlegrass in this supplemental table should be accounted for within annual grassland in Table 1).
[4] Insert amount/number, not acreage. Provide additional information on these features in Attachment A: Project Description.
[5] Use more than 1 row as necessary to describe impacts to streams on site.
[6] See glossary (Appendix A) for definition of stream type and order.
[7] Stream length is measured along stream centerline, based on length of impact to any part of the stream channel, TOB to TOB.

4) Summary of Land Cover Types

Please provide a written summary of descriptions for land cover types found on site including characteristic vegetation.

General Setting: The project site is located in northwest Oakley, in Contra Costa County, California (Figure 1). The overall 375.70+/- acre property is within Sections 15 and 22 in Township 2 North, Range 2 East of the USGS 7.5-minute Jersey Island topographic quadrangle. The project site is situated at elevations of approximately 10 to 30 feet above mean seal level. Land uses in this portion of Oakley are primarily industrial and commercial.

The 166.42+/- acre "Oakley Logistics Center" will be developed on 164.91+/- acres of land in the south part of the property and 1.51+/- acres of road improvements along the west edge of the property (outside the property boundary) (Figure 3). This PSR addresses the 142.10+/- acres of the site located within the ECCCHCP Permit Area. The remaining 24.32+/- acres of the site are outside the ECCCHCP Permit Area.

The project site is bounded by State Route 160 and Bridgehead Road to the west and a vineyard and tidal wetlands on the east. There is grassland and tidal wetlands associated with the San Joaquin River to the north of the site. The Burlington Northern Santa Fe Railroad bounds the site on the south and there is a vineyard to the south of the tracks.

Site History: The site is highly disturbed and land cover types have been altered by historical activities at the site. DuPont, a chemical manufacturing facility previously occupied the property and then ceased production activities in 1998. All manufacturing facilities at the project site have since been decommissioned and demolished to their foundations. In 2013, DuPont separated its chemicals segment from its other businesses and remedial obligations of the site were transferred to Chemours, which is working with the Department of Toxic Substance Control (DTSC) to remediate the site. The site is currently being remediated for future development. Once the remediation is completed, most of the upland areas in the site will be redeveloped for industrial and commercial uses by the Oakley Logistics Center.

Overview: There are several land cover types within the overall property, including expansive tidally influenced wetlands in the northeast part of the property. In contrast, the majority of the 142.10+/- acre Study Area primarily consists of previously developed areas and ruderal grasslands (Figure 3). The Study Area also includes a small sliver of vineyard in the panhandle extending southeast from the body of the site, right along the railroad tracks. There are also three seasonal wetlands in the Study Area (Figure 3).

Ruderal Grassland: Much of the Study Area is vegetated with ruderal grassland vegetation that has been highly disturbed by past development, soil remediation, and other human activities (Figures 4A, 4B, and 4C). Most of the ruderal grassland areas in the Study Area appear to be periodically mowed and or disked for weed abatement. The ruderal grasslands have varying amounts of cover ranging from relatively weedy grasslands to essentially bare soil. The ruderal grassland vegetation consists primarily of non-native, weedy species. Dominant grassland species in the site include oats (*Avena fatua*), soft chess brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis*), wall barley (*Hordeum murinum*), perennial ryegrass (*Lolium perenne*), yellow star thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), bull thistle (*Cirsium vulgare*), black mustard (*Brassica nigra*) and filaree (*Erodium* sp.).

Seasonal Wetlands: There are three seasonal wetlands in the Study Area (Figures 3, 4C and 4D). The seasonal wetlands are located in the west part of the site, just east of Bridgehead Road. The seasonal wetlands are labeled Seasonal Wetlands "SW-D", "SW-F", and "SW-E", from the north to south respectively, on the Wetland Delineation Map (Attachment E). The seasonal wetlands are inside of shallow basins incised several feet below adjacent grasslands. Soils in the wetlands are sandy and appear well draining. None of these wetlands have habitat attributes resembling vernal pools.

Seasonal Wetlands SW-E and SW-F are surrounded by woody riparian species including California black walnut (*Juglans californica*), Gooding's black willow (*Salix goodingii*), Pacific willow (*Salix lasiandra*), Fremont's cottonwoods (*Populus* fremontii) and coast live oak (*Quercus agrifolia*) (Figures 4C and 4D). Seasonal Wetland SW-D contains only a few willow saplings in the southwest tip of the basin (Figure 4D). Dominant wetland species in floors of these seasonal wetlands in the site includes seaside barley (*Hordeum* *marinum*, perennial ryegrass (*Lolium perenne*), annual rabbit's-foot grass (*Polypogon monspeliensis*), and curly dock (*Rumex crispus*). There are also some patches of saltgrass (*Distichlis spicata*), hard-stem club-rush (i.e., tules) (*Schoenoplectus acutus*), and cattails (*Typha* sp.) in some of the seasonal wetlands.

Vineyard: There is a small area of vineyard in the panhandle extending southeast from the body of the Study Area (Figure 3). The vineyard is bounded by a farm road on the north and railroad tracks on the south. The floor of the vineyard supports ruderal grassland vegetation.

Urban/Developed: The Study Area contains several urban/developed areas, some with evidence of former buildings, and many with foundations still present (Figures 3 and 4A). Other urban or previously developed areas in the site are evident with gravel or pavement. There is an administrative building complex in the west part of the Study Area being used as the on-site "office" associated with on-site remediation efforts. The body of the Study Area has been heavily disturbed by past development and evidence of former buildings still remains, with foundations and graveled areas still present.

Trees: Trees, Bugs & Dirt conducted an inventory of trees within the site in 2018; this report is on file in the City. There are several rows of large trees scattered in the site, mostly *Eucalyptus* spp. and tamarisk (*Tamarix* sp.), as well as some pines (*Pinus* spp.) and coastal live oaks (*Quercus agrifolia*). There are also isolated trees in various parts of the site and ornamental trees surrounding the administration building in the west part of the site. Fremont cottonwoods, willows, and black walnuts surround some of the wetlands. Most of the trees in the site will be removed.

5) Jurisdictional Wetlands and Waters

If wetlands and waters are present on the project site, project proponents must conduct a delineation of jurisdictional wetlands and waters. Jurisdictional wetlands and waters are defined on pages 1-18 and 1-19 of the ECCC HCP/NCCP as the following land cover types: permanent wetland, seasonal wetland, alkali wetland, aquatic, pond, slough/channel, and stream. It should be noted that these features differ for federal and state jurisdictions. If you have identified any of these land cover types in Table 1, complete the section below.

a) Attach the wetland delineation report as **Attachment E: Wetland Delineation.** If a wetland delineation has not been completed, please explain below in section 4c.

b) Please check the following permits the project may require. Please submit copies of these permits to the Conservancy prior to the start of construction:

☒ CWA Section 404 Permit[8] ☒ CWA Section 401 Water Quality Certification

☒ Waste Discharge Requirements ☒ Lake and Streambed Alteration Agreement

c) Provide any additional information on impacts to jurisdictional wetland and waters below, including status of the permit(s):

A Wetland Delineation of the overall property was completed in 2006 and was verified by the USACE in 2008 (SPK-2007-01861) (Attachment E). An updated Wetland Delineation was conducted in 2016 and refined in 2018, and was verified by USACE in March 2019 (SPK-2018-00848).

The delineation of the overall parcel (2018 delineation awaiting verification) includes a total of 176.15+/- acres of potentially jurisdictional Waters of the U.S. This total includes 64.19+/- acres of Open Water, 103.67+/- acres of Permanent Wetlands, a 6.49-acre Slough, and 1.80+/- acres of Seasonal Wetlands.

The 142.10+/- acre Study Area includes a portion of the verified Wetland Delineation (see "Potential Waters of the U.S. and Wetlands – Oakley Logistics Center" map in Attachment E). The Study Area contains 1.608+/- acres Seasonal Wetlands. The project will involve filling two seasonal wetlands (SW-D and SW-F)

---

[8] The USACE Sacramento District issued a Regional General Permit 1 (RGP) related to ECCC HCP/NCCP covered activities. The RGP is designed to streamline wetland permitting in the entire ECCC HCP/NCCP Plan Area by coordinating the avoidance, minimization, and mitigation measures in the Plan with the Corps' wetland permitting requirement. Applicants seeking authorization under this RGP shall notify the Corps in accordance with RGP general condition number 18 (Notification).

encompassing a total of 0.983+/- acres. The fill will be authorized under Regional General Permit 1. Permit applications for the fill of wetlands will be submitted in June 2019.

6) Species-Specific Planning Survey Requirements

Based on the land cover types found on-site and identified in Table 1, check the applicable boxes in Table 2a.

Table 2a. Species –Specific Planning Survey Requirements

Land Cover Type in Project Area	Required Survey Species	Habitat Element in Project Area	Planning Survey Requirement[9]	Info in HCP
☒ Grasslands, oak savannah, agriculture, or ruderal	☐ San Joaquin kit fox	Assumed if within modeled range of species	If within modeled range of species, identify and map potential breeding or denning habitat within the project site and a 250-ft radius around the project footprint.	pp. 6-37 to 6-38
	☒ Western burrowing owl	Assumed	Identify and map potential breeding habitat within the project site and a 500-ft radius around the project footprint. Please note the HCP requires buffers for occupied burrows. Surveys may need to encompass an area larger than the project footprint.	pp. 6-39 to 6-41
☐ Aquatic (ponds, wetlands, streams, sloughs, channels, and marshes)	☐ Giant garter snake	Aquatic habitat accessible from the San Joaquin River	Identify and map potential habitat.	pp. 6-43 to 6-45
	☐ California tiger salamander	Ponds and wetlands Vernal pools Reservoirs Small lakes	Identify and map potential breeding habitat. Document habitat quality and features. Provide the Conservancy with photo-documentation and report.	pp. 6-45
	☐ California red-legged frog	Slow-moving streams, ponds and wetlands	Identify and map potential breeding habitat. Document habitat quality and features. Provide the Conservancy with photo-documentation and report.	p. 6-46
	☐ Covered shrimp	Seasonal wetlands Vernal pools Sandstone rock outcrops Sandstone depressions	Identify and map potential habitat. Please note the HCP requires a 50 foot non-disturbance buffer from seasonal wetlands that may be occupied by covered shrimp. Surveys may need to encompass an area larger than the project footprint.	pp. 6-46 to 6-48
☒ Any	☐ Townsend's big-eared bat	Rock formations with caves Mines Abandoned buildings outside urban area	Map and document potential breeding or roosting habitat.	pp. 6-36 to 6-37
	☒ Swainson's hawk	Potential nest sites within 1,000 feet of project	Inspect large trees for presence of nest sites. Document and map.	pp. 6-41 to 6-43
	☒ Golden Eagle	Potential nest sites with ½ mile of project	Inspect large trees for presence of nest sites. Document and map.	pp. 6-38 to 6-39
Surveys for all covered species must be conducted by a qualified biologist (USFWS/CDFW project-specific approved). Please submit biologist approval request to the East Contra Costa County Habitat Conservancy. Surveys for all covered species must be conducted according to the respective USFWS or CDFW survey protocols, as identified in Chapter 6.4.3 in the HCP/NCCP.				

7) Planning Survey Species Habitat Maps

Provide Planning Survey Species Habitat Maps as required in Table 2a, attach as **Figure 5** in **Attachment B: Figures**.

[9] The planning survey requirements in this table are not comprehensive. Please refer to Chapter 6.4.3 in the ECCC HCP/NCCP for more detail.

8) Results of Species Specific Surveys

Provide a written summary describing the results of the planning surveys. Please discuss the location, quantity, and quality of suitable habitat for specified covered wildlife species on the project site.

Western Burrowing Owl: The site contains potions of ruderal grassland (Figure 5a) that is within the range of western burrowing owl (*Athene cunnicularia*). The site and visible areas on adjacent lands were inspected for burrowing owls and ground squirrel burrows with evidence of burrowing owl occupancy (i.e., white wash, pellets, feathers). Comprehensive inspection of potential burrowing owl habitat was accomplished by walking throughout the project site. No western burrowing owls or burrows with evidence of burrowing owl occupancy were observed. The nearest occurrence of burrowing owl in the California Department of Fish and Wildlife's California Natural Diversity Database (CNDDB, 2019) is a few records just southwest of the project site in a now developed residential subdivision.

Swainson's Hawk: There are several trees within and surrounding the project site large enough to support nesting Swainson's hawks (*Buteo swainsoni*) and the site is within the western edge of the range of Swainson's hawks. California Department of Fish and Wildlife's California Natural Diversity Database contains a 2012 record of Swainson's hawks nesting in a redwood tree in the project site near Bridgehead Road. This record indicates two juvenile Swainson's hawks successfully fledged in 2011 and there were several failed nesting attempts in 2012 before the nesting tree was removed.

There are numerous potential nest trees for Swainson's hawks (Figure 5a). No Swainson's hawks were observed during the 2018 field surveys, which were conducted outside the nesting season of this species. A pair of Swainson's hawks was documented nesting in one of the eucalyptus trees in the southwest part of the site during 2018 and Swainson's hawks were observed soaring around the same trees during a March 21, 2019 site visit. The CNDDB (2019) does not yet contain this occurrence. Given the species' nest site affinity it is likely Swainson's hawks will return to the site to try to nest in future years.

Golden Eagle: The site is within the range of golden eagles (*Aquila chrysaetos*). There are several trees within the site large enough to support golden eagle (Figure 5a). There are also a few potential nest trees near and visible from the site. No golden eagles were observed and this species nests more often on cliffs in remote natural areas than in trees in or near urban settings. There are no records in the CNDDB of golden eagle in the search area.

9) Covered and No-Take Plants

Please check the applicable boxes in Table 2b based on the land cover types found in the project area. If suitable land cover types are present on site, surveys must be conducted using approved CDFW/USFWS methods during the appropriate season for identification of covered and no-take species (see page 6-9 of the ECCC HCP/NCCP). Reference populations of covered and no-take plants should be visited, where possible, prior to conducting surveys to confirm that the plant species is visible and detectable at the time surveys are conducted. <u>In order to complete all the necessary covered and no-take plant surveys, spring, summer, and fall surveys may be required.</u>

Table 2b. Covered and No-Take Plant Species

Plant Species	Covered (C) or No-Take (N)	Associated Land Cover Type	Typical Habitat or Physical Conditions, if Known	Typical Blooming Period	Suitable Land Cover Type Present
Adobe navarretia (*Navarretia nigelliformis* ssp. *radians*)[a]	C	Annual Grassland	Generally found on clay barrens in Annual Grassland[b]	Apr–Jun	☐ Yes ☒ No
Alkali milkvetch (*Astragalus tener* ssp. *tener*)	N	Alkali grassland Alkali wetland Annual grassland Seasonal wetland	Generally found in vernally moist habitat in soils with a slight to strongly elevated pH	Mar–Jun	☐ Yes ☒ No
Big tarplant (*Blepharizonia plumosa*)	C	Annual grassland	Elevation below 1500 feet[d] most often on Altamont Series or Complex soils	Jul–Oct	☐ Yes ☒ No

Brewer's dwarf flax (*Hesperolinon breweri*)	C	Annual grassland Chaparral and scrub Oak savanna Oak woodland	Generally, restricted to grassland areas within a 500+ buffer from oak woodland and/or chaparral/scrub [d]	May–Jul	☐ Yes ☒ No
Brittlescale (*Atriplex depressa*)	C	Alkali grassland Alkali wetland	Restricted to soils of the Pescadero or Solano soil series; generally found in southeastern region of plan area [d]	May–Oct	☐ Yes ☒ No
Caper-fruited tropidocarpum (*Tropidocarpum capparideum)*	N	Alkali grassland		Mar–Apr	☐ Yes ☒No
Contra Costa goldfields (*Lasthenia conjugens*)	N	Alkali grassland Alkali wetland Annual grassland Seasonal wetland	Generally found in vernal pools	Mar–Jun	☐ Yes ☒ No
Diablo Helianthella (*Helianthella castanea*)	C	Chaparral and scrub Oak savanna Oak woodland	Elevations generally above 650 feet [d]	Mar–Jun	☐ Yes ☒ No
Diamond-petaled poppy (*Eschscholzia rhombipetala*)	N	Annual grassland		Mar–Apr	☐ Yes ☒ No
Large-flowered fiddleneck (*Amsinckia grandiflora*)	N	Annual grassland	Generally on clay soil	Apr–May	☐ Yes ☒ No
Mount Diablo buckwheat (*Eriogonum truncatum*)	N	Annual grassland Chaparral and scrub	Ecotone of grassland and chaparral/scrub	Apr–Sep	☐ Yes ☒ No
Mount Diablo fairy-lantern (*Calochortus pulchellus*)	C	Annual grassland Chaparral and scrub Oak savanna Oak woodland	Elevations generally between 650 and 2,600[d]	Apr–Jun	☐ Yes ☒No
Mount Diablo Manzanita (*Arctostaphylos auriculata*)	C	Chaparral and scrub	Elevations generally between 700 and 1,860 feet; restricted to the eastern and northern flanks of Mt. Diablo [d] and the vicinity of Black Diamond Mines	Jan–Mar	☐ Yes ☒ No
Recurved larkspur (*Delphinium recurvatum*)	C	Alkali grassland Alkali wetland		Mar–Jun	☐ Yes ☒No
Round-leaved filaree (*California macrophylla*) [c]	C	Annual grassland		Mar–May	☐ Yes ☒ No
San Joaquin spearscale (*Extriplex joaquiniana*) [e]	C	Alkali grassland Alkali wetland		Apr–Oct	☐ Yes ☒ No
Showy madia (*Madia radiata*)	C	Annual grassland Oak savanna Oak woodland	Primarily occupies open grassland or grassland on edge of oak woodland	Mar–May	☐ Yes ☒No

[a] The species *Navarretia nigelliformis* subsp. *nigelliformis* is no longer considered to occur within Contra Costa County based on specimen annotations at the UC and Jepson Herbaria at the University of California Berkeley as well as the opinions of experts in the genus. This taxon is now recognized as *Navarretia nigelliformis* subsp. *radians.* Any subspecies of *Navarretia nigelliformis* encountered as a part of botanical surveys in support of a PSR should be considered as covered under this HCP/NCCP.
[b] Habitat for the *Navarretia nigelliformis* subspecies that occurs within the inventory are is inaccurately described in the HCP/NCCP as vernal pools. The entity within the Inventory generally occupies clay barrens within Annual Grassland habitat, which is an upland habitat type.
[c] From California Native Plant Society. 2007. *Inventory of Rare and Endangered Plants* (online edition, v7-07d). Sacramento, CA. Species may be identifiable outside of the typical blooming period; a professional botanist shall determine if a covered or no take plant occurs on the project site. Reference population of covered and no-take plants should be visited, where possible, prior to conducting surveys to confirm that the plant is visible and detectable at the time surveys are conducted.
[d] See Species Profiles in Appendix D of the Final HCP/NCCP. Reference populations of covered and no-take plants should be visited, where possible, prior to conducting surveys to confirm that the plant species is visible and detectable at the time surveys are conducted.
[e] In the recent update to the Jepson eflora (JFP 2013) *Atriplex joaquinana* has been circumscribed and segregated into a new genus called *Extriplex* based on the work of Elizabeth Zacharias and Bruce Baldwin (2010). The etymology of the genus *Extriplex* means, "beyond or outside Atriplex".

10) Results of Covered and No-Take Plant Species

Provide a written summary describing the results of the planning surveys conducted as required in Table 2b. Describe the methods used to survey the site for all covered and no-take plants, including the dates and times of all surveys conducted (see Tables 3-8 and 6-5 of the ECCC HCP/NCCP for covered and no-take plants), including reference populations visited prior to conducting surveys.

If any covered or no-take plant species were found, include the following information in the results summary:

- Description and number of occurrences and their rough population size.
- Description of the "health" of each occurrence, as defined on pages 5-49 and 5-50 of the HCP/NCCP.
- A map of all the occurrences.
- Justification of surveying time window, if outside of the plant's blooming period.
- The CNDDB form(s) submitted to CDFW (if this is a new occurrence).
- A description of the anticipated impacts that the covered activity will have on the occurrence and how the project will avoid impacts to all covered and no-take plant species. If impacts to covered plant species cannot be avoided and plants will be removed by covered activity, the Conservancy must be notified and has the option to salvage the covered plants. All projects must demonstrate avoidance of all six no-take plants (see table 6-5 of the HCP/NCCP).

Survey Methods

Surveys to assess potentially suitable habitat for special-status plants were undertaken on October 8 and 19, November 2 and 15, 2018, and March 21, 2019. The site was systematically searched by walking throughout the site.

Survey Results and Discussion

Several rare plant surveys have been conducted at the project site associated with the environmental review and permitting of the Chemours Remediation Project. SWCA Environmental Consultants conducted a rare plant survey in 2013 and Parsons conducted a rare plant survey in 2015. Following the 2015 rare plant survey performed by Parsons, a targeted list of 10 special-status species with the potential to occur in the Chemours Remediation project area was compiled. The most recent survey for special-status plants and to assess potentially suitable habitat for special-status plants was completed in the spring (June 27th) and summer (August 3rd) in 2017 by Californian Environmental Services, Inc. (CES). The targeted list of the 10 special-status species provided by Parsons was utilized by CES in the 2017 survey. No special-status plant species were observed during the most recent survey in 2017 conducted by CES.

As described in Section 4, the site is mostly urbanized or ruderal grassland that is periodically mowed and/or disked. Due to an absence of potentially suitable habitat for special-status plants, focused surveys during the blooming period of each species in Table 2b were not warranted.

The seasonal wetlands in the site are not vernal pools and do not provide suitable habitat for Contra Costa goldfields (*Lasthenia conjugens*).

V. SPECIES-SPECIFIC AVOIDANCE AND MINIMIZATION REQUIREMENTS

Please complete and/or provide the following attachments:

1) Species-Specific Avoidance and Minimization for Selected Covered Wildlife

Complete the following table and check the applicable box for covered species determined by the planning surveys.

Table 3. Summary of Applicable Preconstruction Surveys, Avoidance and Minimization, and Construction Monitoring Requirements[10]

[10] The requirements in this table are not comprehensive; they are detailed in the next section on the following page.

Species	Preconstruction Survey Requirements	Avoidance and Minimization Requirements	Construction Monitoring Required	Info in HCP
☐ San Joaquin kit fox	• On project footprint and 250-ft radius, map all dens (>5 in. diameter) and determine status • Provide written survey results to USFWS within 5 working days after surveying	• Monitor dens • Destroy unoccupied dens • Discourage use of occupied (non-natal) dens	• Establish exclusion zones (>50 ft for potential dens, and >100 ft for known dens) • Notify USFWS of occupied natal dens	pp. 6-37 to 6-38
☒ Western burrowing owl	• On project footprint and 500-ft radius, identify and map all owls and burrows, and determine status • Document use of habitat (e.g. breeding, foraging)	• Avoid occupied nests during breeding season (Feb-Sep) • Avoid occupied burrows during nonbreeding season (Sep – Feb) • Install one-way doors in occupied burrow (if avoidance not possible) • Monitor burrows with doors installed	• Establish buffer zones (250 ft around nests) • Establish buffer zones (160 ft around burrows)	pp. 6-39 to 6-41
☐ Giant garter snake	• Delineate aquatic habitat up to 200 ft from water's edge on each side • Document any occurrences	• Limit construction to Oct-May • Dewater habitat April 15 – Sep 30 prior to construction • Minimize clearing for construction	• Delineate 200 ft buffer around potential habitat near construction • Provide field report on monitoring efforts • Stop construction activities if snake is encountered; allow snake to passively relocate • Remove temporary fill or debris from construction site • Mandatory training for construction personnel	pp. 6-43 to 6-45
☐ California tiger salamander	• Provide written notification to USFWS and CDFW regarding timing of construction and likelihood of occurrence on site	• Allow agency staff to translocate species, if requested	• None	p. 6-45
☐ California red-legged frog	• Provide written notification to USFWS and CDFW regarding timing of construction and likelihood of occurrence on site	• Allow agency staff to translocate species, if requested	• None	p. 6-46
☐ Covered shrimp	• Establish presence/absence • Document and evaluate use of all habitat features (e.g. vernal pools, rock outcrops)	• Establish buffer near construction activities • Prohibit incompatible activities	• Establish buffer around outer edge of all hydric vegetation associated with habitat (50 ft or immediate watershed, whichever is larger) • Mandatory training for construction personnel	pp. 6-46 to 6-48
☐ Townsend's big-eared bat	• Establish presence/absence • Determine if potential sites were recently occupied (guano)	• Seal hibernacula before Nov • Seal nursery sites before April • Delay construction near occupied sites until hibernation or nursery seasons are over	• None	pp. 6-36 to 6-37
☒ Swainson's hawk	• Determine whether potential nests are occupied	• No construction within 1,000 ft of occupied nests within breeding season (March 15 - Sep 15) • If necessary, remove active nest tree after nesting season to prevent occupancy in second year.	• Establish 1,000 ft buffer around active nest and monitor compliance (no activity within established buffer)	pp. 6-41 to 6-43
☒ Golden Eagle	• Establish presence/absence of nesting eagles	• No construction within ½ mile near active nests (most activity late Jan – Aug)	• Establish ½ mile buffer around active nest and monitor compliance with buffer	pp. 6-38 to 6-39

2) Required Preconstruction Surveys, Avoidance and Minimization, and Construction Monitoring

All preconstruction surveys shall be conducted in accordance with the requirements set forth in Section 6.4.3, Species-Level Measures, and Table 6-1 of the ECCC HCP/NCCP. Detailed descriptions of preconstruction surveys, avoidance and minimization, and construction monitoring applicable to each of the wildlife species in Table 3 are located below. <u>Please remove the species-specific measures that do not apply to your project (highlight entire section and delete).</u>

<u>WESTERN BURROWING OWL</u>

Preconstruction Surveys

Prior to any ground disturbance related to covered activities, a USFWS/CDFW- approved biologist will conduct a preconstruction survey in areas identified in the planning surveys as having potential burrowing owl habitat. The surveys will establish the presence or absence of western burrowing owl and/or habitat features and evaluate use by owls in accordance with CDFW survey guidelines (California Department of Fish and Game 1995).

On the parcel where the activity is proposed, the biologist will survey the proposed disturbance footprint and a 500-foot radius from the perimeter of the proposed footprint to identify burrows and owls. Adjacent parcels under different land ownership will not be surveyed. Surveys should take place near sunrise or sunset in accordance with CDFW guidelines. All burrows or burrowing owls will be identified and mapped. Surveys will take place no more than 30 days prior to construction. During the breeding season (February 1– August 31), surveys will document whether burrowing owls are nesting in or directly adjacent to disturbance areas. During the nonbreeding season (September 1–January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any disturbance area. Survey results will be valid only for the season (breeding or nonbreeding) during which the survey is conducted.

Avoidance and Minimization and Construction Monitoring

This measure incorporates avoidance and minimization guidelines from CDFW's *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 1995).

If burrowing owls are found during the breeding season (February 1 – August 31), the project proponent will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance will include establishment of a non-disturbance buffer zone (described below). Construction may occur during the breeding season if a qualified biologist monitors the nest and determines that the birds have not begun egg-laying and incubation or that the juveniles from the occupied burrows have fledged. During the nonbreeding season (September 1 – January 31), the project proponent should avoid the owls and the burrows they are using, if possible. Avoidance will include the establishment of a buffer zone (described below).

During the breeding season, buffer zones of at least 250 feet in which no construction activities can occur will be established around each occupied burrow (nest site). Buffer zones of 160 feet will be established around each burrow being used during the nonbreeding season. The buffers will be delineated by highly visible, temporary construction fencing.

If occupied burrows for burrowing owls are not avoided, passive relocation will be implemented. Owls should be excluded from burrows in the immediate impact zone and within a 160-foot buffer zone by installing one-way doors in burrow entrances. These doors should be in place for 48 hours prior to excavation. The project area should be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation (California Department of Fish and Game 1995). Plastic tubing or a similar structure should be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.

SWAINSON'S HAWK

Preconstruction Survey

Prior to any ground disturbance related to covered activities that occurs during the nesting season (March 15–September 15), a qualified biologist will conduct a preconstruction survey no more than 1 month prior to construction to establish whether Swainson's hawk nests within 1,000 feet of the project site are occupied. If potentially occupied nests within 1,000 feet are off the project site, then their occupancy will be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the project site. If nests are occupied, minimization measures and construction monitoring are required (see below).

Avoidance and Minimization and Construction Monitoring

During the nesting season (March 15–September 15), covered activities within 1,000 feet of occupied nests or nests under construction will be prohibited to prevent nest abandonment. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the Implementing Entity will coordinate with CDFW/USFWS to determine the appropriate buffer size.

If young fledge prior to September 15, covered activities can proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project applicant can apply to the Implementing Entity for a waiver of this avoidance measure. Any waiver must also be approved by USFWS and CDFW. While the nest is occupied, activities outside the buffer can take place.

All active nest trees will be preserved on site, if feasible. Nest trees, including non-native trees, lost to covered activities will be mitigated by the project proponent according to the requirements below.

Mitigation for Loss of Nest Trees

The loss of non-riparian Swainson's hawk nest trees will be mitigated by the project proponent by:

- If feasible on-site, planting 15 saplings for every tree lost with the objective of having at least 5 mature trees established for every tree lost according to the requirements listed below.

  AND either

  1) Pay the Implementing Entity an additional fee to purchase, plant, maintain, and monitor 15 saplings on the HCP/NCCP Preserve System for every tree lost according to the requirements listed below, OR

  2) The project proponent will plant, maintain, and monitor 15 saplings for every tree lost at a site to be approved by the Implementing Entity (e.g., within an HCP/NCCP Preserve or existing open space linked to HCP/NCCP preserves), according to the requirements listed below.

The following requirements will be met for all planting options:

- Tree survival shall be monitored at least annually for 5 years, then every other year until year 12. All trees lost during the first 5 years will be replaced. Success will be reached at the end of 12 years if at least 5 trees per tree lost survive without supplemental irrigation or protection from herbivory. Trees must also survive for at least three years without irrigation.
- Irrigation and fencing to protect from deer and other herbivores may be needed for the first several years to ensure maximum tree survival.
- Native trees suitable for this site should be planted. When site conditions permit, a variety of native trees will be planted for each tree lost to provide trees with different growth rates, maturation, and life span, and to provide a variety of tree canopy structures for Swainson's hawk. This variety will help to ensure that nest trees will be available in the short term (5-10 years for cottonwoods and willows) and in the long term (e.g., Valley oak, sycamore). This will also minimize the temporal loss of nest trees.
- Riparian woodland restoration conducted as a result of covered activities (i.e., loss of riparian woodland) can be used to offset the nest tree planting requirement above, if the nest trees are riparian species.
- Whenever feasible and when site conditions permit, trees should be planted in clumps together or with existing trees to provide larger areas of suitable nesting habitat and to create a natural buffer between nest trees and adjacent development (if plantings occur on the development site).
- Whenever feasible, plantings on the site should occur closest to suitable foraging habitat outside the UDA.
- Trees planted in the HCP/NCCP preserves or other approved offsite location will occur within the known range of Swainson's hawk in the inventory area and as close as possible to high-quality foraging habitat.

GOLDEN EAGLE

Preconstruction Survey

Prior to implementation of covered activities, a qualified biologist will conduct a preconstruction survey to establish whether nests of golden eagles are occupied (see Section 6.3.1, *Planning Surveys*). If nests are occupied, minimization requirements and construction monitoring will be required.

Avoidance and Minimization

Covered activities will be prohibited within 0.5 mile of active nests. Nests can be built and active at almost any time of the year, although mating and egg incubation occurs late January through August, with peak activity in March through July. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be appropriate or that a larger buffer should be implemented, the Implementing Entity will coordinate with CDFW/USFWS to determine the appropriate buffer size.

Construction Monitoring

Construction monitoring will focus on ensuring that no covered activities occur within the buffer zone established around an active nest. Although no known golden eagle nest sites occur within or near the ULL, covered activities inside and outside of the Preserve System have the potential to disturb golden eagle nest sites. Construction monitoring will ensure that direct effects to golden eagles are minimized.

3) Construction Monitoring Plan

Before implementing a covered activity, the applicant will develop and submit a construction monitoring plan to the planning department of the local land use jurisdiction and the East Contra Costa County Habitat Conservancy for review and approval. Elements of a brief construction monitoring plan will include the following:

- Results of planning and preconstruction surveys.[11]
- Description of avoidance and minimization measures to be implemented, including a description of project-specific refinements to the measures or additional measures not included in the HCP/NCCP.
- Description of monitoring activities, including monitoring frequency and duration, and specific activities to be monitored.
- Description of the onsite authority of the construction monitor to modify implementation of the activity.

☒ Check box to acknowledge this requirement.

[11] If the preconstruction surveys do not trigger construction monitoring, results of preconstruction surveys should still be submitted to the local jurisdiction and the East Contra Costa County Habitat Conservancy.

V. SPECIFIC CONDITIONS ON COVERED ACTIVITIES

1) Check off the HCP conservation measures that apply to the project.

APPLIES TO ALL PROJECTS

☒ **Conservation Measure 1.11. Avoid Direct Impacts on Extremely Rare Plants, Fully Protected Wildlife Species, or Migratory Birds.** This conservation measure applies to all projects. All projects will avoid all impacts on extremely rare plants and fully protected species listed in Table 6-5 of the ECCC HCP/NCCP. See HCP pp. 6-23 to 6-25, and Table 6-5.

APPLIES TO PROJECTS THAT IMPACT COVERED PLANT SPECIES

☐ **Conservation Measure 3.10. Plant Salvage when Impacts are Unavoidable.** This condition applies to projects that cannot avoid impacts on covered plants and help protect covered plants by prescribing salvage whenever avoidance of impacts is not feasible. Project proponents wishing to remove populations of covered plants must notify the Conservancy of their construction schedule to allow the Conservancy the option of salvaging the populations. See HCP pp. 6-48 to 6-50.

APPLIES TO PROJECTS THAT INCLUDE ARE ADJACENT TO STREAMS, PONDS, OR WETLANDS

☒ **Conservation Measure 2.12. Wetland, Pond, and Stream Avoidance and Minimization.** All projects will implement measures described in the HCP to avoid and minimize impacts on wetlands, ponds, streams, and riparian woodland/scrub. See HCP pp. 6-33 to 6-35.

APPLIES TO NEW DEVELOPMENT PROJECTS

☒ **Conservation Measure 1.10. Maintain Hydrologic Conditions and Minimize Erosion.** All new development must avoid or minimize direct and indirect impacts on local hydrological conditions and erosion by incorporating the applicable Provision C.3 Amendments of the Contra Costa County Clean Water Program's (CCCCWP's) amended NPDES Permit (order no. R2-2003-0022; permit no. CAS002912). The overall goal of this measure is to ensure that new development covered under the HCP has no or minimal adverse effects on downstream fisheries to avoid take of fish listed under ESA or CESA. See HCP pp. 6-21 to 6-22.

APPLIES TO NEW DEVELOPMENT PROJECTS THAT INCLUDE OR ARE ADJACENT TO STREAMS, PONDS, OR WETLANDS

☐ **Conservation Measure 1.7. Establish Stream Setbacks.** A stream setback will be applied to all development projects covered by the HCP according to the stream types listed in Table 6-2 of the HCP. See HCP pp. 6-15 to 6-18 and Table 6-2.

APPLIES TO NEW DEVELOPMENT PROJECTS ADJACENT TO EXISTING PUBLIC OPEN SPACE, HCP PRESERVES, OR LIKELY HCP ACQUISITION SITES

☐ **Conservation Measure 1.6. Minimize Development Footprint Adjacent to Open Space.** Project applicants are encouraged to minimize their development footprint and set aside portions of their land to contribute to the HCP Preserve System. Land set aside that contributes to the HCP biological goals and objectives may be credited against development fees. See HCP pages 6-14 to 6-15.

☐ **Conservation Measure 1.8. Establish Fuel Management Buffer to Protect Preserves and Property.** Buffer zones will provide a buffer between development and wildlands that allows adequate fuel management to minimize the risk of wildlife damage to property or to the preserve. The minimum buffer zone for new development is 100 feet. See HCP pages 6-18 to 6-19.

☐ **Conservation Measure 1.9. Incorporate Urban-Wildlife Interface Design Elements.** These projects will incorporate design elements at the urban-wildlife interface to minimize the indirect impacts of development on the adjacent preserve. See HCP pp. 6-20 to 6-21.

APPLIES TO ROAD MAINTENANCE PROJECTS OUTSIDE THE UDA

☐ **Conservation Measure 1.12. Implement Best Management Practices for Rural Road Maintenance.** Road maintenance activities have the potential to affect covered species by introducing sediment and other pollutants into downstream waterways, spreading invasive weeds, and disturbing breeding wildlife. In order to avoid and minimize these impacts, BMPs described in the HCP will be used where appropriate and feasible. See HCP pp. 6-25 to 6-26.

APPLIES TO NEW ROADS OR ROAD IMPROVEMENTS OUTSIDE THE UDA

☐ **Conservation Measure 1.14. Design Requirements for Covered Roads Outside the Urban Development Area (UDA).** New roads or road improvements outside the UDA have impacts on many covered species far beyond the direct impacts of their project footprints. To minimize the impacts of new, expanded, and improved roads in agricultural and natural areas of the inventory area, road and bridge construction projects will adopt siting, design, and construction requirements described in the HCP and listed in Table 6-6. See HCP pp. 6-27 to 6-33 and Table 6-6.

APPLIES TO FLOOD CONTROL MAINTENANCE ACTIVITIES

☐ **Conservation Measure 1.13. Implement Best Management Practices for Flood Control Facility Maintenance.** Flood control maintenance activities have the potential to affect covered species by introducing sediment and other pollutants into downstream waterways and disturbing breeding wildlife. In order to avoid and minimize these impacts, BMPs described in the HCP will be used where appropriate and feasible. See HCP pp. 6-26 to 6-27.

2) **For all checked conservation measures, describe how the project will comply with each measure. Attach as Attachment C: Project Compliance to HCP Conditions.**

VI. MITIGATION MEASURES

1) **Mitigation Fee Calculator(s)**
Complete and attach the fee calculator (use permanent and/or temporary impact fee calculator as appropriate), and attach as **Attachment D: Fee Calculator(s)**.

2) **Briefly describe the amount of fees to be paid and when applicant plans to submit payment.**

The 142.10+/- acres Study Area is within Fee Zone 1 and construction is expected to commence in 2019.

Based on 2019 rates, the fees for this 142.10+/- acre area can be estimated as follows:

64.10 acres of permanent impacts within Fee Zone 1 at a cost of $16,757.65 per acre (= $1,074,165.37)

0.984 acres of permanent impacts to seasonal wetlands at a cost of $243,783.31 per acre (= $239,882.78)

Total Fees for development within the ECCCHCP Permit Area = $1,074,165.37 + $239,882.78 = $1,314,048.14

The fees will be paid prior to the start of construction at the current fee in place at that time.

ATTACHMENT A: PROJECT DESCRIPTION

OAKLEY LOGISTICS CENTER
Oakley, California

Project Description
July 2019

Project Location and Surrounding Land Uses

The project site is located on the northwest side of the City of Oakley, adjacent to State Route (SR) 160, on Bridgehead Road, north of Main Street and the BNSF Railroad, with entrance provided by Wilbur Avenue. The entire property is approximately 375 acres. However, the proposed project would only develop approximately 145 acres of the property. The remainder of the property would be undisturbed. The site is bounded by commercial and industrial uses to the west, vacant land to the east, the BNSF railroad and a mobile home park to the south, and the Delta and Lauritzen Yacht Harbor to the north (see Figure 1).

East Contra Costa County Habitat Conservation Plan

The overall 375.70+/- acre Property spans the ECCCHCP Permit boundary. Development will occur within 164.91+/- acres in the south part of the property, and 1.51+/- acres for off-site road improvements. While the PSR addresses the 142.10+/- acres of the site (i.e., the “Study Area”) that is within the ECCCHCP Permit Area, the following description is for the entire project, including 24.32+/- acres of the site that is outside the ECCCHCP Permit Area.

Project Components

The proposed project includes construction of six buildings across the project site ranging in size from 48,000+/- ft^2 to 560,000+/- ft^2, for a total approximately 2.2 million ft^2 (see Figure 2A). The buildings would include front load and cross docked warehouses. The proposed project would include demolition of the existing structures and construction of the proposed buildings over six phases.

<u>Construction and Proposed Uses</u>

The development of the proposed project would be spread over six phases, with full buildout expected to occur over three to five years. Phase I would include construction of Building 1 as well as all related infrastructure necessary to circulate around the building, provide parking, and construct truck court areas. Phase I would also include construction of two additional entry points south and north of the main Wilbur Avenue entry point. Phases II through VI would involve construction of Buildings 2 through 6. Additionally, each phase would develop parking areas, truck court areas, and associated connection points to circulate the project site. The proposed project would provide spaces for light industrial, warehousing, and manufacturing uses consistent with the General Plan.

<u>Grading</u>

Existing grades within the project site range from a low of about seven feet at the northwest corner of the site to a high of about 23 feet in the southwest corner. Proposed grading will consist of a series of cuts and fills to produce an overland release path towards the proposed detention basin and Delta edges. Two existing wetlands along Bridgehead Road (one near the northwest corner of the site and one closer to the projection of Wilbur Avenue) will be filled but the existing mitigation site wetland closer to the PG&E parcel will not be altered. Finished floor elevations for buildings are currently proposed between approximately 19 feet to 24 feet with adjacent truck docks being approximately 4 feet below the finished floors. It is anticipated that cuts and fills for the site will roughly balance resulting in no net import/export. If import/export is necessary it will likely be less than 25,000 cubic yards of material.

<u>Project Site Access</u>

The main entrance to the project site would be located on the eastern side of the intersection of Wilbur Avenue and Bridgehead Road. Two secondary access points would also be provided on Bridgehead Road. Two secondary access points will also be provided on Bridgehead Road. One would be located to the north of the Wilbur Avenue entrance and another would be located to the south.

Roadway Improvements

Consistent with the Oakley 2020 General Plan, roadway infrastructure would be constructed to meet the needs of a planned unit development and provide access to this portion of Oakley. Street widths would be designed in accordance with traffic studies completed for the project as well as the specifications within the Oakley 2020 General Plan.

Utilities

The following is a discussion of the planned utility services of the proposed project. See Figure 2B for the proposed utilities site plan.

Water: Diablo Water District (DWD) provides potable water service to the project area. DWD has existing water lines along the southern boundary of the site, extending north and south. The private on-site water system will be removed completely. In addition, a portion of the existing DWD 24” line conflicts with the location of proposed Building 1 (the most southwesterly) and will be relocated west into the proposed parking area and drive aisles/streets. Per DWD standards, any waterline serving more than one building must be owned and operated by DWD and each building must have its own metered potable water service. DWD facilities must be in public right of way or within an easement granted to DWD. Accordingly, the proposed water line in the main drive aisle/street extending from Wilbur will be owned and operated by DWD to the proposed cul-de-sac. From that point on the individual services to Buildings 2 and 5 will be privately owned and operated. Buildings 1, 3, 4 and 6 will also be served from connections off the DWD line at connections along the main drive aisle/streets.

Sewer: Iron House Sanitary District (ISD) provides sanitary sewer collection and treatment for the project area. ISD operates the existing Lauritzen Sewer Pump Station in Lauritzen Lane at the north edge of the site. Wastewater flows generated from the buildings would be collected in a pipe network that circulates within the parking and drive aisles of the project area and connects to the Lauritzen Pump Station.

Storm Drainage: The City of Oakley operates and maintains the public storm drain system in the vicinity of the project area. The site currently does not contain existing or planned public storm drain facilities. Storm water from impervious building roofs and pavement areas will be conveyed to bio-filtration basins located throughout the site as required by Provision C.3 of the Municipal Regional Permit. Water from these basins will then be conveyed in a series of pipes and shallow ditches to a new outfall in the marsh just east of the site. The outfall apron will be armored to prevent scour and erosion and will be equipped with a flap gate, if necessary, to prevent inflows from the Delta during high tide events..

If the outfall cannot be constructed as part of the early phases of site development due to permitting or other reasons interim detention basins will be constructed near early phase building pads to provide storage opportunities for storm water. These basins will be filled in once the outfall is available.

ATTACHMENT B: FIGURES

Figure 1

Moore Biological Consultants

0 1,000 2,000

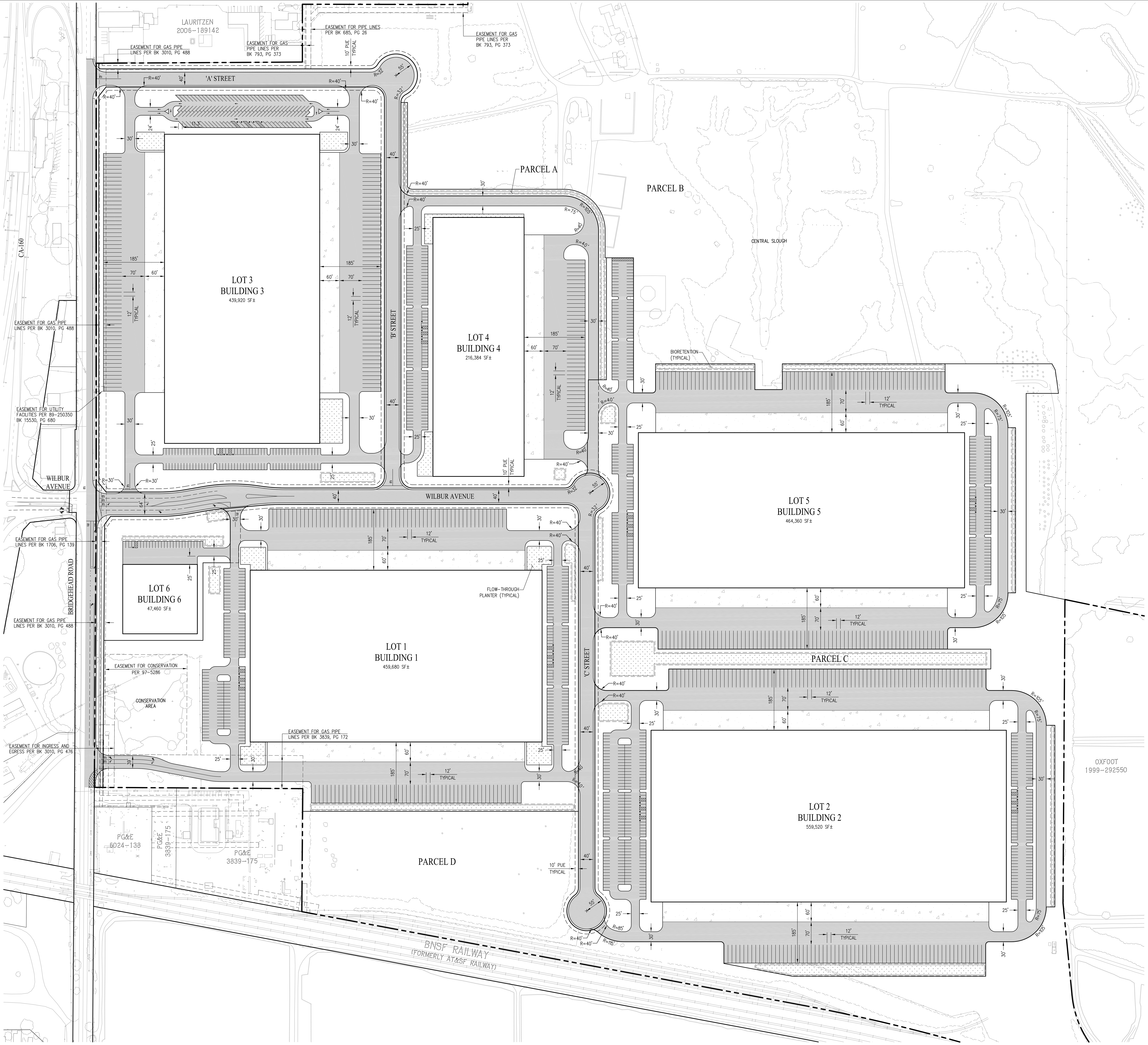
1 inch = 2,000 feet

Map Date: 04/16/2019

Study Area/USGS

Oakley Logistics Center

Contra Costa County, CA

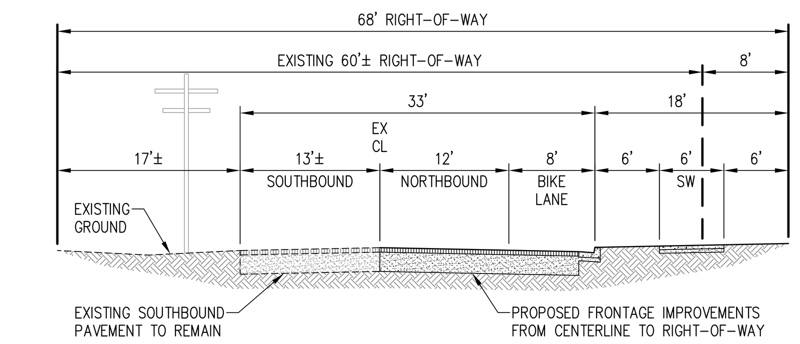


PARKING SUMMARY

BUILDING NO.	BUILDING FOOTPRINT	PARKING STALLS PROVIDED	PARKING RATIO
BUILDING 1	459,680 SF±	250	1:2,000 SF
BUILDING 2	559,520 SF±	298	1:2,000 SF
BUILDING 3	439,920 SF±	234	1:2,000 SF
BUILDING 4	216,384 SF±	117	1:2,000 SF
BUILDING 5	464,360 SF±	246	1:2,000 SF
BUILDING 6	47,460 SF±	26	1:2,000 SF
TOTAL	2,187,324 SF±	1171	1:2,000 SF

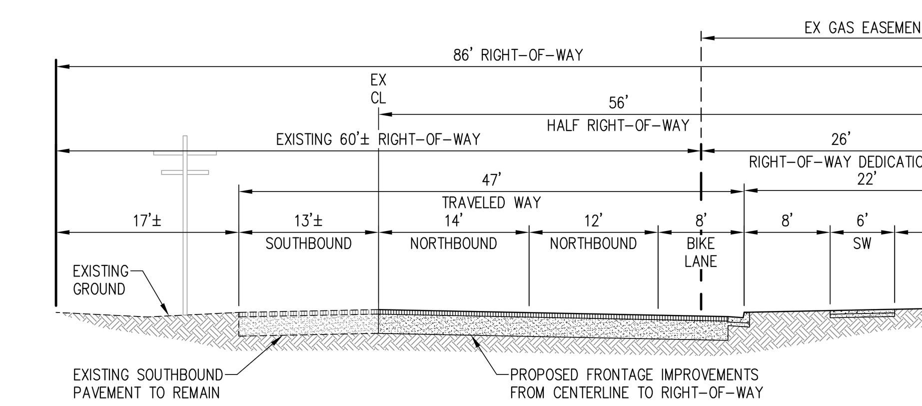
PARKING NOTES:

1. PERPENDICULAR PARKING STALLS ARE SHOWN AT 9' WIDE BY 20' DEEP. DIMENSIONS MAY BE REDUCED TO 9' WIDE BY 19' DEEP PER CITY OF OAKLEY MUNICIPAL CODE SECTION 9.1.1402 FOR FINAL DESIGN.
2. ANGLED PARKING STALLS ARE SHOWN AS 8' WIDE BY 19' DEEP MINIMUM PER CITY OF OAKLEY MUNICIPAL CODE SECTION 9.1.1402.
3. MANEUVERING AISLES BETWEEN PERPENDICULAR PARKING STALLS ARE SHOWN AT 25' WIDE. AISLES MAY BE REDUCED TO 24' WIDE PER CITY OF OAKLEY MUNICIPAL CODE SECTION 9.1.1402 FOR FINAL DESIGN.
4. MANEUVERING AISLES BETWEEN ANGLED PARKING STALLS ARE SHOWN AT 14' PER CITY OF OAKLEY MUNICIPAL CODE SECTION 9.1.1402.



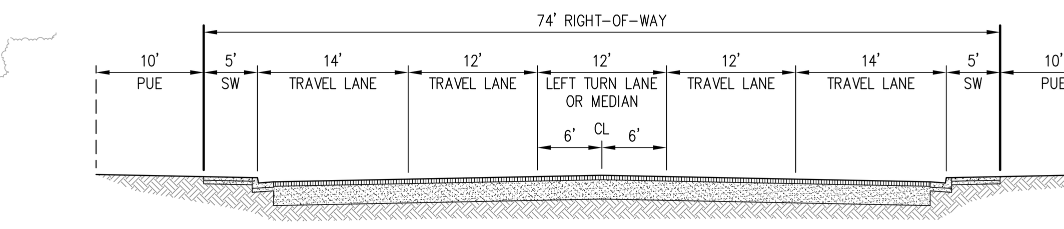
PROPOSED BRIDGEHEAD ROAD (NORTH OF WILBUR AVENUE)

HALF OF CITY STANDARD TWO LANE ARTERIAL PER STD. PLAN NO. X-01
PUBLIC STREET
NOT TO SCALE



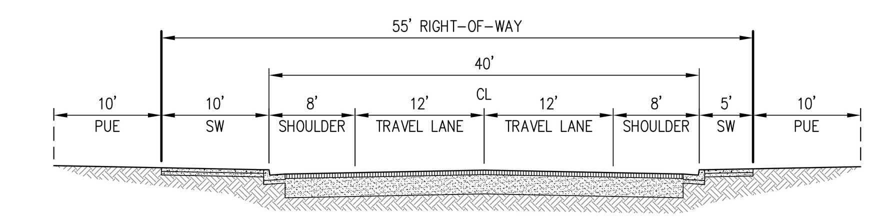
PROPOSED BRIDGEHEAD ROAD (SOUTH OF WILBUR AVENUE)

HALF OF CITY STANDARD FOUR LANE UNDIVIDED ROAD PER STD. PLAN NO. X-01
PUBLIC STREET
NOT TO SCALE



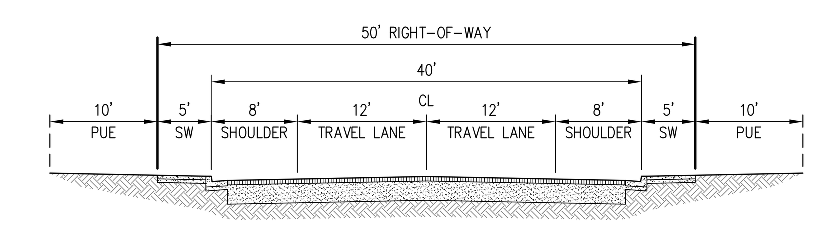
MAIN PROJECT ENTRY
(AT BRIDGEHEAD/WILBUR INTERSECTION)

PUBLIC STREET
NOT TO SCALE



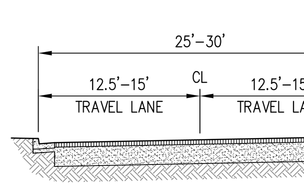
TYPICAL 'A' STREET

MODIFIED CITY STANDARD TWO LANE COLLECTOR PER STD. PLAN NO. X-01
PUBLIC STREET
NOT TO SCALE



TYPICAL 'B' STREET & 'C' STREET

MODIFIED CITY STANDARD TWO LANE COLLECTOR PER STD. PLAN NO. X-01
PUBLIC STREET
NOT TO SCALE



PRIVATE ROADS

PRIVATE STREET
NOT TO SCALE

SUBDIVISION 9513
OAKLEY LOGISTICS CENTER
DIMENSIONED SITE PLAN
VESTING TENTATIVE MAP

CITY OF OAKLEY CONTRA COSTA COUNTY CALIFORNIA

0' 100' 300' 400'
SCALE: 1" = 100'

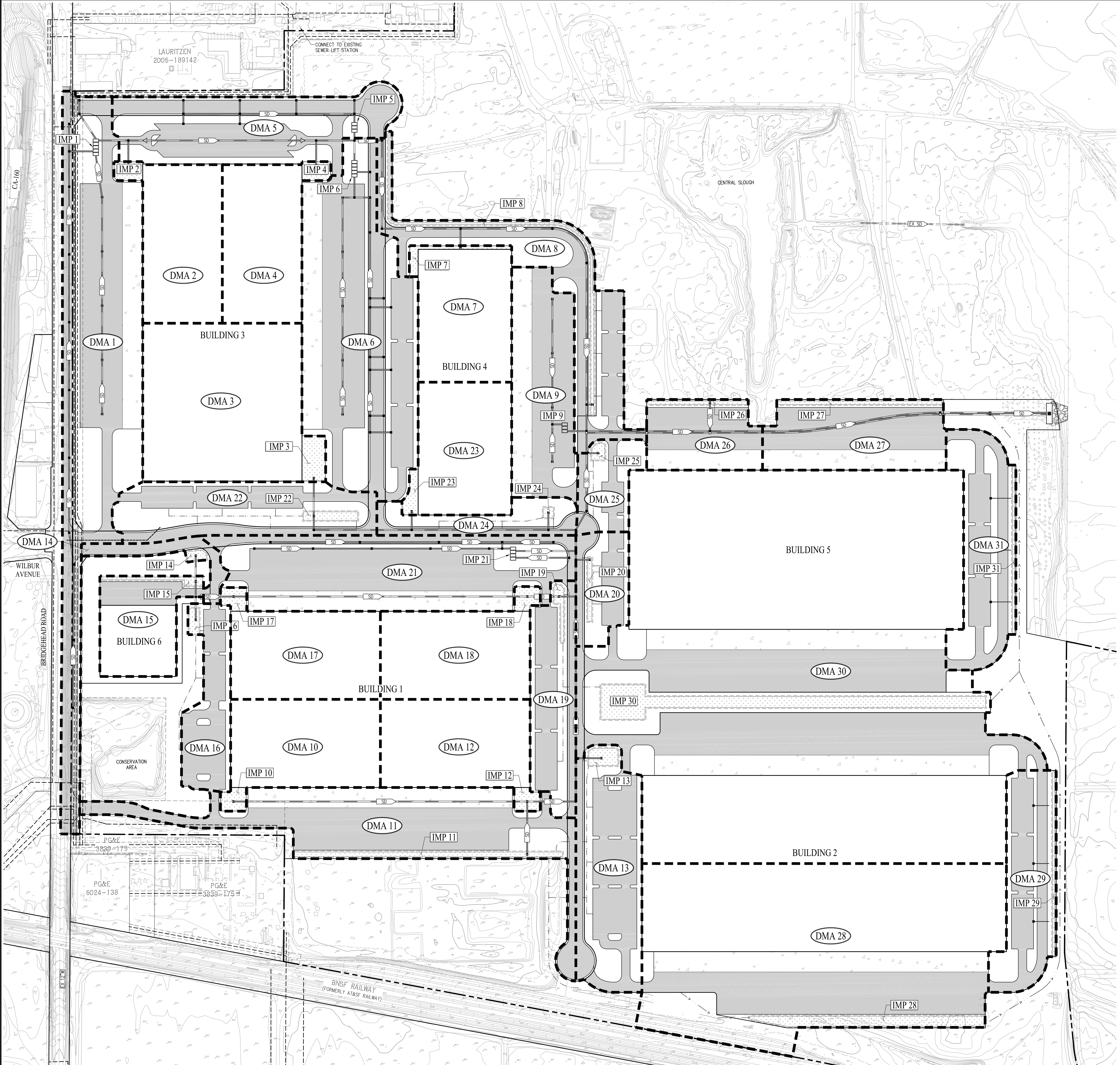
DATE: JUNE 21, 2019
JOB NO.: 1073-010

cbg
CIVIL ENGINEERS • SURVEYORS • PLANNERS

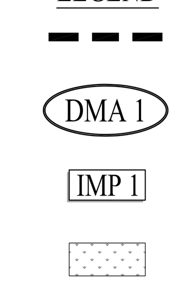
SAN RAMON • (925) 866-0322
SACRAMENTO • (916) 375-1877
WWW.CBANDG.COM

SHEET NO. 3 OF 7 SHEETS

FIGURE 2A. VESTING TENTATIVE MAP



LEGEND



- DRAINAGE MANAGEMENT AREA (DMA) BOUNDARY
- DMA 1 — DRAINAGE MANAGEMENT AREA (DMA) DESIGNATION
- IMP 1 — INTEGRATED MANAGEMENT PRACTICE (IMP) DESIGNATION
- LOW IMPACT DEVELOPMENT (LID) TREATMENT AREA (BIORETENTION OR FLOW-THROUGH PLANTER)

NOTES:

1. THE PROJECT IS DESIGNED TO COMPLY WITH THE REQUIREMENTS OUTLINED IN THE CONTRA COSTA CLEAN WATER PROGRAM'S (CCCWP) STORMWATER C.3 GUIDEBOOK, 7TH EDITION.
2. PER TABLE 3-8 OF THE CCCWP STORMWATER C.3 GUIDEBOOK, 7TH EDITION, THE PROJECT MAY USE UP TO 25% NON-LID TREATMENT DUE TO ITS LOCATION IN A PRIORITY DEVELOPMENT AREA.
3. THE PROJECT IS EXEMPT FROM HYDROMODIFICATION REQUIREMENTS DUE TO TIDAL INFLUENCE.
4. LID TREATMENT SHALL BE SIZED USING THE CCCWP IMP SIZING CALCULATOR.
5. MEDIA FILTER VAULTS SHALL BE SIZED PER THE METHOD OUTLINED IN APPENDIX E OF THE CCCWP STORMWATER C.3 GUIDEBOOK, 7TH EDITION..
6. THE SITE SOIL IS CLASSIFIED AS HYDROLOGIC SOIL GROUP A PER THE USDA WEB SOIL SURVEY.

LID TREATMENT AREAS

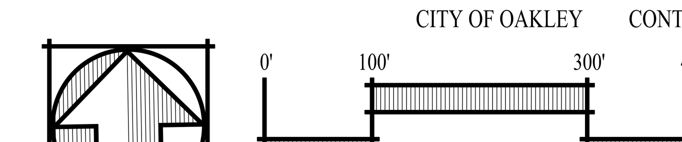
DMA NO.	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	TREATMENT AREA REQUIRED, 4% METHOD (SF)	TREATMENT TYPE	TREATMENT AREA PROVIDED (SF)	TOTAL DMA AREA (SF)
2	110,250	0	4,410	FLOW-THROUGH PLANTER	4,440	114,690
3	220,370	0	8,815	FLOW-THROUGH PLANTER	9,040	229,410
4	110,260	0	4,410	FLOW-THROUGH PLANTER	4,440	114,700
7	108,980	0	4,359	FLOW-THROUGH PLANTER	4,630	113,610
8	181,560	28,500	7,376	BIORETENTION	8,300	218,360
10	115,210	0	4,608	FLOW-THROUGH PLANTER	4,680	119,890
11	181,140	19,490	7,323	BIORETENTION	11,120	211,750
12	115,220	0	4,608	FLOW-THROUGH PLANTER	4,740	119,960
13	102,420	27,430	4,206	BIORETENTION	4,280	134,130
14	20,660	940	830	BIORETENTION	1,490	23,090
15	64,710	2,930	2,600	BIORETENTION	3,370	71,010
16	57,020	4,470	2,298	BIORETENTION	2,340	63,830
17	115,220	0	4,608	FLOW-THROUGH PLANTER	4,620	119,840
18	115,210	0	4,608	FLOW-THROUGH PLANTER	4,770	119,980
19	61,870	20,910	2,558	BIORETENTION	2,560	85,340
20	31,260	15,380	1,311	BIORETENTION	2,250	48,890
22	75,680	40,880	3,190	BIORETENTION	4,000	120,560
23	108,540	0	4,341	FLOW-THROUGH PLANTER	4,390	112,930
24	18,600	28,620	858	BIORETENTION	900	48,120
25	23,270	19,710	1,009	BIORETENTION	1,790	44,770
26	61,110	3,960	2,460	BIORETENTION	2,940	68,010
27	97,720	6,460	3,934	BIORETENTION	4,860	109,040
28	454,570	54,880	18,402	BIORETENTION	19,600	529,050
29	67,540	26,440	2,807	BIORETENTION	3,250	97,230
30	1,124,010	82,750	45,291	BIORETENTION	45,420	1,252,180
31	68,820	40,660	2,915	BIORETENTION	2,950	112,430
TOTAL	3,811,220	424,410	154,146	–	167,170	4,402,800

NON-LID TREATMENT AREAS

DMA NO.	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	TREATMENT TYPE	DESIGN FLOWRATE (GPM)	TOTAL DMA AREA (SF)
1	254,130	73,890	MEDIA FILTER VAULT	543	328,020
5	120,010	36,890	MEDIA FILTER VAULT	257	156,900
6	241,340	48,100	MEDIA FILTER VAULT	511	289,440
9	118,390	4,030	MEDIA FILTER VAULT	246	122,420
21	184,940	32,430	MEDIA FILTER VAULT	391	217,370
TOTAL	918,810	195,340	–	–	1,114,150

SUBDIVISION 9513
OAKLEY LOGISTICS CENTER
PRELIMINARY STORMWATER CONTROL PLAN
VESTING TENTATIVE MAP

CITY OF OAKLEY   CONTRA COSTA COUNTY   CALIFORNIA



SCALE: 1" = 100'

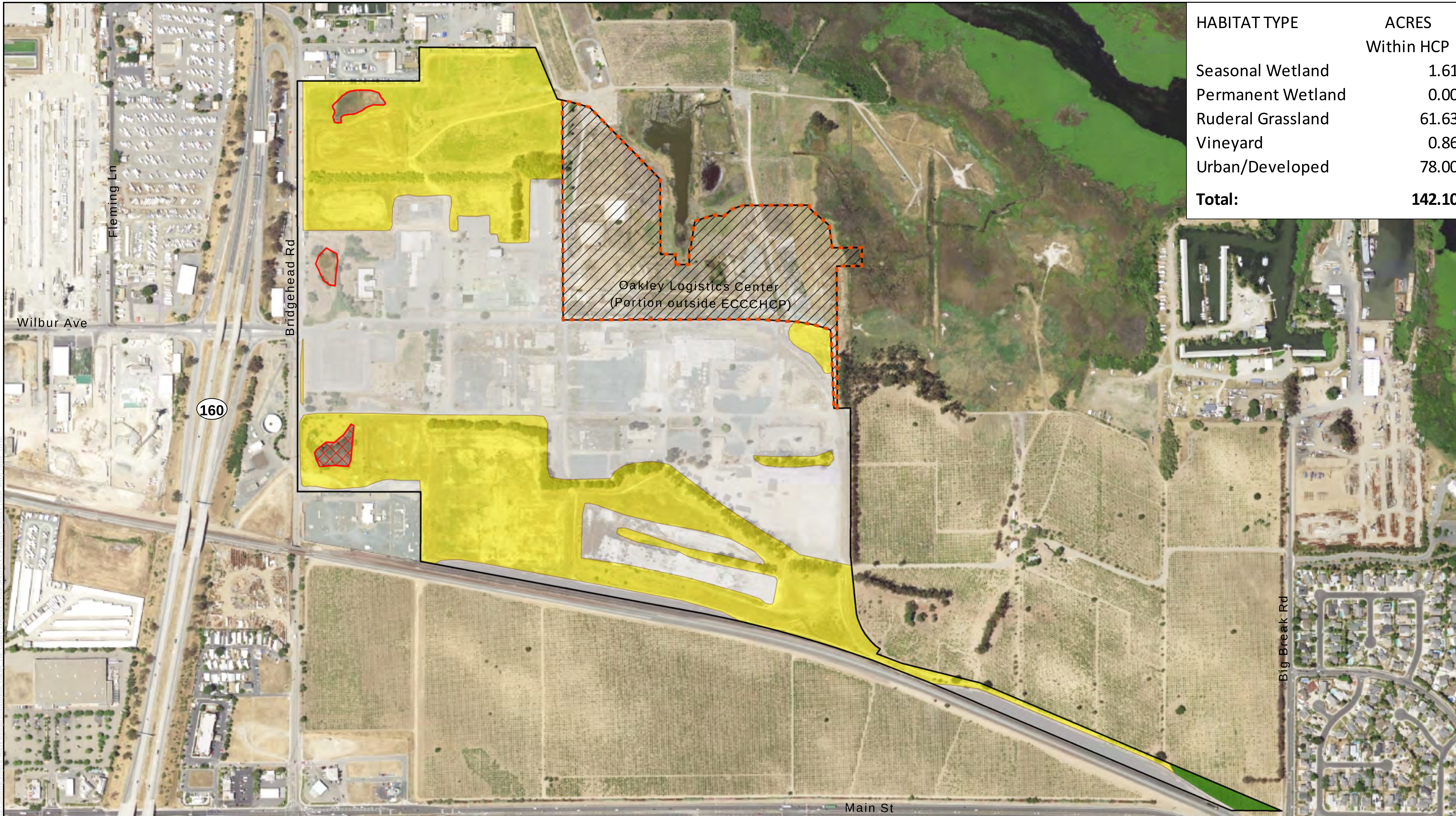
DATE: JUNE 21, 2019
JOB NO.: 1073-010

cbg
SAN RAMON • (925) 866-0322
SACRAMENTO • (916) 375-1877
WWW.CBANDG.COM
CIVIL ENGINEERS • SURVEYORS • PLANNERS

SHEET NO. 6 OF 7 SHEETS

6/21/2019 2:00 PM
G:\1073-010\ACAD\TM\TM06.DWG

FIGURE 2B. PRELIMINARY STORM WATER CONSTROL PLAN



HABITAT TYPE	ACRES Within HCP
Seasonal Wetland	1.61
Permanent Wetland	0.00
Ruderal Grassland	61.63
Vineyard	0.86
Urban/Developed	78.00
Total:	**142.10**

Figure 3

Moore Biological Consultants

Project Site (166.42 ac.)

Area Outside HCP Permit Boundary (24.32 ac.)

Seasonal Wetland

Seasonal Wetland (Preserved - CDFW Easement)

Ruderal Grassland

Urban/Developed

Vineyard

0 600 1,200

N W E S

Map Date: 07/16/2019
Aerial Source: NAIP (2017)

Field Verified Landcover Map

Oakley Logistics Center

Contra Costa County, CA

Urban area (foreground) and highly disturbed ruderal grassland (distance) in the central part of the site, looking north; 10/19/18.

Urban area and row of large eucalyptus trees in the south part of the site, looking west; 10/19/18. These trees provide suitable nesting habitat for Swainson's hawks and other raptors.

FIGURE 4a

MOORE BIOLOGICAL

REPRESENTATIVE PHOTOGRAPHS

Bridgehead Road, looking north from near the southwest corner of the site; 11/15/18. The project will involve off-site improvements along the east side of the road.

Location of ongoing soil remediation in the north part of the site, looking southwest; 11/02/18. A raptor stick nest was observed in one of the large trees in this area.

FIGURE 4b

MOORE BIOLOGICAL

REPRESENTATIVE PHOTOGRAPHS

Ruderal grassland in the south part of the site, looking west; 10/19/18. Historically, this area was a vineyard.

Wetland "E", looking west from the east edge of the wetland; 11/15/18. This wetland will not be impacted by the proposed project.

FIGURE 4c

MOORE BIOLOGICAL

REPRESENTATIVE PHOTOGRAPHS

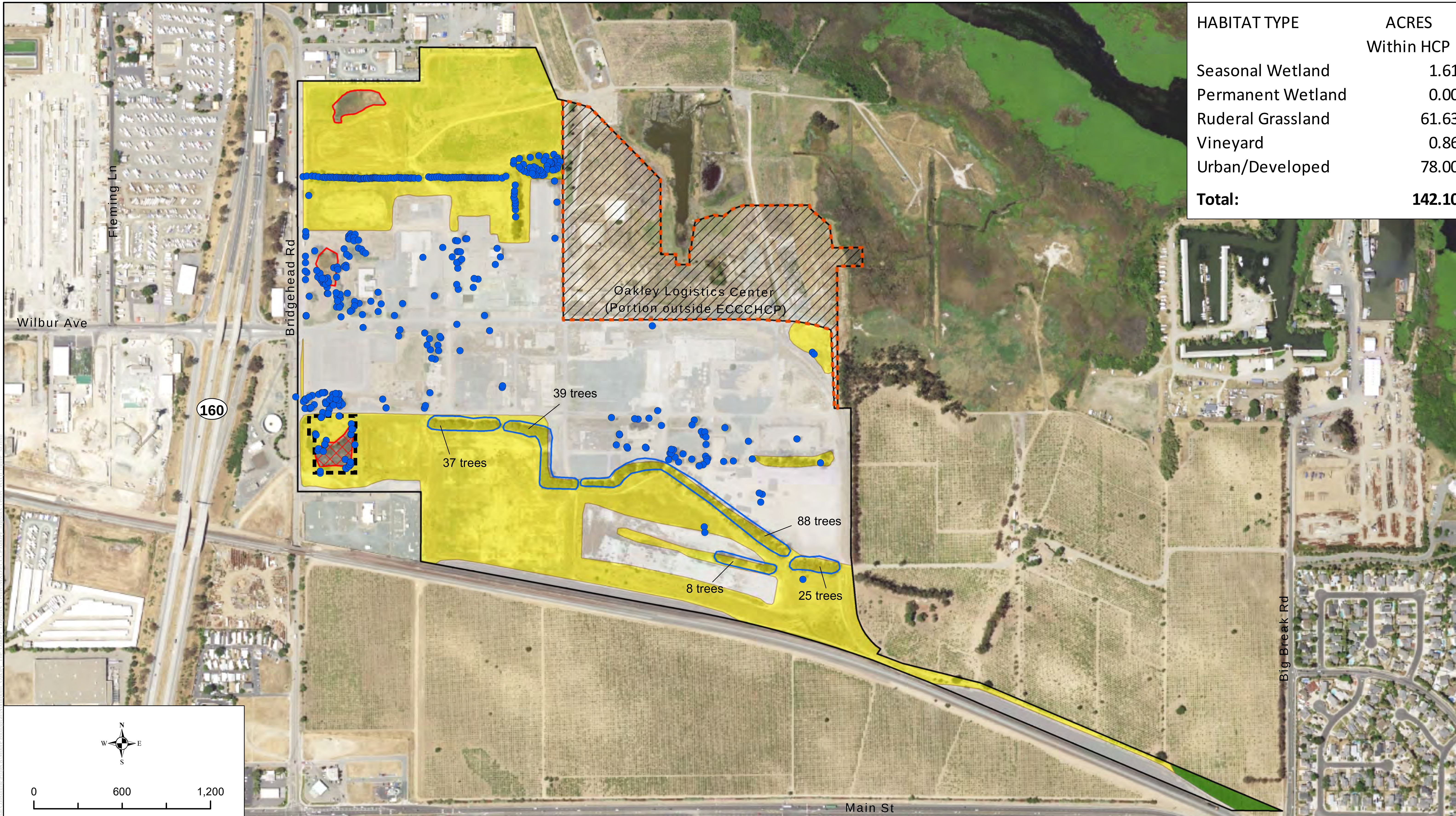
Southwest part of Wetland "D", looking northeast from the top of a soil stockpile south of the wetland; 11/15/18. This seasonal wetland will be filled.

Wetland "F", looking northwest from the southeast tip of the wetland; 11/15/18. This seasonal wetland will be filled.

FIGURE 4d

MOORE BIOLOGICAL

REPRESENTATIVE PHOTOGRAPHS



HABITAT TYPE	ACRES Within HCP
Seasonal Wetland	1.61
Permanent Wetland	0.00
Ruderal Grassland	61.63
Vineyard	0.86
Urban/Developed	78.00
Total:	**142.10**

Figure 5a

Moore Biological Consultants

Project Site (166.42 ac.)

Area Outside HCP Permit Boundary (24.32 ac.)

Limits of Disturbance

Seasonal Wetland

Seasonal Wetland (Preserved - CDFW Easement)

Ruderal Grassland; assumed habitat for western burrowing owl

Urban/Developed

Vineyard

Tree; potential nest site for Swainson's hawk, golden eagle, and white-tailed kite

Map Date: 07/16/2019
Aerial Source: NAIP (2017)

Planning Survey Species Habitat Map

Oakley Logistics Center

Contra Costa County, CA

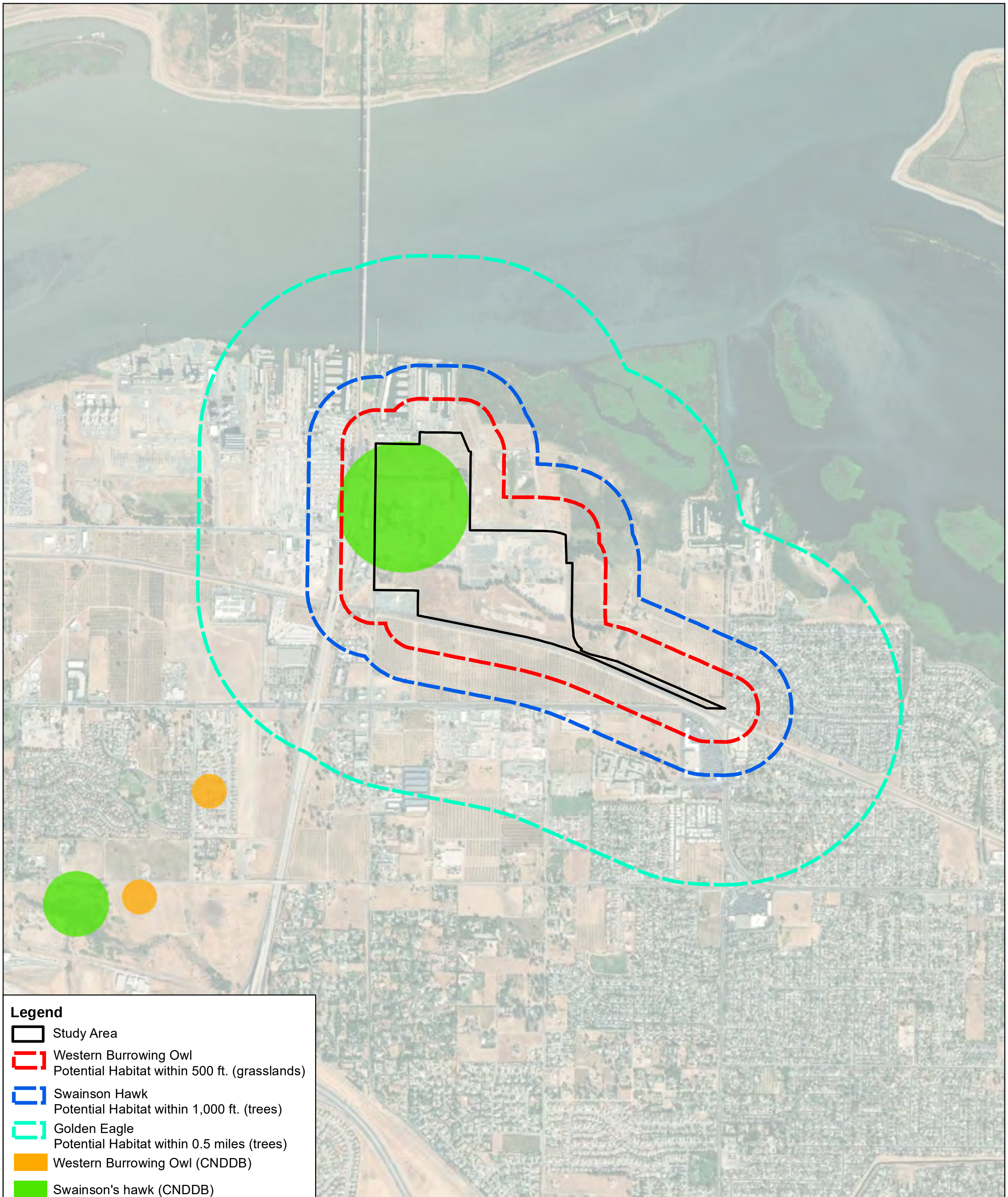


Figure 5b

Moore Biological Consultants

0 1,000 2,000

N W E S

Map Date: 05/22/2019
Aerial Photo: DigitalGlobe (2017)

Regional Species Habitat Map

Oakley Logistics Center

Contra Costa County, CA

C:\Users\owner\Documents\Fremont Environmental Consulting\Projects\Moore Biological\Northpoint_Oakley_The_Oakley_Logistics_Center\MXD\ECCCP\oakley_logistics_center_ecccp_figure_5b.mxd

ATTACHMENT C: PROJECT COMPLIANCE TO HCP CONDITIONS

OAKLEY LOGISTICS CENTER
Oakley, California

Project Compliance to HCP Conditions
July 2019

HCP/NCCP Conservation Measure 1.11. Avoid Direct Impacts on Extremely Rare Plants, Fully Protected Wildlife Species, or Covered Migratory Birds:

The potential for special-status plants to occur within the site is considered low, as described in Section III (10).

Species-specific pre-construction surveys, and if needed, monitoring and avoidance requirements for burrowing owl, Swainson's hawk, and golden eagle will be conducted as described in Section IV (2). There is no suitable habitat in the site for ringtail (*Bassariscus astutus*), a "fully protected species," per California Fish and Game Code Section 4700. Similarly, there is no suitable nesting habitat in the site for peregrine falcon (*Falco peregrinus*), a "fully protected species," per California Fish and Game Code Section 3511.

White-tailed kite (*Elanus caeruleus*), another "fully protected species," per California Fish and Game Code Section 3511 could potentially nest in trees in or near the site. Prior to any ground disturbance related to covered activities that occur during the nesting season (March 15-August 31), a qualified biologist will conduct a preconstruction survey no more than 1 month prior to construction to establish whether white-tailed kite is nesting in trees within or visible from the site. In the event active nests are found, the applicant shall notify the Implementing Entity and consult with CDFW for further guidance.

On-site grasslands and trees could be used by other species of nesting birds protected by the Migratory Bird Treaty Act. If possible, vegetation removal will occur outside of the general bird nesting season (February 1 through August 31). Alternately, a qualified biologist will conduct a preconstruction survey no more than 2 weeks prior to vegetation removal. In the event active nests are found, the applicant shall notify the Implementing Entity and consult with CDFW for further guidance.

HCP/NCCP Conservation Measure 2.12. Wetland, Pond, and Stream Avoidance and Minimization:

Potentially jurisdictional Waters of the U.S. and wetlands in the Study Area are being avoided to the maximum extent practicable. Seasonal Wetland E in the southwest part of the site will not be impacted by the project.

The other two seasonal wetlands in the Study Area (i.e., Seasonal Wetlands D and F) will be filled for construction of the project. Due to site topography and location in the interior parts of the proposed logistic center, impacts to these wetlands are unavoidable.

The following measures from pages 6-33 through 6-35 will be implemented avoid and minimize impacts of covered activities on wetlands:

- The project will comply with the guidelines in Conservation Measure 1.10 to minimize the effects of urban development on downstream hydrology, streams, and wetlands.
- All wetlands to be avoided by covered activities will be temporarily staked in the field by a qualified biologist.
- Personnel conducting ground-disturbing activities within or adjacent to wetlands will be trained by a qualified biologist in these avoidance and minimization measures and the permit obligations of project proponents working under the ECCCHCP.
- Trash generated during project construction will be promptly and properly removed from the site.
- No construction or maintenance vehicles will be refueled within 200 feet of wetlands unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.
- Appropriate erosion-control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) will be used on site to reduce siltation and runoff of contaminants into the wetlands. Filter fences and mesh will be of material that will not entrap reptiles and amphibians. Erosion control blankets shall be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians.
- Fiber rolls used for erosion control will be certified as free of noxious weed seed.
- Seed mixtures applied for erosion control will not contain invasive non native species, and will be composed of native species or sterile nonnative species.
- Herbicides will not be applied within or adjacent to on-site wetlands unless needed to control serious invasive plants. In this case, herbicides that have been approved for use by EPA in or adjacent to aquatic habitats may be used as long as label instructions are followed and applications avoid or minimize impacts on covered species and their habitats. Appropriate herbicides may be applied to the ruderal grassland within the buffer area during the dry season to control nonnative invasive species such as yellow star-thistle. Herbicide drift shall be minimized by applying the herbicide as close to the target area as possible.

<u>HCP/NCCP Conservation Measure 1.10. Maintain Hydrologic Conditions and Minimize Erosion</u>:

The project has been designed to maintain hydrologic conditions and minimize erosion. Site drainage will be cleansed and treated in a series of swales and shallow basins, and will then be conveyed to storm drain outfall that discharges to the delta

The project applicant will develop a Storm Water Pollution Prevention Plan (SWPPP) that will identify best management practices (BMPs) to be implemented to minimize the introduction of foreign material into waterbodies, control stormwater runoff, minimize erosion and sedimentation, and limit the amount of surface disturbance to the area.

Standard construction BMPs will be employed during construction to minimize the potential for erosion and off-site transport of fines. BMPs will include use of water trucks, appropriate compaction of soil, and installation of straw wattles, silt fences or other technologies along the perimeter of the site during construction, and stabilization of bare soils as appropriate with seeding, straw, and/or hydrolmulch.

ATTACHMENT D: FEE CALCULATOR

ECCC HCP/NCCP 2019 Fee Calculator Worksheet
Permanent Impacts

PROJECT APPLICANT: NorthPoint Development
PROJECT NAME: Oakley Logistics Center (Portion of the site within the boundaries of the ECCCHCP)
APN(s): 037-020-008 through 037-020-010 and 037-020-014 through 037-020-022
JURISDICTION: Oakley
DATE: July 16, 2019

DEVELOPMENT FEE

See appropriate ordinance or HCP/NCCP Figure 9-1 to determine Fee Zone

	ACREAGE PERMANENTLY IMPACTED (TABLE 1)[1]		2019 FEE PER ACRE (SUBJECT TO CHANGE)[2]		
Fee Zone 1	64.10	x	$16,757.65	=	$1,074,165.37
Fee Zone 2		x	$33,515.30	=	$0.00
Fee Zone 3		x	$8,379.53	=	$0.00
			Development Fee Total	=	**$1,074,165.37**

WETLAND MITIGATION FEE

	ACREAGE PERMANENTLY IMPACTED (TABLE 1)[1]		2019 FEE PER ACRE (SUBJECT TO CHANGE)[2]		
Riparian woodland / scrub		x	$82,222.77	=	$0.00
Perennial Wetland		x	$112,515.38	=	$0.00
Seasonal Wetland	0.984	x	$243,783.31	=	$239,882.78
Alkali Wetland		x	$230,800.77	=	$0.00
Ponds		x	$122,612.91	=	$0.00
Aquatic (open water)		x	$62,027.71	=	$0.00
Slough / Channel		x	$139,922.97	=	$0.00

STREAMS	LINEAR FEET PERMANENTLY IMPACTED (TABLE 1)		2019 FEE PER LINEAR FT (SUBJECT TO CHANGE)[2]		
Streams 25 feet wide or less		x	$670.34	=	$0.00
Streams greater than 25 feet wide		x	$1,009.75	=	$0.00
			Wetland Mitigation Fee Total	=	**$239,882.78**

FEE REDUCTION[3]

Development Fee reduction for land in lieu of fee	=	
Development Fee reduction (up to 33%) for permanent assessments	=	
Wetland Mitigation Fee reduction for wetland restoration/creation performed by applicant	=	
Reduction Total	=	**$0.00**

FINAL FEE CALCULATION

Development Fee Total		$1,074,165.37
Wetland Mitigation Fee Total	+	$239,882.78
Fee Subtotal	=	**$1,314,048.14**
Contribution to Recovery	+	
TOTAL AMOUNT TO BE PAID	=	**$1,314,048.14**

[1] City/County planning staff will consult the land cover map in the Final HCP/NCCP and will reduce the acreage subject to the Development Fee by the acreage of the subject property that was identified in the Final HCP/NCCP as urban, turf, landfill or aqueduct land cover.

[2] Development Fees are adjusted annually according to a formula that includes both a Home Price Index (HPI) and a Consumer Price Index (CPI). The Wetland Mitigation Fees are adjusted according to a CPI. The Conservancy conducted the 2013 periodic fee audit required by the HCP/NCCP. Action by the County and participating cities is pending, which could result in adjustments to some or all fees in 2019.

[3] Fee reductions must be reviewed and approved by the Conservancy.

Template date: March 12, 2019

ATTACHMENT E: WETLAND DELINEATION

Oakley Logistics Center Wetland Delineation Map (Southwest Portion of the Chemours Oakley Remediation Site)

“Chemours Oakley Remediation Project” Updated Wetland Delineation and Request for Preliminary Jurisdictional Determination (SPK-2018-00848)

POTENTIAL WATERS OF THE U.S. AND WETLANDS

Feature	Label	Area (sf)	Area (acre)
Seasonal Wetland (HCP Permit Area)	SW-D	26,678	0.612
	SW-E	27,210	0.625
	SW-F	16,166	0.371
	subtotal	*70,054*	*1.608*
Seasonal Wetland (Outside HCP Permit Area)	SW-C	8,573	0.197
Permanent Wetland (Outside HCP Permit Area)	PW-A	9,006	0.207
Total HCP Permit Area:		**70,054**	**1.608**
Total Outside HCP Permit Area:		**17,579**	**0.404**
TOTAL:		***87,633***	***2.012***

Potential Waters of the U.S. and Wetlands

Oakley Logistics Center

Contra Costa County, CA

Map Date: 07/16/2019

Project Site (166.42 ac.)

Area Outside HCP Permit Boundary (24.32 ac.)

N

0 1,000 2,000

Data Disclaimer:
The delineation has been done in accordance with the 1987 Wetlands Delineation Manual, US Army Corps of Engineers and the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. The boundaries and jurisdictional status of all waters shown on this map are preliminary and subject to verification by the U.S. Army Corps of Engineers.

Aerial Source: NAIP (May 2017)

Note: Wetland boundaries provided by Ascent Environmental (2018) (SPK-2018-00848).

Moore Biological Consultants

December 3, 2018

Ramon Aberasturi
Project Manager
Sacramento Delta Regulatory Section
U.S. Army Corps of Engineers Sacramento District Regulatory Division
1325 J Street, Room 1350
Sacramento, CA, 95814

Subject: Request for Preliminary Jurisdictional Determination for the Chemours Oakley Remediation Project (SPK-2018-00848)

Dear Mr. Aberasturi:

Per the guidance you provided following our preapplication meeting on October 4, 2018, we are sending a request for preliminary jurisdictional determination (PJD) for all aquatic resources on the Chemours property located at 6000 Bridgehead Road, Oakley, California, in Section 15, Township 2 North, Range 2 East in Contra Costa County. The project site contains six aquatic resource features delineated in 2006, 2007, 2008, and 2016 in accordance with standard United States Army Corps of Engineers (USACE) procedures. The delineation conducted in 2016 focused on wetlands A, B, and C. On November 15, 2018, Moore Biological Consultants conducted a field assessment of wetlands D, E, and F (Attachment A) and found the boundary of Wetland D to have changed in size (increased from 0.38 acre to 0.61 acre) and shape from what was previously delineated. The current boundaries of all the aquatic resources on the property are shown on the maps provided in Attachment B and Table 1 provides the name, Cowardin classification code, and acreage of each aquatic resource on the property. A copy of the preapplication meeting notes are provided in Attachment C.

Table 1 Aquatic resources on the Chemours Oakley Property

Resource ID	Resource Name	Cowardin Code	Size (acres)*
Wetland A	Little Break	PEM Wetland R1AB2/4 Open Water	103.67 64.19
Wetland B	Central Slough	PEM/POW	6.50
Wetland C	Red Pipe Area	PSS	0.20
Wetland D	Fallow Vineyard	PEM	0.61
Wetland E	Mitigation Area	PEM	0.62
Wetland F	Administrative Area	PEM	0.37
		Total	176.15

*Note that the minor change in acreage of Wetland A from the 2016 delineation report (168.23 acres) to current (167.86 acres) is because the 2016 report included some areas of Wetland A that are outside of the property boundary.

This information supplements and updates information provided in our previous request for PJD submitted in August 2018. A copy of the signed jurisdictional request form is provided in Attachment C. Please contact me right away if you have any questions about this request or the supplemental information contained herein.

Sincerely,

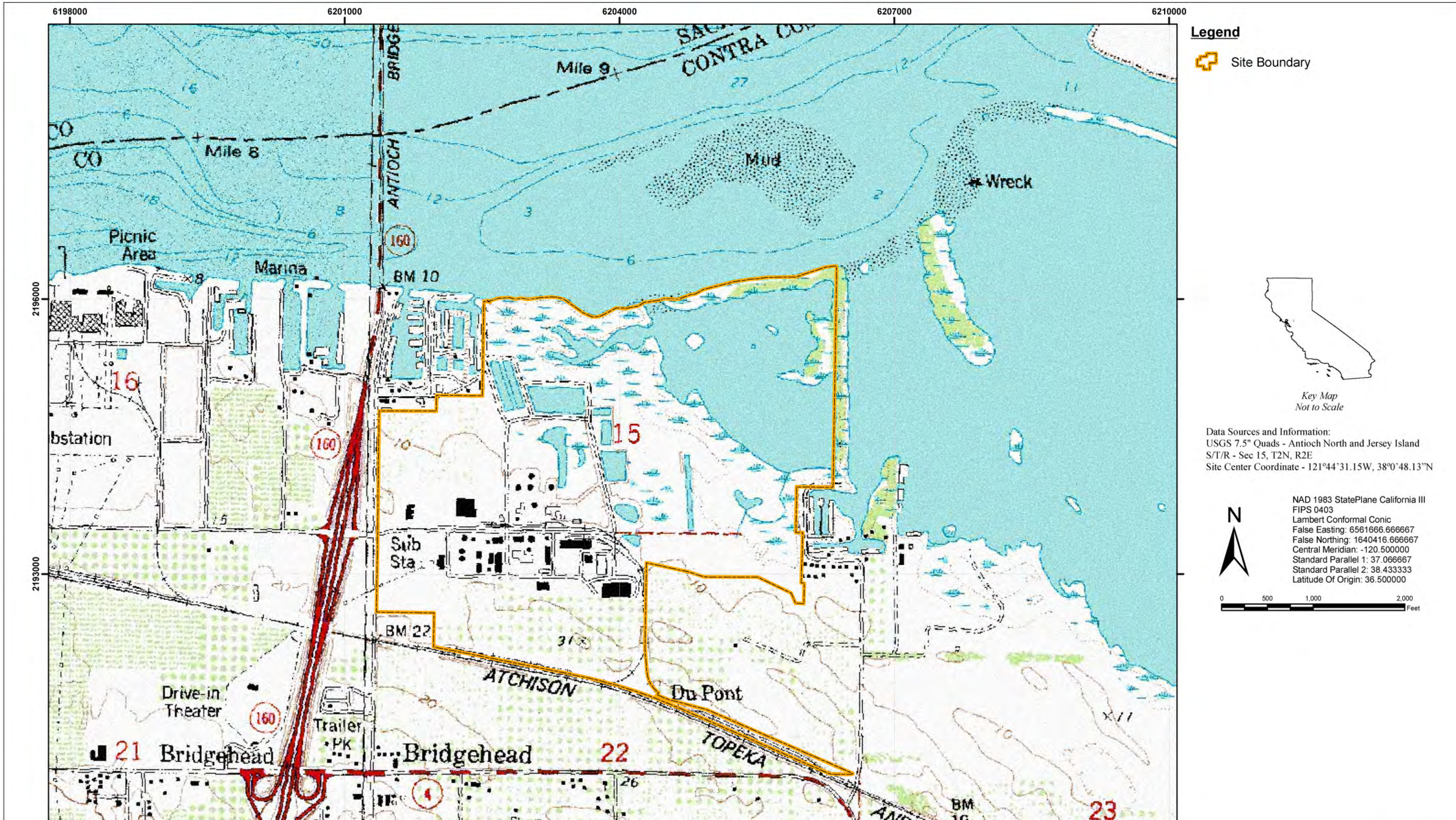
Tammie Beyerl

Tammie Beyerl
Senior Biologist

cc: Troy Bussey
Linda Leeman

Attachments:

A 2018 Delineation of Wetland D Memo
B Updated Delineation Maps
C Preapplication Meeting Notes
D Signed Request for Jurisdictional Determination Form



Source: Image prepared by Dupont and URS Diamond in December 2006

X17010099.03 001

Site Map

Attachment A

2018 Delineation of Wetland D Memo

MOORE BIOLOGICAL CONSULTANTS

November 20, 2018

Mr. Troy Bussey, Jr., P.E.

PIONEER Technologies Corporation

5205 Corporate Ctr. Ct. SE, Ste. A

Olympia, WA 98503-5901

SUBJECT: "CHEMOURS OAKLEY SITE", OAKLEY, CALIFORNIA: UPDATED DELINEATION OF "WETLAND D" (SPK-2007-01861)

Dear Troy:

Thank you for asking Moore Biological Consultants to assist with this project in Oakley, Contra Costa County (see Site Map in Attachment A). We understand Chemours has submitted an updated wetland delineation for verification and will be applying for a Clean Water Act Section 404 permit related to upcoming remediation activities at the site. The updated wetland delineation was focused on Wetlands "A", "B" and "C", in the heart of the remediation activities.

Parson's 2016 Wetland Delineation only cursorily addressed Wetlands "D", "E" and "F", which were verified by Corps as non-jurisdictional in 2008. The 2016 delineation relied upon the 2008 boundaries of wetlands "D", "E" and "F". To expedite re-verification, we understand there has been a recent decision to treat Wetlands "D", "E" and "F" as jurisdictional under the Corps' "Preliminary Jurisdictional Determination" (PJD) process.

At your request, we conducted a field assessment of Wetlands "D", "E" and "F" on November 15, 2018. With the Parson's 2016 wetland polygons in our Trimble GeoXH Global Positioning System (GPS) unit, we visited each wetland. We found Wetland "D" to be notably different in size and shape than that delineated in 2008 (Attachment B). The wetland has increased in size from 0.38 acres to 0.61 acres. The west edge of the wetland remains comparable to that delineated

10330 Twin Cities Rd., Ste. 30 • Galt, CA 95632
(209) 745-1159 • Fax (209) 745-7513
e-mail: moorebio@softcom.net

in 2008, but the east part of the wetland has expanded. Perennial ryegrass (*Festuca perennis*), seaside barley (*Hordeum marinum*), and annual rabbit's-foot grass *(Polypogon monspeliensis)* are dominant species in the eastern portion of the wetland, with an estimated 90% cover being comprised of these hyrdrophytic species.

The enlargement of Wetland "D" over the past decade appears related to grading and stockpiling soil on the south side of the wetland starting in the summer of 2011, and grading on the north side of the wetland starting in the summer of 2012. Google Earth aerial photographs from 2011 to 2018 chronicle these activities. By late-2015, a berm encircling Wetland "D" is apparent on aerial photographs; this berm remains today and is about 1 foot tall (see photographs in Attachment B).

In contrast, we determined the 2008 boundaries of Wetlands "E" and "F" remain valid. At several locations around each feature, the wetland boundary was identified by relatively abrupt transitions in vegetation composition, soils, and hydrology that aligned very closely (i.e., within 1-2 feet) with the previous delineation. Review of Google Earth aerial photographs from 2008 to 2018 confirm there have been no changes in land use on lands surrounding Wetlands "E" and "F". The locations of our GPS confirmation points around each of these wetlands and a few photographs are included in Attachment C.

We hope this information is helpful. Please call me at (209) 745-1159 with any questions.

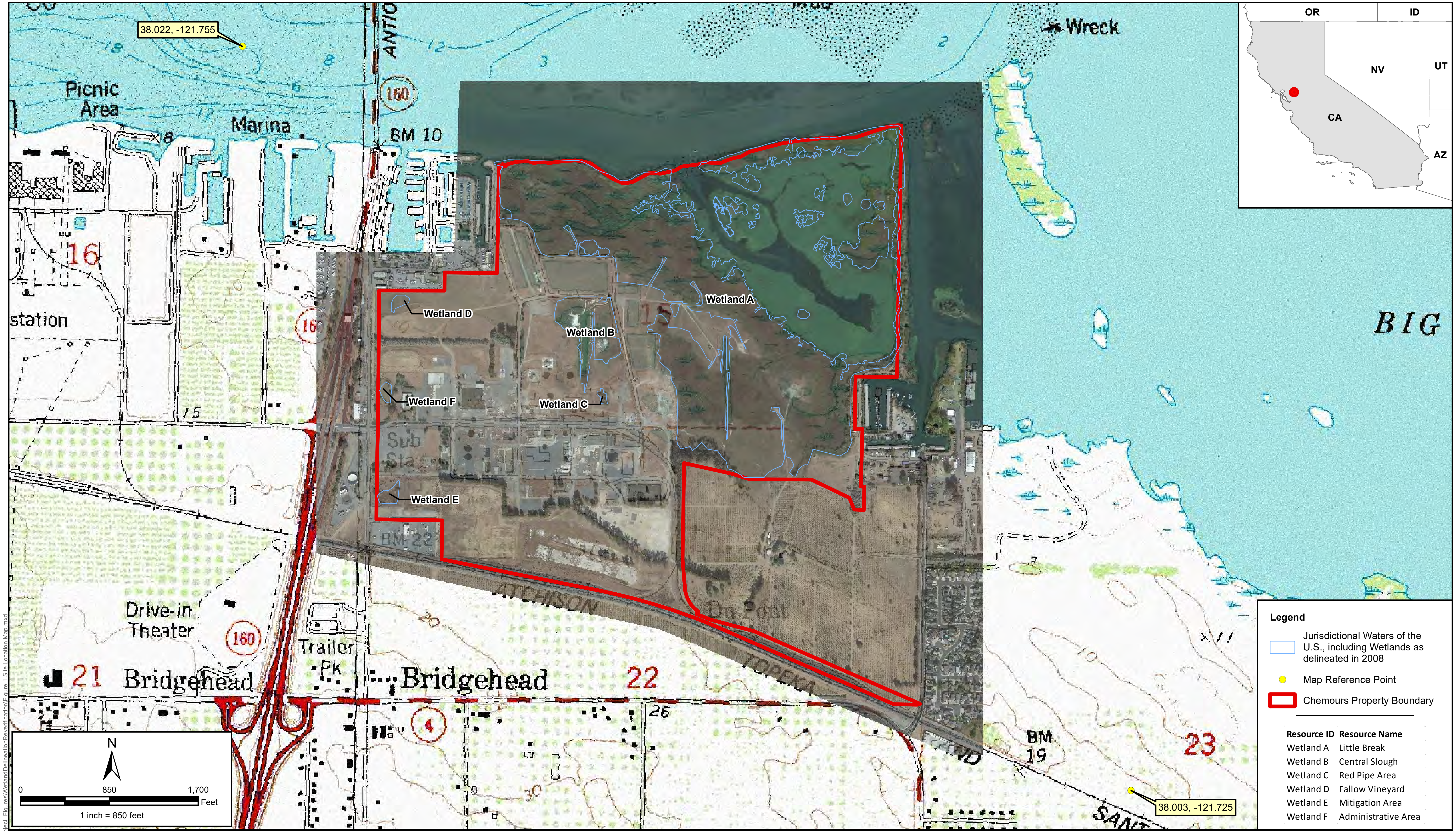
Sincerely,

Diane S. Moore, M.S.

Principal Biologist

Attachment A

Site Map



PARSONS

Parsons Environment & Infrastructure

2121 North California Boulevard
Suite 500
Walnut Creek, California 94596

Title:

Site Location Map
Wetland Delineation Reverification
Chemours Oakley Site
Oakley, Contra Costa County, California

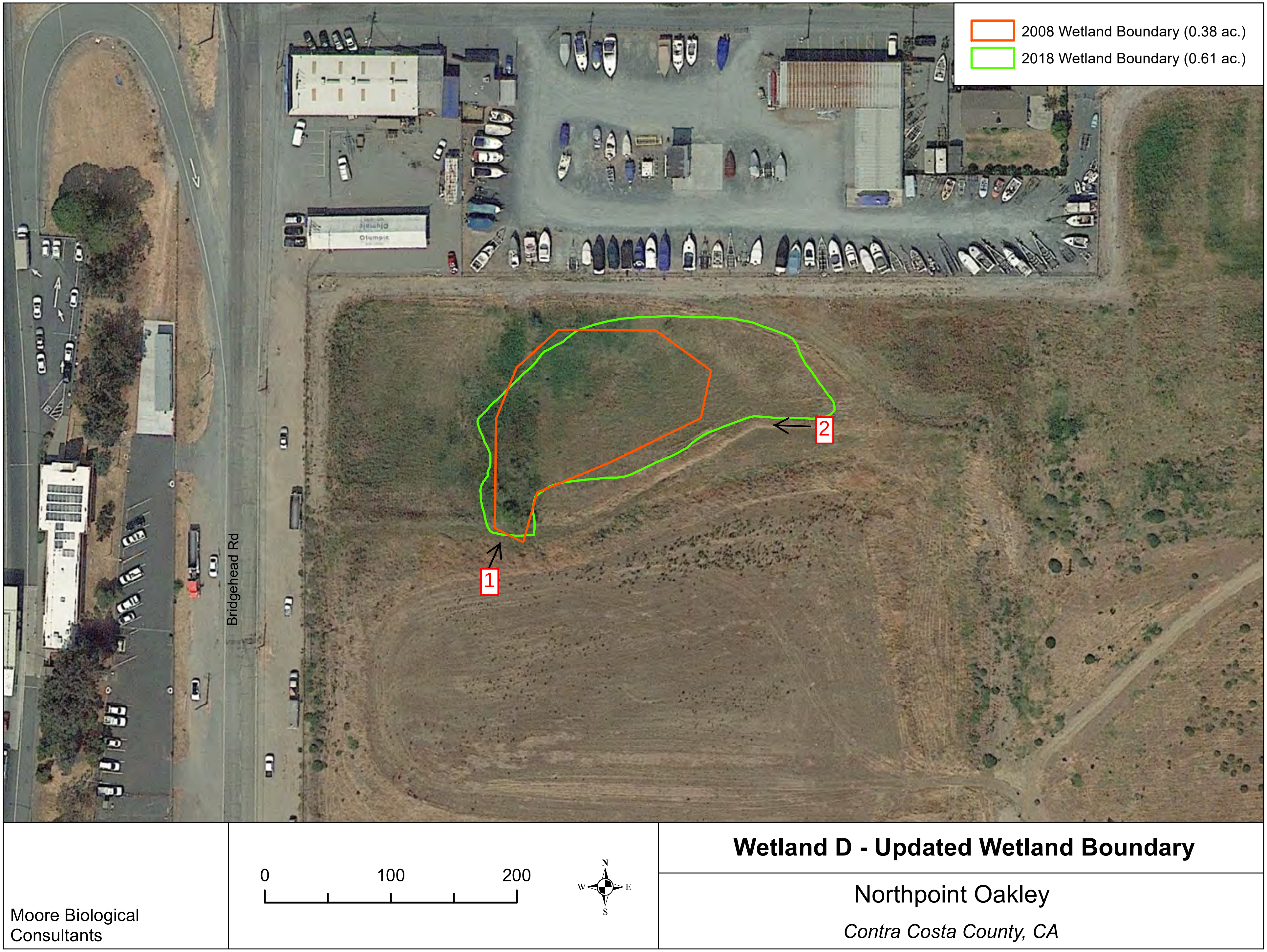
USGS Quad: Jersey Island
Meridian: Mount Diablo
Township: 2N
Range: 2E
Section: 15 & 22

Aerial Source: Google Earth (2015)
Coordinate System: NAD 1983 Stateplane California III Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Scale: 1 inch = 775 feet
Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016.

Drawn/Approved: PS/DB	File Project Number: 449324/504689
Create Date: 7/19/2016	Figure Number: 1
Revised Date: 11/9/2016	
File Name: Figure 1 Site Location Map	

Attachment B

Wetland “D” Map and Photographs



Wetland D - Updated Wetland Boundary

Northpoint Oakley

Contra Costa County, CA

Moore Biological Consultants

Map Date: 11/16/2018
Aerial Source: Google Earth (08/2017)

1. Southwest part of Wetland "D", looking northeast from the top of a soil stockpile south of the wetland; 11/15/18.

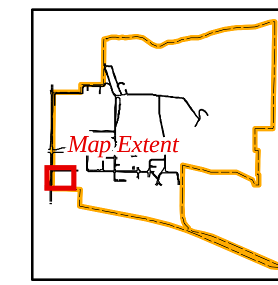
2. Constructed berm along the south side of Wetland "D", looking west; 11/15/18. Grading in adjacent areas the past decade has led to the wetland increasing in size.

Attachment C

Wetlands “E” and “F” Maps and Photographs

Legend

- Confirmation Point
- Wetland Boundary Point
- Photograph Location & Direction
- Site Boundary
- Potential Jurisdictional Waters of the U.S., Including Wetlands
- Vegetative Communities S - Schoenoplectus
- GPS Confirmation Point (11/15/18)
- 2018 Photo Location



Key Map
Not to Scale

N

NAD 1983 StatePlane California III
FIPS 0403
Lambert Conformal Conic
False Easting: 6561666.666667
False Northing: 1640416.666667
Central Meridian: -120.500000
Standard Parallel 1: 37.066667
Standard Parallel 2: 38.433333
Latitude Of Origin: 36.500000

0 25 50 100 Feet

1 inch equals 50 feet

Figure 4-7
Wetland E - Mitigation Area
DuPont Oakley Site
Oakley, Contra Costa County, California

CORPORATE REMEDIATION GROUP
An Alliance between
DuPont and URS Diamond

140 Cypress Station Drive, Suite 140
Houston, Texas 77090

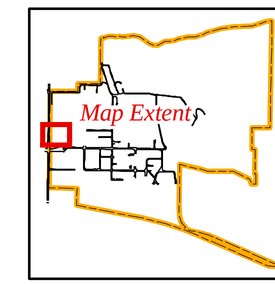
Project: Oakley Wetlands Delineation	Wetlands Surveyor & Delineation Team - Bruce Bayne and Emily Phelan
Prepared By: BAB	Checked By: BB/EP
Date: 11-21-2006	Map: Q:\GIS_Data\DUPONT\OAKLEY\Projects\Report\Figure 4-7.mxd

3. Wetland "E", looking west from the east edge of the wetland; 11/15/18. The 2008 wetland boundary was confirmed in the field.

4. Wetland "E", looking southwest from the northeast tip of the wetland; 11/15/18.

Legend

- Confirmation Point
- Wetland Boundary Point
- Photograph Location & Direction
- Site Boundary
- Potential Jurisdictional Waters of the U.S., Including Wetlands
- Vegetative Communities
  LH - Lythrum
- GPS Confirmation Point (11/15/18)
- 2018 Photo Location



Key Map
Not to Scale

N

NAD 1983 StatePlane California III
FIPS 0403
Lambert Conformal Conic
False Easting: 6561666.666667
False Northing: 1640416.666667
Central Meridian: -120.500000
Standard Parallel 1: 37.066667
Standard Parallel 2: 38.433333
Latitude Of Origin: 36.500000

0 25 50 100 Feet

1 inch equals 50 feet

Figure 4-8
Wetland F - Administration Area
DuPont Oakley Site
Oakley, Contra Costa County, California

CORPORATE REMEDIATION GROUP
An Alliance between
DuPont and URS Diamond

140 Cypress Station Drive, Suite 140
Houston, Texas 77090

Project: Oakley Wetlands Delineation	Wetlands Surveyor & Delineation Team - Bruce Bayne and Emily Phelan
Prepared By: BAB	Checked By: BB/EP
Date: 11-21-2006	Map: Q:\GIS_Data\DUPONT\OAKLEY\Projects\Report\Figure 4-8.mxd

5. Wetland "F", looking northwest from the southeast tip of the wetland; 11/15/18. The 2008 wetland boundary was confirmed in the field.

Attachment B

Updated Delineation Maps

ID	ACRES
Wetland	
Wetland A	103.67
Wetland B	6.49
Wetland C	0.20
Wetland D	0.61
Wetland E	0.62
Wetland F	0.37
Waters	
Open Water A	64.19
Total	**176.15**

Coordinate System: NAD 1983 Stateplane California III Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Scale: 1 inch = 250 feet
Source: data provided by Moore Biological Consultants in 2018
Delineated by Parson in 2008 and Moore Biological Consultants in 2018
Map prepared on November 30, 2018

Wetland Delineation Map (1 of 6)

Legend

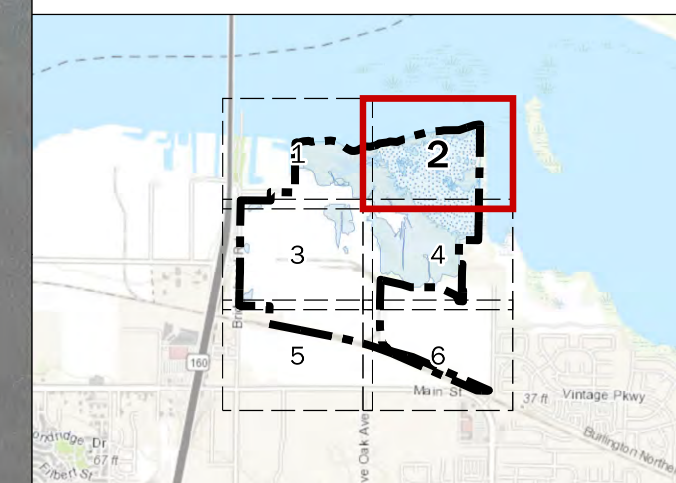
Study Area (377.79 ac)

Aquatic Resources

Wetland (111.96 ac)

Open Water (64.19 ac)

ID	ACRES
Wetland	
Wetland A	103.67
Wetland B	6.49
Wetland C	0.20
Wetland D	0.61
Wetland E	0.62
Wetland F	0.37
Waters	
Open Water A	64.19
Total	**176.15**



Coordinate System: NAD 1983 Stateplane California III Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Scale: 1 inch = 250 feet

Source: data provided by Moore Biological Consultants in 2018

Delineated by Parson in 2008 and Moore Biological Consultants in 2018

Map prepared on November 30, 2018

0 125 250 Feet

2018/06/28 Google Earth Pro Imagery

G17010099 03 001b

Wetland Delineation Map (2 of 6)

ID	ACRES
Wetland	
Wetland A	103.67
Wetland B	6.49
Wetland C	0.20
Wetland D	0.61
Wetland E	0.62
Wetland F	0.37
Waters	
Open Water A	64.19
Total	**176.15**

Coordinate System: NAD 1983 Stateplane California III Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Scale: 1 inch = 250 feet
Source: data provided by Moore Biological Consultants in 2018
Delineated by Parson in 2008 and Moore Biological Consultants in 2018
Map prepared on November 30, 2018

Wetland Delineation Map (3 of 6)

ASCENT ENVIRONMENTAL

Legend

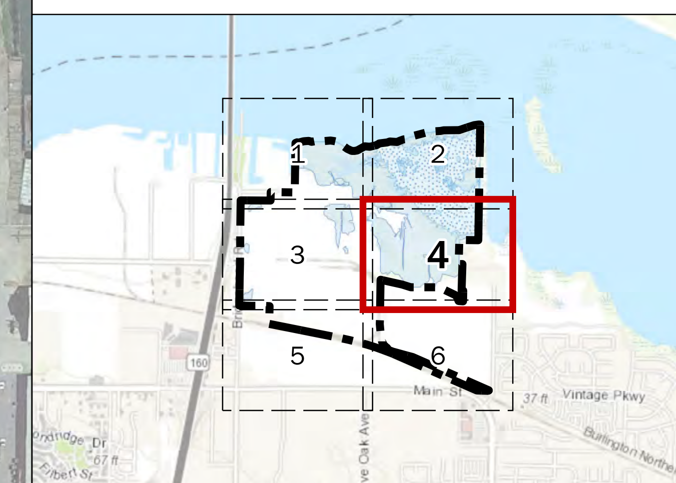
Study Area (377.79 ac)

Aquatic Resources

Wetland (111.96 ac)

Open Water (64.19 ac)

ID	ACRES
Wetland	
Wetland A	103.67
Wetland B	6.49
Wetland C	0.20
Wetland D	0.61
Wetland E	0.62
Wetland F	0.37
Waters	
Open Water A	64.19
Total	**176.15**



Coordinate System: NAD 1983 Stateplane California III Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Scale: 1 inch = 250 feet
Source: data provided by Moore Biological Consultants in 2018
Delineated by Parson in 2008 and Moore Biological Consultants in 2018
Map prepared on November 30, 2018

0 125 250 Feet

2018/06/28 Google Earth Pro Imagery

G17010099 03 001d

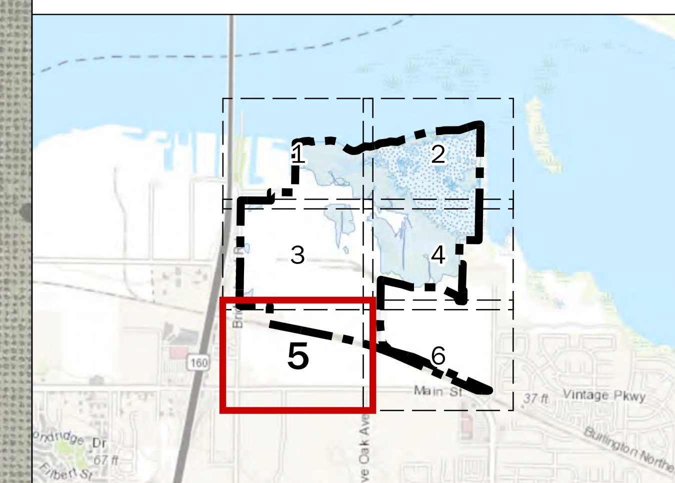
Wetland Delineation Map (4 of 6)

ASCENT ENVIRONMENTAL

Legend

Study Area (377.79 ac)

ID	ACRES
Wetland	
Wetland A	103.67
Wetland B	6.49
Wetland C	0.20
Wetland D	0.61
Wetland E	0.62
Wetland F	0.37
Waters	
Open Water A	64.19
Total	**176.15**



Coordinate System: NAD 1983 Stateplane California III Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Scale: 1 inch = 250 feet
Source: data provided by Moore Biological Consultants in 2018
Delineated by Parson in 2008 and Moore Biological Consultants in 2018
Map prepared on November 30, 2018

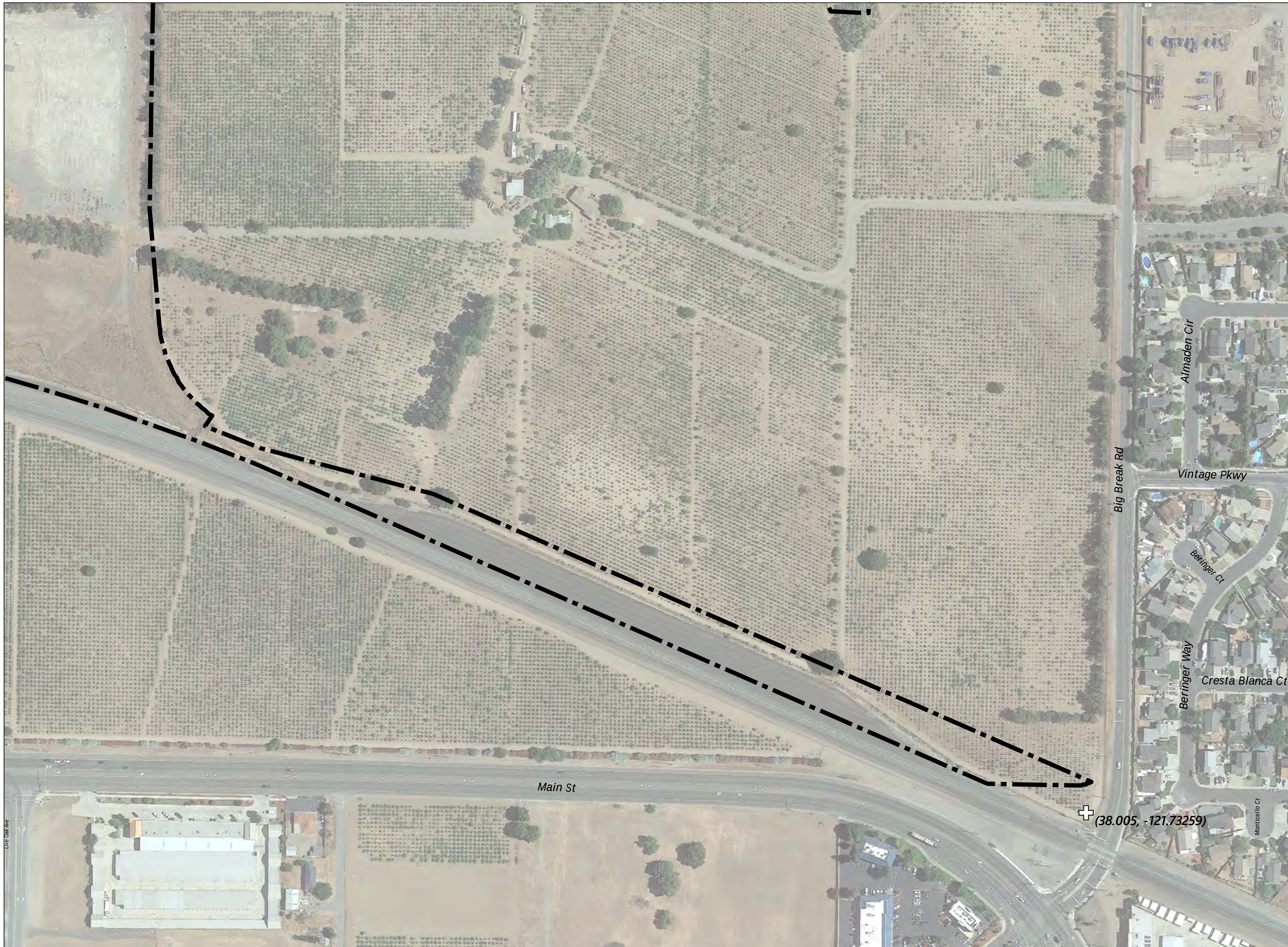
0 125 250 Feet

2018/06/28 Google Earth Pro Imagery

G17010099 03 001e

Wetland Delineation Map (5 of 6)

ASCENT ENVIRONMENTAL

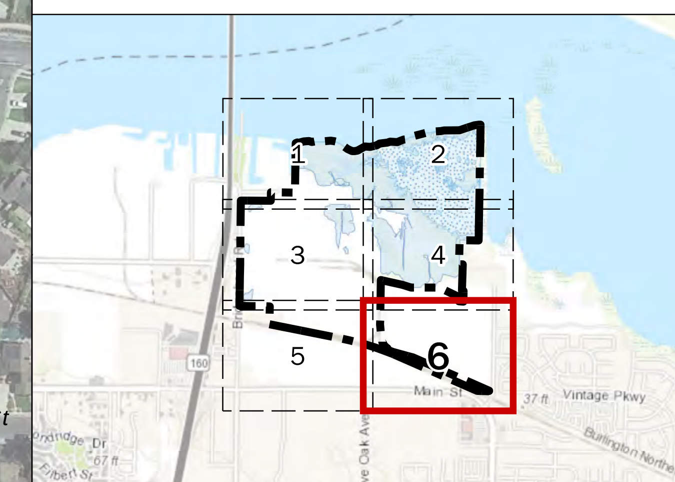


Legend

Map Reference Point

Study Area (377.79 ac)

ID	ACRES
Wetland	
Wetland A	103.67
Wetland B	6.49
Wetland C	0.20
Wetland D	0.61
Wetland E	0.62
Wetland F	0.37
Waters	
Open Water A	64.19
Total	**176.15**



Coordinate System: NAD 1983 Stateplane California III Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Scale: 1 inch = 250 feet
Source: data provided by Moore Biological Consultants in 2018
Delineated by Parson in 2008 and Moore Biological Consultants in 2018
Map prepared on November 30, 2018

0 125 250 Feet

2018/06/28 Google Earth Pro Imagery

G17010099 03 001f

Wetland Delineation Map (6 of 6)

ASCENT ENVIRONMENTAL

Attachment C

Preapplication Meeting Notes

Preapplication Meeting Notes for Chemours Oakley Remediation Project (SPK-2018-00848)

Meeting Date: October 4, 2018

Attendees:

Linda Leeman – Ascent
Tammie Beyerl – Ascent
Ramon Aberasturi – USACE
Nick White – Central Valley Regional Water Quality Control Board

On the Phone:

Troy Bussey – Pioneer
Elden Holder – USFWS
Ted Thayer – Ascent

Project Overview – project description, purpose and need

Troy – Gave the background of the previous permitted activity regarding the ground water remediation and emphasized the small nature of the disturbance and the human made nature of the Central Slough and the Central Slough Channel, the need for removing the contaminated sediment, and the inclusion of avoidance and mitigation measures.

Ramon - Asked about reuse on site of water from dewatering from upland wells, and whether a NWP 16 would be needed.

Troy - Explained that the water from ground water remediation would be reinjected back underground not on the surface; therefore, a NWP16 would not be needed because there is no discharge.

Ramon – Advised a review of NWP 38 decision document and look for the word "stabilize". Describe how water off the dredged soil would be stabilized. Also review all regional conditions for fill. Use language from the decision document when completing the PCN.

Tammie/Troy – Explained that the dredge material will not be placed back in waters of the U.S. and that the dredge area would not be re-filled. Also dredging would only be 6 to 18 inches of sediment. This resolved confusion about where digging to 6 feet and fill with clean soil would occur (in uplands).

Ramon - Narrow the scope of the description of the dredging activities. Asked about where the water that would be in the dredged material would go. Recommended discussing "stabilizing" the water as described in the NWP 38 decision document.

Ramon gave additional direction in follow-up email: Please narrow the scope of the PCN you will be submitting, e.g., the project description in your September 25, 2018 memo describes upland soil excavation activities, excavating 6-feet below grade, dewatering and backfilling excavations in one short paragraph. Please clarify the dewatering activities associated with the excavations in waters of the U.S.

Endangered Species Act

Ramon – There is habitat for delta smelt and giant garter snake (GGS) so informal consultation would be required. The USACE would do a "not likely to adversely affect" determination and seek a letter of concurrence from USFWS. Reference programmatic consultation document for GGS in PCN and supporting materials.

Linda - Asked if a BA would be needed and Ramon indicated that the existing technical reports would suffice.

Ramon - Indicated that work within open water means a steelhead effect and a letter of concurrence would be needed from NOAA fisheries for a "not likely to adversely affect" determination.

Linda - Asked for information on previous consultation.

Troy - Indicated that Parsons (Dennis Brown) would have Outfall and Plume 3 consultation language. Troy asked Ascent to send him an email to ask for the documents.

Ramon – Previous letters of concurrence were March 3, 2013 to the USFWS and October 21, 2013 to NMFS; reference these in the PCN.

Eldon – Was concerned that a recent IPaC search be included in request for letter of concurrence.

Linda – Indicated that Ascent would include a current IPaC search in the documentation.

Cultural Resources/Section 106 Compliance

Ramon –With previous USACE action for wells there was no Section106 consultation with State Historic Preservation Office (SHPO) based on determination of no potential to affect historic properties. The site has a history of disturbance and land uses/conditions have not changed since prior determination. He indicated that this project would have no effect and that no consultation would be needed.

Tammie/Linda – Asked if the 2016 California Historical Resources Information System record search should be included or is USACE comfortable with previous information.

Ramon - Cite reference materials previously submitted for Dupont parcel. The PCN will be electronic submittal. No consultation with SHPO needed.

General Discussion, Q & A

Nick – Asked if the slough would be dry at time of dredging. If the decanted water is not contained, a dredging permit may be needed. If decanted water is contained and removed, then only 401 WQC. If decanted water is treated and discharged a low threat NPDES permit would be needed. CVRWQCB will determine at the time the 401-application is received if a dredging permit and NPDES permit would be needed.

Troy – Indicated that there would be water at least at two of the dredging locations during project implementation.

Ramon – Re-emphasized the use of "stabilize" for water that is re-injected to the wells and of the water off the dredge material. Describe that fill during dredging would only include "incidental fallback" and would be de minimis.

Nick – Also indicated a preference for electronic submittal

Attachment D

Signed Request for Jurisdictional Determination Form

REQUEST FOR JURISDICTIONAL DETERMINATION

This form should be used when a jurisdictional determination (JD) is required from the U.S. Army Corps of Engineers, Sacramento District. It is intended to help both the requestor and the Corps in determining which type of JD, if any, is appropriate. Use of the form is optional; however the information and consent is needed to complete a JD. If you are applying for a Department of the Army permit, you do not need to request a JD. A jurisdictional determination is not required to process a permit application. At the time an application is submitted, the Corps will assume the aquatic resources on the parcel/within the review area are waters of the United States for the purpose of making a permit decision. With no JD requested, the permit application may be processed more quickly. The permittee retains the ability to request a JD any time during or after the permit application review process.

I am requesting the U.S. Army Corps of Engineers, Sacramento District, complete a jurisdictional determination for the parcel/review area located at:

Street Address: 6000 Bridgehead Road City: Oakley County: Contra Costa County
State: CA Zip: 94561 Section: 15 Township: 2N Range: 2E
Latitude (decimal degrees): 38.0130937057153 Longitude (decimal degrees): -121.742981408318
The approximate size of the review area for the JD is 376.44 acres. **(Please attach location map)**

Choose one:
- ☐ I currently own this property.
- ☐ I plan to purchase this property.
- ☑ I am an agent/consultant acting on behalf of the requestor.
- ☐ Other: ______

Choose one:
- ☐ I am requesting an Approved JD.
- ☑ I am requesting a Preliminary JD.
- ☐ I am unclear as to which JD I would like to request and require additional information to inform my decision.

Reason for request: (check all that apply)
- ☐ I intend to construct/develop a project or perform activities on this parcel/review area which would be designed to avoid all aquatic resources.
- ☐ I intend to construct/develop a project or perform activities on this parcel/review area which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
- ☑ I intend to construct/develop a project or perform activities on this parcel/review area which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
- ☐ I intend to construct/develop a project or perform activities on this parcel/review area which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
- ☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district's list of navigable waters under Section 10 of the Rivers and Harbors Act of 1899 and/or is subject to the ebb and flow of the tide.
- ☐ A JD is required in order to obtain my local/state authorization.
- ☐ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel/review.
- ☐ I believe that the parcel/review area may be comprised entirely of dry land.

Other: ______

Attached Information:
- ☑ Maps depicting the general location and aquatic resources within the review area consistent with Map and Drawing Standards for the South Pacific Division Regulatory Program (Public Notice February 2016, http://www.spd.usace.army.mil/Missions/Regulatory/Public-Notices-and-References/Article/651327/updated-map-and-drawing-standards/)
- ☑ Aquatic Resources Delineation Report, if available, consistent with the Sacramento District's Minimum Standards for Acceptance (Public Notice January 2016, http://1.usa.gov/1V68IYa)

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

*Signature: ______ Date: 8/2/18
Name: Troy Bussey Jr. Company name: PIONEER Technologies Corporation
Address: 5205 Corporate Ctr Ct SE, Suite A
Olympia, WA 98503-5901
Telephone: 360-570-1700 Email: busseyt@uspioneer.com

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

March 20, 2019

Regulatory Division (SPK-2018-00848)

Ascent Environmental, Inc.
Attn: Mr. Troy Bussey Jr.
Pioneer Technologies Corporation
5205 Corporate Ctr. Ct. SE, Suite A
Olympia, Washington 98503-5901

Dear Mr. Bussey:

We are responding to your December 3, 2018, request for a preliminary jurisdictional determination (JD) for the Chemours-Oakley Remediation Project site. The approximately 376-acre project site is located near the San Joaquin River, 6000 Bridgehead Road, Latitude 38.011278°, Longitude -121.748685°, near the City of Oakley, Contra Costa County, California.

Based on available information, we concur with your aquatic resources delineation for the site as depicted on the enclosed December 4, 2018, Wetland Delineation Map prepared by Ascent Environmental (enclosure 1). The approximately 176.16-acres of Open Water, Marsh Wetlands and Seasonal Wetlands within the survey area are potential jurisdictional aquatic resources ("waters of the United States)" regulated under Section 404 of the Clean Water Act and Section 9 and 10 of the Rivers and Harbors Act.

At your request, we have completed a preliminary JD for the site. Enclosed find a copy of the *Preliminary Jurisdictional Determination Form* (enclosure 2). Please sign and return the completed form to this office, at the address listed below, within 30 days of the date of this letter. If you do not return the signed form within 30 days, we will presume concurrence and finalize the preliminary jurisdictional determination.

You may request an approved JD for this site at any time prior to starting work within waters, including after a permit decision is made.

We recommend you provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This preliminary jurisdictional determination has been conducted to identify the potential limits of wetlands and other aquatic resources at the project site which may be subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean

Water Act and/or Section 9 and 10 of the Rivers and Harbors Act. A *Notification of Appeal Process and Request for Appeal Form* is enclosed to notify you of your options with this determination (enclosure 3).

We appreciate feedback, especially about interactions with our staff and processes.

Please refer to identification number SPK-2018-00848 in any correspondence concerning this project. If you have any questions, please contact me by email at *Ramon.Aberasturi@usace.army.mil*, or telephone at (916) 557-6865. For program information or to complete our Customer Survey, visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

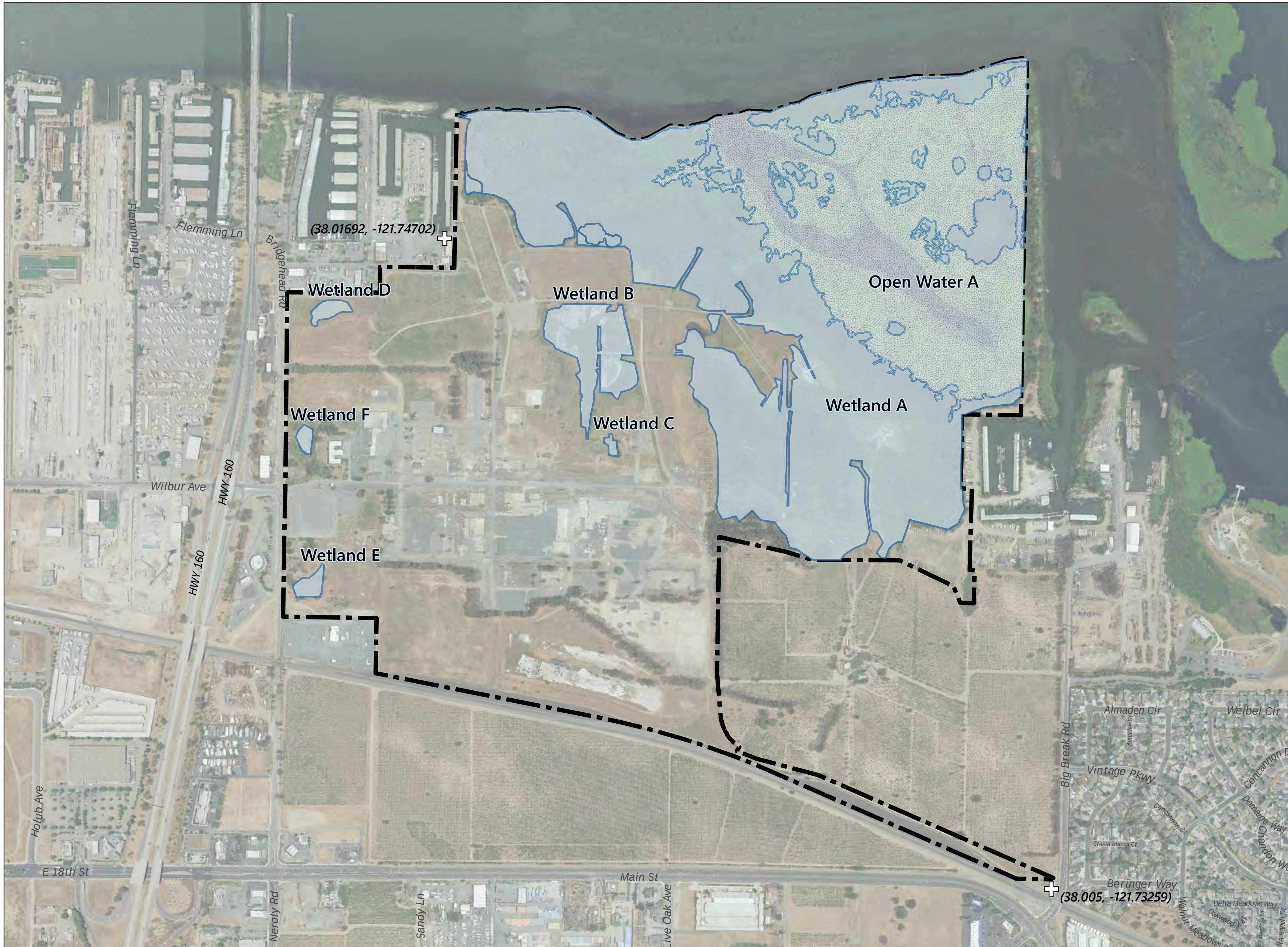
Sincerely,

Ramon Aberasturi

Ramon Aberasturi
Regulatory Project Manager
California Delta Section

Enclosures

cc:
Ms. Tammie Beyerl, Ascent Environmental, tammie.beyerl@ascentenvironmental.com
Mr. Joseph Morgan, EPA, Morgan.Joseph@epa.gov
Ms. Elizabeth Lee, CVRWQCB, emlee@waterboards.ca.gov



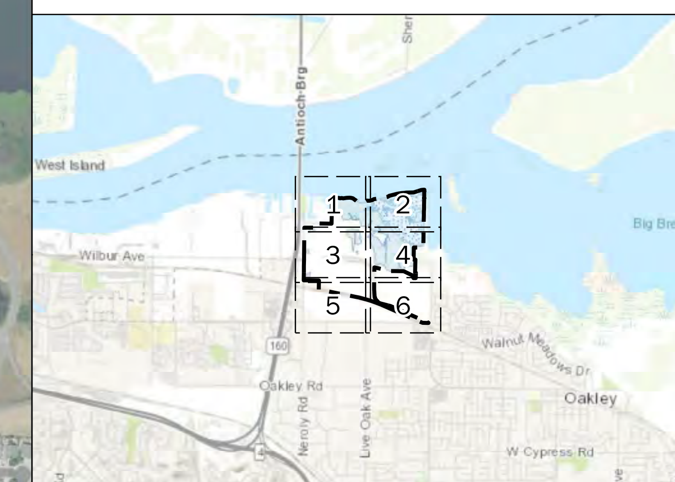
Legend

- Map Reference Point
- Study Area (377.79 ac)

Aquatic Resources

- Wetland (111.96 ac)
- Open Water (64.19 ac)

ID	ACRES
Wetland	
Wetland A	103.67
Wetland B	6.49
Wetland C	0.20
Wetland D	0.61
Wetland E	0.62
Wetland F	0.37
Waters	
Open Water A	64.19
Total	**176.15**



Coordinate System: NAD 1983 Stateplane California III Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Scale: 1 inch = 350 feet
Source: data provided by Moore Biological Consultants in 2018
Delineated by Parson in 2008 and Moore Biological Consultants in 2018
Map prepared on December 04, 2018

0 350 700 Feet

2018/06/28 Google Earth Pro Imagery/2016 NAIP Imagery

G17010099 01 002

Wetland Delineation Map

ASCENT ENVIRONMENTAL

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: 2018.12.14

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: Troy Bussey Jr., 5205 Corporate Ctr Ct SE,Suite A, Olynpia, Washington 95803-5901

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Chemours-Oakley Remediation Project, SPK-2018-00848

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: CA County/parish/borough: Contra Costa County City: Antioch

Center coordinates of site (lat/long in degree decimal format):

Lat.: 38.0112784481634 Long.: -121.748685836792

Universal Transverse Mercator: 609847.34, 4207805.13

Name of nearest waterbody: San Joaquin River

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: 2018.12.14

☐ Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
Wetland A - Little Break EM	38.016000	-121.738000	103.67	DELINPJD	Section 10/404
Wetland A - Little Break OW	38.016000	-121.73800	64.19	DELINPJD	Section 10/404
Wetland B - Central Slough EM	38.01500000	-121.744000	6.5	DELINPJD	Section 404
Wetland C - Red Pipe Area	38.013000	-121.743000	0.2	DELINPJD	Section 404

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
Wetland D - Fallow Vineyard	38.015599	-121.749759	0.61	DELINPJD	Section 404
Wetland E - Mitigation Area	38.010380	121.749992	0.62	DELINPJD	Section 404
Wetland F - Administrative Area	38.013174	-121.750203	0.37	DELINPJD	Section 404

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

☒ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor: Map: 2018.12.4 - PJD - Aquatic Resources Delineation Map - Chemours Oakley Remediation Project - SPK-2018-00848.

☒ Data sheets prepared/submitted by or on behalf of the PJD requestor.

- ☒ Office concurs with data sheets/delineation report.
- ☒ Office does not concur with data sheets/delineation report. Rationale: .

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Jersey Island.

☐ Natural Resources Conservation Service Soil Survey. Citation: .

☐ National wetlands inventory map(s). Cite name: .

☐ State/local wetland inventory map(s): .

☒ FEMA/FIRM maps: 06013C0144G.

☒ 100-year Floodplain Elevation is: 9-feet. (National Geodetic Vertical Datum of 1929)

☐ Photographs: ☐ Aerial (Name & Date):

Or ☐ Other (Name & Date): .

☒ Previous determination(s). File no. and date of response letter: 2008.12.23 - AJD Verification - Dupont Oakley Site Project - SPK-2007-01861:176.29-acre WOUS, Wetlands C, D. E, F & SWMU 4.2 West Basin were determined to be isolated. .

☒ Other information (please specify): Reverification with updated report 2018.12.03 - PJD - Request for Preliminary Jurisdictional Determination for the Chemours Oakley Remediation Project (SPK-2018-00848 by Ascent Environmental - SPK-2018-00848.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Ramon Aberasturi Date: 2019.03.19 16:07:00 -07'00'	4/12/19
Signature and date of Regulatory staff member completing PJD	Signature and date of person requesting PJD (REQUIRED, unless obtaining

the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Pioneer Technologies Corporation: Mr. Bussey.	File No.: SPK-2018-00848	Date: March 20, 2019

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
→	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at *http://www.usace.army.mil/cecw/pages/reg_materials.aspx* or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Ramon Aberasturi
Regulatory Project Manager
California Delta Section
U.S. Army Corps of Engineers

Phone: (916) 557-6865, FAX 916-557-7803
Email: Ramon.Aberasturi@usace.army.mil

If you only have questions regarding the appeal process you may also contact:

Thomas J. Cavanaugh
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division
1455 Market Street, 2052B
San Francisco, California 94103-1399
Phone: 415-503-6574, FAX 415-503-6646)
Email: Thomas.J.Cavanaugh@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_______________________________ Signature of appellant or agent.	Date:	Telephone number:

MOORE BIOLOGICAL CONSULTANTS

Memorandum

TO: Jed Momot, NorthPoint Development

FROM: Diane Moore

SUBJECT: "CONTRA COSTA LOGISTICS CENTER", OAKLEY, CALIFORNIA: OVERVIEW OF SPECIAL-STATUS SPECIES IN THE PORTION OF THE SITE OUTSIDE THE EAST CONTRA COSTA COUNTY HABITAT CONSERVATION PLAN

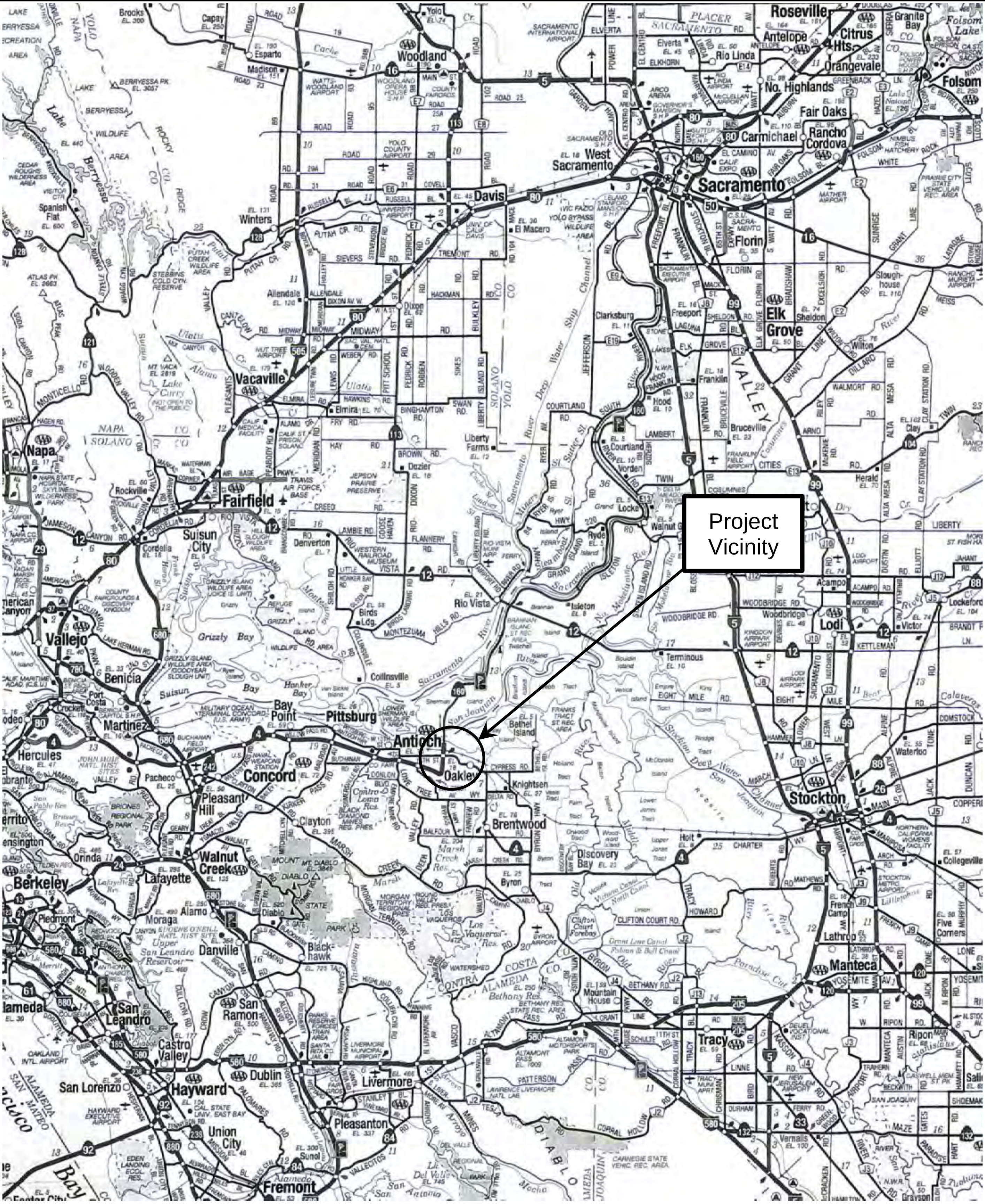
DATE: July 18, 2019

The overall 375.70+/- acre property is in northwest Oakley, Contra Costa County, California (Figure 1). The 166.42+/- acre "Project Site", located in the southwest part of the parcel includes approximately 142.10+/- acres of land within the East Contra Costa County Habitat Conservation Plan (ECCCHCP) Permit Area and 24.32+/- acres of land just outside the ECCCHCP Permit Area (Figure 2).

There are several land cover types within the overall property, including a large slough and expansive tidal and alkali wetlands in the northeast part of the property. In contrast, the 24.32+/- "project site" primarily consists of previously developed areas and ruderal grasslands (Figure 3). The project site contains 16.42+/- acres of highly ruderal grassland and 7.49+/- acres of previously developed areas (Figure 4). The project site also includes a 0.20+/- acre seasonal wetland that will be filled and a small area of a permanent tidal wetland (0.21+/- acres) where a storm drain outfall structure will be constructed. The Site Plan and Conceptual Outfall Structure Exhibits are included in Attachment A; representative photographs are included in Attachment B.

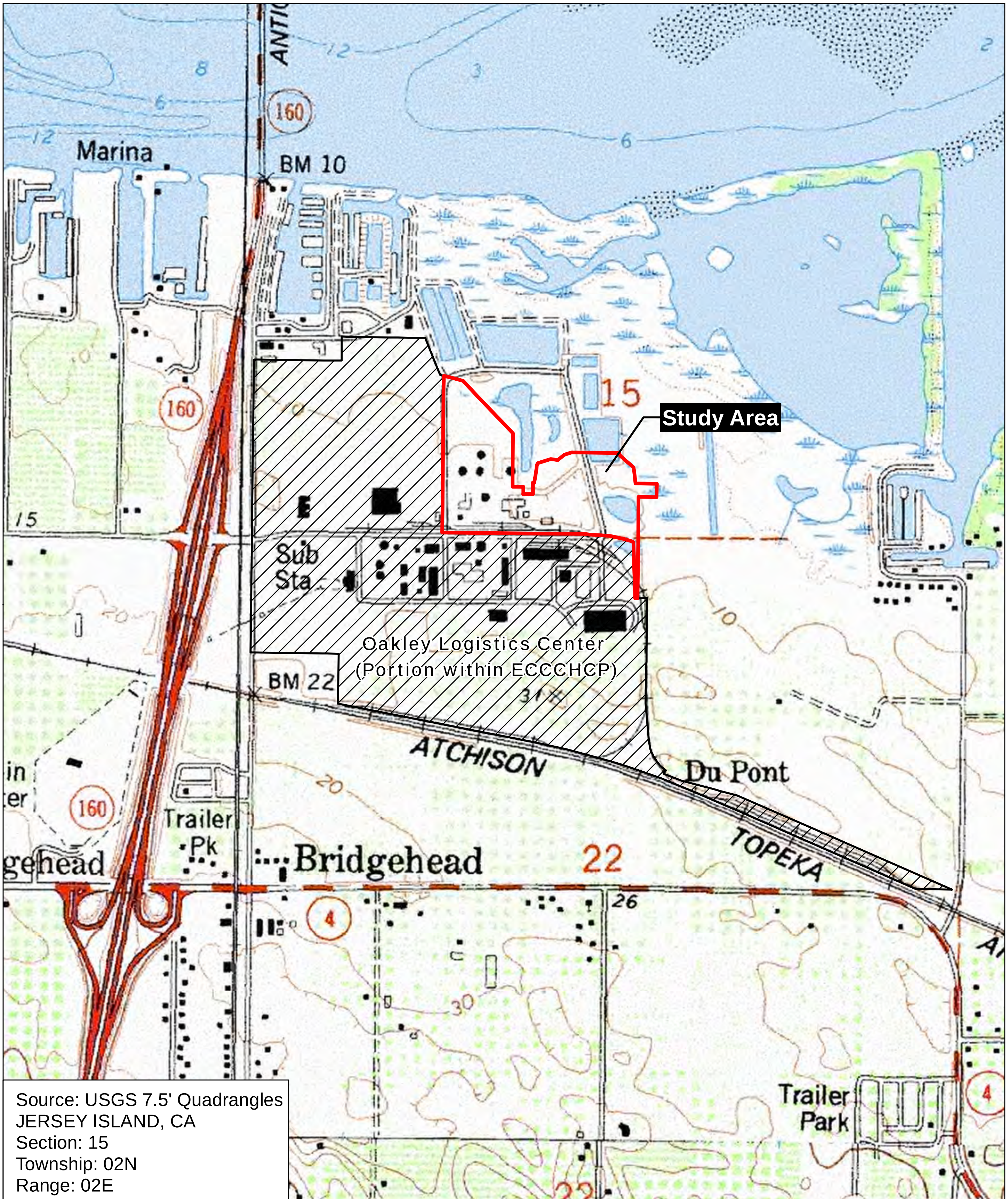
This overview of special-status species in the 24.32+/- acres of land outside the ECCCHCP permit area was prepared in support of the City's California Environmental Quality Act (CEQA) review process. These species have either been documented or may potentially occur in the greater project vicinity.

10330 Twin Cities Rd., Ste. 30 • Galt, CA 95632
(209) 745-1159 • Fax (209) 745-7513
e-mail: moorebio@softcom.net



Source: Calif. State Automobile Association

Moore Biological Consultants	0 — 18 Miles	N W E S	FIGURE 1 PROJECT VICINITY



Source: USGS 7.5' Quadrangles
JERSEY ISLAND, CA
Section: 15
Township: 02N
Range: 02E

Figure 2

Moore Biological Consultants

0 500 1,000
Feet

N W E S

Map Date: 05/09/19

Contra Costa County, CA

USGS

Oakley Logistics Center
(Portion Outside ECCCHCP)

Figure 3

Moore Biological Consultants

Map Date: 05/09/19
Aerial Source: Google Earth (2018)

Contra Costa County, CA

AERIAL

Oakley Logistics Center
(Portion Outside ECCCHCP)

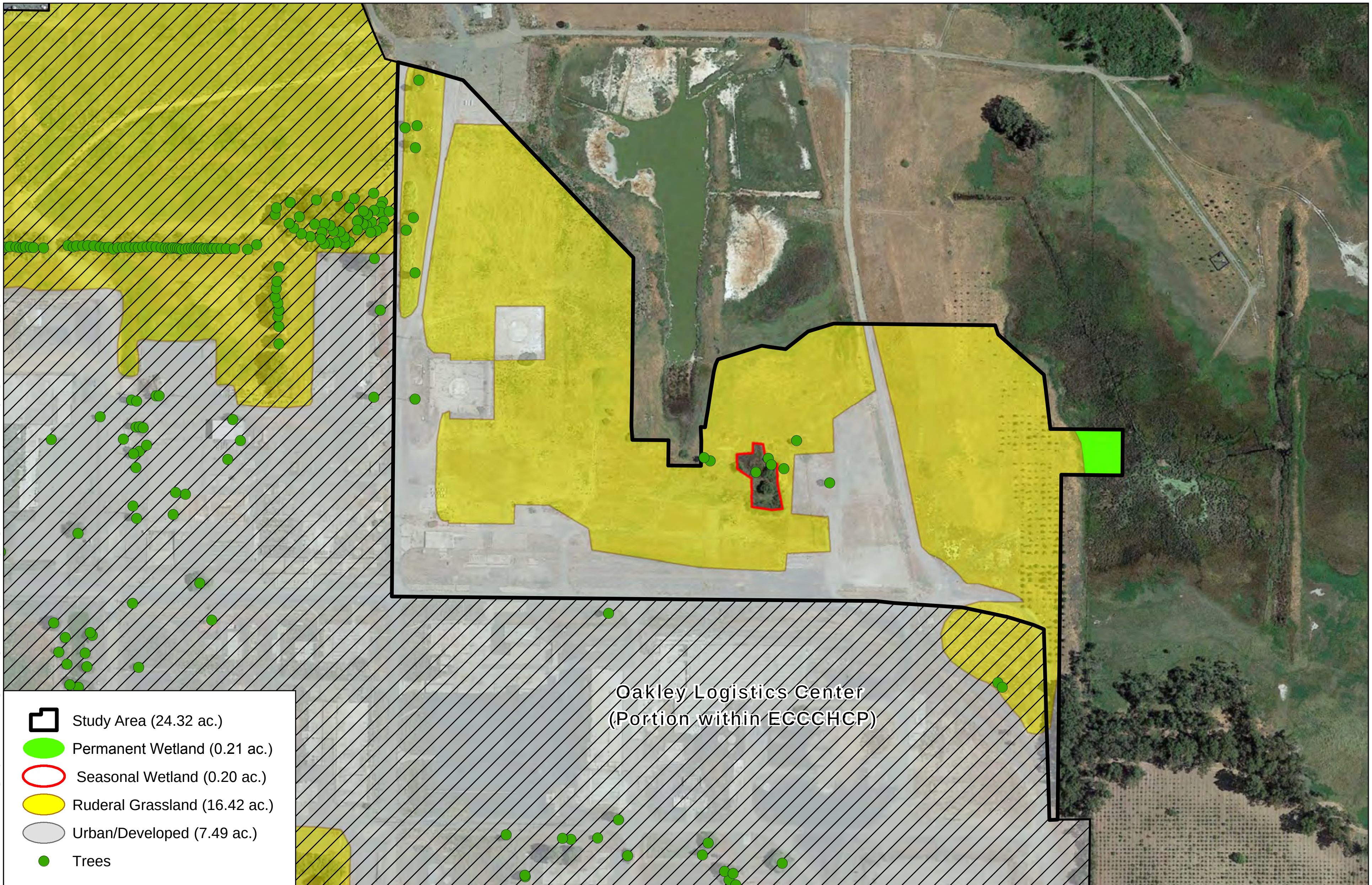


Figure 4

Moore Biological Consultants

0 150 300
Feet

N
W E
S

Map Date: 05/09/19
Aerial Source: Google Earth (2018)

Contra Costa County, CA

VEGETATION AND HABITATS

Oakley Logistics Center
(Portion Outside ECCCHCP)

C:\Users\owner\Documents\Fremont Environmental Consulting\Projects\Moore Biological\Northpoint_Oakley_The_Oakley_Logistics_Center\MXD\Moore\oakley_logistics_center_veg_figure_4.mxd

Special-status wildlife and plant species that have been previously documented in the greater project vicinity were identified by a search of California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB, 2019). The CNDDB search included the USGS 7.5-minute Antioch North, Antioch South, Jersey Island, and Brentwood topographic quadrangles, which is approximately 240 square miles surrounding the site (Attachment C). The U.S. Fish and Wildlife Service (USFWS) IPaC Trust Report of Federally Threatened and Endangered species that may occur in or be affected by projects in the project vicinity was also reviewed (Attachment C).

SPECIAL-STATUS PLANTS: Several special-status plants were identified in the CNDDB (2019) search area: large-flowered fiddleneck (*Amsinckia grandiflora*), Mt. Diablo manzanita (*Arctostaphylos auriculata*), alkali milk-vetch (*Astragalus tener var. tener*), brittlescale (*Atriplex depressa*), big tarplant (*Blepharizonia plumosa ssp. plumosa*), Mt. Diablo fairy-lantern (*Calochortus pulchellus*), Congdon's tarplant (*Centromadia parryi spp. congdonii*), soft salty bird's-beak (*Chloropyron molle* ssp. *molle*), Bolander's water hemlock (*Cicuta maculata var. bolanderi*), Hoover's cryptantha (*Cryptantha hooveri*), dwarf downingia (*Downingia pusilla*), Antioch Dunes buckwheat (*Eriogonum nudum* var. *psychicola*), Mt. Diablo buckwheat (*Eriogonum truncatum*), Jepson's coyote thistle (*Eryngium jepsonii*), Contra Costa wallflower (*Erysimum capitatum* var. *angustatum*), diamond-petaled California poppy (*Eschscholzia rhombipetala*), San Joaquin spearscale (*Extriplex joaquiniana*), fragrant fritillary (*Fritillaria liliacea*), Diablo helianthella (*Helianthella castanea*), Brewers western flax (*Hesperolinon breweri*), woolly rose mallow (*Hibiscus lasiocarpus*), Contra Costa goldfields (*Lasthenia conjugens*), Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), Mason's lilaeopsis (*Lilaeopsis masonii*), Delta mudwort (*Limosella australis*), showy golden madia (*Madia radiata*), Hall's bush mallow (*Malacothamnus hallii*), shining navarretia (*Navarretia nigelliformis* ssp. *radians*), Antioch dunes evening primrose (*Oenothera deltoides* ssp. *howellii*), bearded popcorn-flower (*Plagiobothrys hystriculus*), eel-grass pondweed (*Potamogeton zosteriformis*), chaparral ragwort (*Senecio aphanactis*), Keck's checkerbloom (*Sidalcea keckii*), Suisun marsh aster (*Symphotrichum lentum*), caper-fruited tropidocarpum (*Tropidocarpum capparideum*), and oval-leaved viburnum

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
PLANTS						
Large-flowered fiddleneck	*Amsinckia grandiflora*	E	E	1B	Cismontane woodland, valley and foothill grassland; elevations 902-1,805 feet; blooms April - May.	Unlikely: the ruderal grassland habitats in the site are highly disturbed and do not provide suitable habitat for large-flowered fiddleneck; the site is also well below the elevation range of this species (CNPS, 2019). The nearest occurrence of large-flowered fiddleneck in the CNDDB (2019) search area is approximately 7 miles southwest of the site.
Mt. Diablo manzanita	*Arctostaphylos auriculata*	None	None	1B	Chaparral, only on the Mt. Diablo area of Contra Costa County; elevations 443-2,133 feet; blooms January - March.	Unlikely: the site does not provide suitable habitat for Mt. Diablo manzanita. The site is also not in the elevation range of this species (CNPS, 2019). The nearest occurrence of the Mt. Diablo manzanita in the CNDDB (2019) search area is approximately 6 miles southwest of the site.
Alkali milk-vetch	*Astragalus tener var. tener*	None	None	1B	Alkali playas and vernal pools; elevations 3-197 feet; blooms March - June.	Unlikely: the project site does not provide suitable habitat for this species; there are no vernal pools or alkali playas in the site. The nearest occurrence of alkali milk-vetch in the CNDDB (2019) search area is approximately 8.5 miles northwest of the site.
Brittlescale	*Atriplex depressa*	None	None	1B	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pool habitats within alkaline clay soils; elevations 3-1,050 feet; blooms April - October.	Unlikely: the ruderal grassland in the project site is highly disturbed and does not provide suitable habitat for brittlescale; there are also no other habitats in the site to support this species. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 5 miles south of the site.
Big tarplant	*Blepharizonia plumosa ssp. plumosa*	None	None	1B	Valley and foothill grassland, usually in clay soils; elevations 98-1,657 feet; blooms July - October.	Unlikely: the ruderal grassland in the site is highly disturbed and does not provide suitable habitat for big tarplant. The site is also not within the elevation range of this species (CNPS, 2019). The nearest occurrence of this species in the CNDDB (2019) search area is approximately 5 miles southwest of the site.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Mt. Diablo fairy-lantern	*Calochortus pulchellus*	None	None	1B	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland; elevations 98-2,756 feet; blooms April - June.	Unlikely: the ruderal grassland in the project site is highly disturbed and does not provide suitable habitat for Mt. Diablo fairy-lantern. The site is also not within the elevation range of this species (CNPS, 2019). The nearest occurrence of Mt. Diablo fairy-lantern in the CNDDB (2019) search area is approximately 8 miles southwest of the site.
Congdon's tarplant	*Centromadia parryi spp. congdonii*	None	None	1B	Valley and foothill grassland, usually in alkaline soils; elevations 0-754 feet; blooms May – October	Unlikely: the ruderal grasslands in the site are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of Congdon's tarplant in the CNDDB (2019) search area is approximately 5.5 miles southeast of the site.
Soft salty bird's-beak	*Chloropyron molle ssp. molle*	E	R	1B	Coastal salt marsh; elevations 0-10 feet; blooms July - November.	Unlikely: the permanent wetland is choked with cattails and tules and provides poor quality habitat for this species. Additionally, soft salty bird's-beak was not observed in the permanent wetland during the recent rare plant survey for the remediation project (California Environmental Services, 2017). The nearest occurrence of soft salty bird's-beak in the CNDDB (2019) search area is approximately 1 mile north of the site. The site is not in designated critical habitat for this species (USFWS, 2007)
Bolander's water hemlock	*Cicuta maculata var. bolanderi*	None	None	2	Fresh or brackish water marshes; elevations 0-656 feet; blooms July - September.	Unlikely: as it is wet only seasonally, the seasonal wetland in the site provides poor quality marsh habitat for Bolander's water hemlock; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. Bolander's water hemlock was also not observed in the wetlands during the recent rare plant survey for the remediation project (California Environmental Services, 2017). The nearest occurrence of this species in the CNDDB (2019) search area is mapped nonspecifically approximately 1 mile east of the site.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Hoover's cryptantha	*Cryptantha hooveri*	None	None	1B	Inland dunes; sandy areas in valley and foothill grasslands; elevations 30-492 feet; blooms April - May.	Unlikely: there are no dunes in the site and the ruderal grasslands are heavily disturbed and do not provide suitable habitat for Hoover's cryptantha; the site is also at the very low end of the elevation range of this species (CNPS, 2019). The nearest occurrence of Hoover's cryptantha in the CNDDB (2019) search area is approximately 2 miles southwest of the site.
Dwarf downingia	*Downingia pusilla*	None	None	2	Vernal pools; elevations 3-1,460 feet; blooms March - May.	Unlikely: there are no vernal pools in the site and the seasonal wetland in the site does not provide habitat for vernal pool plants. The nearest occurrence of dwarf downingia in the CNDDB (2019) search area is approximately 9.5 miles northwest of the site.
Antioch Dunes buckwheat	*Eriogonum nudum* var. *psychicola*	None	None	1B	Inland dunes; elevations 0-66 feet; blooms July - October.	Unlikely: the site does not provide dune habitat for Antioch Dunes buckwheat. The nearest occurrence of this speices in the CNDDB (2019) search area is approximately 2 miles west of the site. Additionally, this species was not observed during the recent rare plant survey for the remediation project (California Environmental Services, 2017).
Mt. Diablo buckwheat	*Eriogonum truncatum*	None	None	1B	Coastal scrub, valley and foothill grassland and coastal scrub; usually on sandy soils; elevations 10-1,148 feet; blooms April - December.	Unlikely: the ruderal grasslands are highly disturbed and do not provide suitable habitat for Mt. Diablo buckwheat; the site is also at the very low end of the elevation range of this species (CNPS, 2019). The nearest occurrence of Mt. Diablo buckwheat in the CNDDB (2019) search area is approximately 3 miles southwest of the site.
Jepson's coyote thistle	*Eryngium jepsonii*	None	None	1B	Valley and foothill grasslands, within vernal pools; elevations 10 – 985 feet; blooms April - August.	Unlikely: the site does not provide suitable habitat for Jepson's coyote thistle. The site is also at the very low end of the elevation range of Jepson's coyote thistle (CNPS, 2019). The nearest occurrence of this species in the CNDDB (2019) search area is approximately 8 miles southwest of the site.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Contra Costa wallflower	*Erysimum capitatum var. angustatum*	E	E	1B	Inland dunes; elevations 10-66 feet; blooms March - July.	Unlikely: the site does not provide dune habitat for Contra Costa wallflower. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 2 miles west of the site. The site is not in designated critical habitat for Contra Costa wallflower (CFR, 1990a).
Diamond-petaled California poppy	*Eschscholzia rhombipetala*	None	None	1B	Valley and foothill grasslands in alkaline, clay soils; elevations 0-3,200 feet; blooms March - April.	Unlikely: the on-site grasslands are highly disturbed and do not provide suitable habitat for diamond-petaled California poppy. The site is at the very low end of the elevation range of this species, which is considered extirpated in Contra Costa County (CNPS, 2019). The nearest occurrence of diamond-petaled California poppy in the CNDDB (2019) search area is approximately 2.5 miles northwest of the site.
San Joaquin spearscale	*Extriplex joaquiniana*	None	None	1B	Chenopod scrub, meadows, playas and seeps, valley and foothill grassland; within alkaline soils; elevations 3 – 2,740 feet; blooms April – October.	Unlikely: the ruderal grasslands in the site are highly disturbed and do not provide suitable habitat for this species. The site is also at the very low end of the elevation range of this species (CNPS, 2019). The nearest occurrence of San Joaquin spearscale in the CNDDB (2019) search area is approximately 5 miles south of the site.
Fragrant fritillary	*Fritillaria liliacea*	None	None	1B	Coastal scrub, valley and foothill grassland and coastal prairie; often on serpentine soils; elevations 10-1,345 feet; blooms February - April.	Unlikely: the ruderal grasslands are highly disturbed and do not provide suitable habitat for fragrant fritillary; no areas of serpentine soils were observed in the site. The site is also at the very low end of the elevation range of this species (CNPS, 2019). The nearest occurrence of fragrant fritillary in the CNDDB (2019) search area is approximately 9.5 miles northwest of the site.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Diablo helianthella	*Helianthella castanea*	None	None	1B	Broad-leaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; elevations 197-4,265 feet; blooms March - June.	Unlikely: the on-site ruderal grasslands are heavily disturbed and provides poor quality habitat for Diablo helianthella. The site is also not within the elevation range of this species (CNPS, 2019) and below the elevation range of the potential habitat for this species as modeled in the ECCCHCP (Jones & Stokes, 2006). The nearest occurrence of Diablo helianthella in the CNDDB (2019) search area is approximately 7.5 miles southwest of the site.
Brewers western flax	*Hesperolinon breweri*	None	None	1B	Chaparral, cismontane woodland, valley and foothill grassland; usually serpentine soils; elevations 98-3,100 feet; blooms May - July.	Unlikely: the ruderal grasslands in the project site are highly disturbed and does not provide suitable habitat for Brewers western flax. The site is also not within the elevation range of this species (CNPS, 2019). The nearest occurrence of Brewers western flax in the CNDDB (2019) search area is approximately 5 miles southwest of the project site.
Woolly rose mallow	*Hibiscus lasiocarpus var. occidentalis*	None	None	1B.2	Freshwater marshes and swamps, usually along the edges of delta islands; elevations 0-393 feet; blooms June – September.	Unlikely: as it is wet only seasonally, the seasonal wetland in the site provides poor quality marsh habitat for woolly rose mallow; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. Additionally, woolly rose mallow was not observed in these wetlands during the recent rare plant survey for the remediation project (California Environmental Services, 2017). The nearest occurrence of this species in the CNDDB (2019) search area is approximately 6 miles northeast of the project site.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Contra Costa goldfields	*Lasthenia conjugens*	E	None	1B	Valley and foothill grassland within vernal pools and swales; elevations 0-1,542 feet; blooms March - June.	Unlikely: the site does not provide suitable habitat for Contra Costa goldfields; there are no vernal pools in the site and the seasonal wetlands in the site do not provide suitable habitat for vernal pool plants. The site is at the very low end of the elevation range of this species (CNPS, 2019) and the nearest occurrence of Contra Costa goldfields in the CNDDB (2019) search area is a record mapped nonspecifically surrounding the city of Antioch, approximately 3 miles southwest of the site. The site is not in designated critical habitat for this species (USFWS 2005a).
Delta tule pea	*Lathyrus jepsonii var. jepsonii*	None	None	1B	Freshwater or brackish marshes and swamps, usually along the edges of delta islands; elevations 0-16 feet; blooms May - September.	Unlikely: as it is wet only seasonally, the seasonal wetland in the site provides poor quality marsh habitat for delta tule pea; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. Additionally, delta tule pea was not observed in the wetlands during the recent rare plant survey for the remediation project (California Environmental Services, 2017). The nearest occurrence of delta tule pea in the CNDDB (2019) search area is approximately 2 miles northwest of the site.
Mason's lilaeopsis	*Lilaeopsis masonii*	None	R	1B	Freshwater or brackish marshes, tidally inundated; swamps and riparian scrub, usually along the edges of delta islands; elevations 0-33 feet; blooms April - November.	Unlikely: as it is wet only seasonally, the seasonal wetland in the site provides poor quality marsh habitat for Mason's lilaeopsis; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. Additionally, this species was not observed in the wetlands during the recent rare plant survey for the remediation project (California Environmental Services, 2017). The nearest occurrences of Mason's lilaeopsis recorded in the CNDDB (2019) search area are a few records along delta waterways within a mile north and northeast of the site.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Delta mudwort	*Limosella australis*	None	None	2	Freshwater or brackish marsh, tidally inundated; swamps, usually along the edges of delta islands; elevations 0-10 feet; blooms May – August	Unlikely as it is wet only seasonally, the seasonal wetland in the site provides poor quality marsh habitat for Delta mudwort; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. Additionally, this species was not observed in the wetlands during the recent rare plant survey for the remediation project (California Environmental Services, 2017). The nearest occurrences of Delta mudwort recorded in the CNDDB (2019) search area are a few records along delta waterways within a mile north and northeast of the site.
Showy golden madia	*Madia radiata*	None	None	1B	Cismontane woodland, valley and foothill grassland; elevations 82-3,986 feet; blooms March - May.	Unlikely: the on-site grasslands are heavily disturbed and do not provide suitable habitat for showy golden madia; this species is also considered extirpated in Contra Costa County (CNPS, 2019). The nearest occurrence of showy golden madia in the CNDDB (2019) search area is approximately 4.5 miles southwest of the site.
Hall's bush mallow	*Malacothamnus hallii*	None	None	1B	Chaparral; elevations 33-2,493 feet; blooms May - October.	Unlikely: the site does not contain suitable habitat for this species; there is no chaparral habitat within the project site. The nearest occurrence of Hall's bush mallow in the CNDDB (2019) search area is approximately 8 miles southwest of the site.
Shining navarretia	*Navarretia nigelliformis ssp. radians*	None	None	1B	Cismontane woodland, valley and foothill grassland, vernal pools, usually in clay soils; elevations 249-3,281 feet; blooms April - July.	Unlikely: the on-site grasslands are heavily disturbed and do not provide suitable habitat for shining navarretia and there are no vernal pools in the site. The site is also well below the elevation range of this species (CNPS, 2019). The nearest occurrence of shining navarretia in the CNDDB (2019) search area is approximately 5 miles southwest of the site.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Colusa grass	*Neostapfia colusana*	T	E	1B	Vernal pools (large and deep); elevations 16-656 feet; blooms May – August	Unlikely: there are no vernal pools in the site. There are no occurrences of Colusa grass in the CNDDB (2019) search area. The site is not in designated critical habitat for this species (USFWS 2005a).
Antioch dunes evening primrose	*Oenothera deltoides ssp. howellii*	E	E	1B	Interior dunes in the Delta region; elevations 0 – 98 feet; blooms March - September	Unlikely: the site does not contain dune habitat for this species. Additionally, this species was not observed in the site during the recent rare plant survey for the remediation project (California Environmental Services, 2017). The nearest occurrences of Antioch dunes evening primrose in the CNDDB (2019) search area is a few records within 1 mile southwest and west of the site. The site is not in designated critical habitat for this species (CFR, 1990b).
Bearded popcorn-flower	*Plagiobothrys hystriculus*	None	None	1B	Vernal pools, valley and foothill grassland; elevations 0-899 feet; blooms April - May.	Unlikely: the ruderal grassland in the site is highly disturbed and there are no vernal pools in the site to support bearded popcorn-flower. The site is at the low end of the elevation range of this species (CNPS, 2019). The nearest occurrence of bearded popcorn-flower in the CNDDB (2019) search area is approximately 9 miles northwest of the site.
Eel-grass pondweed	*Potamogeton zosteriformis*	None	None	2	Marshes and swamps; elevations 0-6,120 feet; blooms June - July	Unlikely: the seasonal wetland in the site provides poor quality marsh habitat for eel-grass pondweed; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. The site is also at the very low end of the elevation range of this species (CNPS, 2019). Additionally, eel-grass pondweed was not observed in the wetlands during the recent rare plant survey for the remediation project (California Environmental Services, 2017). The nearest occurrence of this species in the CNDDB (2019) search area is approximately 6 miles northeast of the site.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Chaparral ragwort	*Senecio aphanactis*	None	None	2	Cismontane woodland, coastal scrub, within drying alkaline flats; elevations 49-2,625 feet; blooms January - April.	Unlikely: the site does not contain suitable habitat for chaparral ragwort; the site is also below the elevation range of this species (CNPS, 2019). The nearest occurrence of this species in the CNDDB (2019) search area is approximately 8.5 miles southwest of the site.
Keck's checkerbloom	*Sidalcea keckii*	E	None	1B	Cismontane woodland, valley and foothill grassland, usually serpentine or clay soils; elevations 246-2,132 feet; blooms April - June.	Unlikely: the on-site grasslands are highly disturbed and do not provide suitable habitat for this species. The site is also well below the elevation range of this species (CNPS, 2019) The nearest occurrence of Keck's checkerbloom in the CNDDB (2019) search area is approximately 10 miles northwest of the site.
Suisun marsh aster	*Symphotrichum lentum*	None	None	1B	Freshwater and brackish marshes and swamps, usually along the edges of delta islands; elevations 0-10 feet; blooms May – November.	Unlikely: the seasonal wetland in the site provides very poor quality marsh habitat for Suisun marsh aster; the near-shore portions of the permanent wetland are choked with cattails and tules and provide poor quality habitat for this species. Additionally, this species was not observed in the wetlands during the recent rare plant survey for the remediation project (California Environmental Services, 2017). The nearest occurrence of this species in the CNDDB (2019) search area is a record mapped nonspecifically within 1 mile east of the site.
Caper-fruited tropidocarpum	*Tropidocarpum capparideum*	None	None	1B	Valley and foothill grassland, alkaline soils; elevations 3-1,493 feet; blooms March - April.	Unlikely: the on-site grasslands are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of caper-fruited tropidocarpum in the CNDDB (2019) search area is approximately 10.5 miles southeast of the site.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Oval-leaved viburnum	*Viburnum ellipticum*	None	None	2	Chaparral, cismontane woodland, and lower montane coniferous forest; elevations 705-4,593 feet; blooms May - June.	Unlikely: the site does not contain suitable habitat for this species. The site is also well below the known elevation range of oval-leaved viburnum (CNPS, 2019). The nearest occurrence of this species in the CNDDB (2019) search area is approximately 11.5 miles southwest of the site.
WILDLIFE						
Birds						
Burrowing owl	*Athene cunicularia*	None	SC	N/A	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	Unlikely: the ruderal grassland in the site is highly disturbed and portions are routinely mowed. No burrowing owls or burrows with evidence of owl occupancy were observed. The nearest occurrence of nesting burrowing owls in the CNDDB (2019) search area is approximately 1 mile southwest of the site.
Swainson's hawk	*Buteo swainsoni*	None	T	N/A	Breeds in stands of tall trees in open areas. Requires adjacent suitable foraging habitats such as grasslands or alfalfa fields supporting rodents.	Moderate: there are several large trees in and surrounding the project site suitable for nesting by Swainson's hawks. Additionally, there is annual cropland and suitable foraging habitat in close proximity to the site. There is a record of Swainson's hawks in the CNDDB (2019) nesting along the west edge of the site.
White-tailed kite	*Elanus leucurus*	None	FP	N/A	Herbaceous lowlands with variable tree growth and dense population of voles.	Moderate: grasslands in the site and grasslands and annual cropland in the close proximity to the projects site provides foraging habitat for white-tailed kite. Relatively large trees in and surrounding the site are suitable for nesting. The nearest occurrence of white-tailed kite in the CNDDB (2019) search area is approximately 2.5 miles southeast of the site. This species was documented nesting in the overall property during surveys conducted for the remediation project (Ardea & Bumgardner, 2017).

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Tricolored blackbird	*Agelaius tricolor*	None	CE/SC	N/A	Requires open water and protected nesting substrate, usually cattails and riparian scrub with surrounding foraging habitat.	Unlikely: the emergent wetland vegetation in the seasonal wetland in the site and at the storm drain outfall site may provide suitable tricolored blackbird nesting habitat. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 9 miles southeast of the site.
California black rail	*Laterallus jamaicensis coturniculus*	None	T	N/A	Mainly inhabits salt marshes bordering larger bays.	Low: the seasonal wetland in the site does not provide habitat for California black rail; this freshwater seasonal wetland contains only a small patch of marsh vegetation. In contrast, the near-shore portions of the permanent wetland provide potentially suitable habitat for this species. The nearest occurrence of California black rail in the CNDDB (2019) search area is in the mosaic of pickleweed wetlands and coastal salt marsh habitats just northeast of the site. The CNDDB record is noted that there has been development in this area since the detection and it is “unknown if this site is still populated”. California black rail was documented nesting in the overall property during surveys conducted for the remediation project (Ardea & Bumgardner, 2017).
California clapper rail	*Rallus longirostris obsoletus*	E	E	N/A	Salt water and brackish marshes traversed by tidal sloughs in the San Francisco Bay, associated with pickleweed.	Unlikely: while there is suitable habitat to support California clapper rail near the site, the site is located outside the known range of this species. There are no occurrences of California clapper rail in the CNDDB (2019) search area.
California least tern	*Sternula antillarum browni*	E	E	N/A	Estuaries and bays; nests on exposed tidal flats or beaches	Unlikely: while there is suitable habitat to support California least tern near the site, the site is located outside the known range of this species. There are no occurrences of California least tern in the CNDDB (2019) search area.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Bank swallow	*Riparia riparia*	None	T	N/AS	Nests colonially in riparian habitats; requires vertical banks and cliffs with fine-textured soils.	Unlikely: there is no suitable nesting habitat for bank swallows in the site. The only occurrence of this species in the CNDDB (2019) search area is approximately 7.5 miles northeast of the project site.
Saltmarsh common yellowthroat	*Geothlypis trichas sinuosa*	None	SC	N/A	Fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging	Low: the seasonal wetland is very small and supports a very small patch of marsh vegetation. In contrast, the near-shore portions of the permanent wetland provide potentially suitable habitat for this species. Saltmarsh common yellowthroat was documented in the overall property during surveys conducted support of the ongoing remediation project (Ardea & Bumgardner, 2017). The nearest occurrence of this species in the CNDDB (2019) search area is approximately 7 miles northwest of the project site.
Loggerhead shrike	*Lanius ludovicianus*	None	SC	N/A	Annual grasslands and agricultural areas throughout the Central Valley; nests in trees and shrubs.	Moderate: the highly disturbed ruderal grasslands in the site provide suitable foraging for this species, which is relatively widespread in the area, in low numbers. Additionally, loggerhead shrike may nest in trees or shrubs in the site. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 3 miles southeast of the site. Loggerhead shrike was documented nesting in the overall property during surveys conducted for the remediation project (Ardea & Bumgardner, 2017).
Suisun song sparrow	*Melospiza melodia maxillaris*	None	SC	N/A	Resident of brackish water marshes, usually in or near Suisun Bay. Inhabits cattails, tules, and tangles bordering sloughs	Unlikely: the seasonal wetland in the site provides low quality marsh habitat for this species. In contrast, the near-shore portions of the permanent wetland provide potentially suitable habitat for this species. The nearest occurrence of Suisun song sparrow in the CNDDB (2019) search area is approximately 5 miles northwest of the site.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Song sparrow "Modesto" population	*Melospiza melodia*	None	SC	N/A	Resident of brackish water marshes. Inhabits cattails, tules, and tangles bordering sloughs	Unlikely: the seasonal wetland in the site supports small amounts of marsh vegetation and provides low quality marsh habitat for the "Modesto" population of song sparrow. In contrast, the near-shore portions of the permanent wetland provide potentially suitable habitat for this species. The nearest occurrence of song sparrow ("Modesto" population) in the CNDDB (2019) search area is approximately 3.5 miles northeast of the site.
Mammals						
San Joaquin kit fox	*Vulpes macrotis mutica*	E	T	N/A	Inhabits open, dry grasslands and scrublands with loose textured soils.	Unlikely: the grasslands in the site are heavily disturbed and portions are routinely mowed. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 5.5 miles southwest of the site.
American badger	*Taxidea taxus*	None	SC	N/A	Drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Unlikely: the site does not provide suitable habitat for American badger. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 5 miles southwest of the site.
Salt-marsh harvest mouse	*Reithrodontomys raviventris*	E	E	N/A	Saline emergent wetlands dominated by pickleweed	Unlikely: the site is outside of the range of this species. The nearest occurrence of salt-marsh harvest mouse in the CNDDB (2019) search area is a historical record (1985) approximately 5 miles northwest of the site.
Pallid bat	*Antrozous pallidus*	None	SC	N/A	Open and dry habitats with rocky areas for roosting.	Unlikely: the site does not provide suitable habitat for this species. The nearest occurrence of pallid bat in the CNDDB (2019) search area is approximately 12 miles southwest of the site
Western red bat	*Lasiurus blossevillii*	None	SC	N/A	Roosts in trees in a wide variety of habitats.	Unlikely: although some trees in the site may be suitable for western red bat for roosting, this species is not known to be widespread in the area. The nearest occurrence of western red bat in the CNDDB (2019) search area is mapped nonspecifically in the city of Antioch, approximately 4 miles west of the site.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Reptiles & Amphibians						
California tiger salamander	*Ambystoma californiense*	T	T	N/A	Seasonal water bodies without fish (i.e., vernal pools and stock ponds) and grassland/ woodland habitats with summer refugia (i.e., burrows).	Unlikely: there is no suitable habitat within or near the site for California tiger salamander. This species occurs in the transitional bands between the valley floor and foothills and is not known to occur in the delta. The nearest occurrence of California tiger salamander in the CNDDB (2019) search area is approximately 3.5 miles southwest of the site. The site is not within designated critical habitat for this species (USFWS, 2005b).
Giant garter snake	*Thamnophis gigas*	T	T	N/A	Freshwater marsh and low gradient streams; also adapted to drainage canals and irrigation ditches, primarily for dispersal or migration.	Unlikely: while this highly aquatic species may occur in regional delta waterways, the site provides poor quality habitat for giant garter snake. The nearest occurrence of this species in the CNDDB (2019) search area is a historical record (1987) mapped as “best guess”. This record includes a large area mapped nonspecifically, including a portion of the north part of the site.
California red-legged frog	*Rana draytonii*	T	SC	N/A	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Unlikely: there is no suitable habitat for California red-legged frog in or near the project site. This species is also presumed extinct on the floor of the Central Valley of California. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 5.5 miles southwest of the site. The site is not in California red-legged frog designated critical habitat (USFWS, 2006a).
Foothill yellow-legged frog	*Rana boylii*	None	SC	N/A	Perennial water bodies (i.e., streams and ponds) with abundant riparian vegetation.	Unlikely: there is no suitable aquatic habitat for foothill yellow-legged frog in the project site. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 10.5 miles southwest of the site.
Northern California legless lizard	*Anniella pulchra pulchra*	None	SC	N/A	Sandy or loose loamy soils under sparse vegetation.	Unlikely: the site provides marginally suitable habitat for northern California legless lizard. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 1 miles southeast of the site.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Alameda whipsnake	*Masticophis lateralis euryxanthus*	T	T	N/A	Scrub, chaparral, grassland, and woodland habitat mosaics. South-facing slopes and ravines.	Unlikely: the grasslands in the site are highly disturbed and do not provide suitable habitat for Alameda whipsnake. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 5 miles southwest of the site. The site is not in designated critical habitat for Alameda whipsnake (USFWS, 2006b).
California glossy snake	*Arizona elegans occidentalis*	None	SC	N/A	Arid scrub, rocky washes, grasslands, and chaparral.	Unlikely: the highly disturbed grasslands in the site does not provide suitable habitat for California glossy snake. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 2 miles west of the site.
Western pond turtle	*Emys marmorata*	None	SC	N/A	Ponds, marshes, streams, and ditches with emergent aquatic vegetation and basking areas.	Unlikely: the site provides poor quality habitat for this species. The nearest occurrence of western pond turtle in the CNDDB (2019) search area is approximately 1 mile north of the site.
Fish						
Central Valley steelhead	*Oncorhynchus mykiss irideus*	T	None	N/A	Riffle and pool complexes with adequate spawning substrates within Central Valley drainages.	None: the site does not provide suitable habitat for this species; Central Valley steelhead is known to occur in the San Joaquin River north of the site. The nearest occurrence of this species in the CNDDB (2019) search area is in the San Joaquin River, north of the site. The site is not in designated as critical habitat for Central Valley steelhead (NOAA, 2005).
Delta smelt	*Hypomesus transpacificus*	T	T	N/A	Shallow lower delta waterways with submersed aquatic plants and other suitable refugia.	None: the site does not provide suitable habitat for this species; delta smelt occur in the San Joaquin River north of the site and there is an occurrence of delta smelt in the CNDDB (2019) search area is in the San Joaquin River just north of the site. Like much of Oakley, the project site is within designated critical habitat for delta smelt (USFWS, 1994) as the critical habitat of this species is generally defined by elevation.

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Winter-run Chinook salmon	*Oncorhynchus tshawytscha*	E	E	N/A	Deep flowing pools and riffle complexes with adequate spawning substrates.	Unlikely: the site does not provide suitable habitat for this species; winter-run Chinook salmon occur in the San Joaquin River north of the site. There are no occurrences of this species recorded in the CNDDB (2018) within the search area.
Spring-run Chinook salmon	*Oncorhynchus tshawytscha*	T	T	N/A	Deep flowing pools and riffle complexes with adequate spawning substrates.	Unlikely: the site does not provide suitable habitat for this species; spring-run Chinook salmon occur in the San Joaquin River north of the site. There are no occurrences of this species recorded in the CNDDB (2018) within the search area.
Longfin smelt	*Spirinchus thaleichthys*	C	T	N/A	Brackish estuarine habitats.	None: the site does not provide suitable habitat for this species; longfin smelt is known to occur in the San Joaquin River north of the site and there is an occurrence of longfin smelt in the CNDDB (2019) search area is in the San Joaquin River just north of the site.
Green sturgeon	*Acipenser medirostris*	T	SC	N/A	Freshwater and saltwater habitats; spawn in freshwater rivers.	Unlikely: the site does not provide suitable habitat for this species; green sturgeon known to occur in the San Joaquin River north of the site. There are no occurrences of green sturgeon recorded in the CNDDB (2019) within the search area.
Sacramento perch	*Archoplites interruptus*	None	SC	N/A	Sloughs, lakes, and low-moving Central Valley Rivers; requires warm water.	None: the site does not provide suitable habitat for Sacramento perch; this species may occur in the San Joaquin River north of the site. The nearest occurrence of this species in the CNDDB (2019) search area is in the San Joaquin River just north of the site.
Invertebrates						
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	None	N/A	Elderberry shrubs, usually in Central Valley riparian habitats.	Unlikely: there are no blue elderberry shrubs in or adjacent to the site. There are no occurrences of valley elderberry longhorn beetle recorded in the CNDDB (2019) in the search area. The site is not in designated critical habitat for this species (USFWS 1980a).

TABLE 1

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	None	N/A	Vernal pools	Unlikely: there are no vernal pools in the site. The nearest occurrence of vernal pool fairy shrimp in the CNDDB (2019) search area is approximately 5.5 mile southwest of the site. The site is not in designated critical habitat of this species(USFWS, 2005a).
Conservancy fairy shrimp	*Branchinecta conservatio*	E	None	N/A	Vernal pools	Unlikely: there are no vernal pools in the site. The nearest occurrence of Conservancy fairy shrimp in the CNDDB (2019) search area is approximately 9.5 miles northwest of the site. The site is not in designated critical habitat for this species (USFWS 2005a).
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	None	N/A	Vernal pools	Unlikely: there are no vernal pools in or near the site. The nearest occurrence of this species in the CNDDB (2019) search area is approximately 9 miles northwest of the site. The site is not in designated critical habitat for vernal pool tadpole shrimp (USFWS, 2005a).
San Bruno elfin butterfly	*Callophrys mossii bayensis*	E	None	N/A	Rocky outcrops and cliffs in coastal scrub habitats.	Unlikely: the site does not provide suitable habitat for this species. There are no occurrences of San Bruno elfin butterfly in the CNDDB (2019) search area.
Lange's metalmark butterfly	*Apodemia mormo langei*	E	None	N/A	Inhabits stabilized dunes along the San Joaquin River.	Unlikely: there is no dune habitat in the project site. The closest occurrence of Lange's metalmark butterfly in the CNDDB (2019) search area is approximately 7 miles northwest of the site.
Delta green ground beetle	*Elaphrus viridis*	T	None	N/A	Margins of vernal pools in grasslands.	Unlikely: there are no vernal pools in the site. There are no occurrences of delta green ground beetle in the CNDDB (2019) in the search area. The site is not in designated critical habitat of this species (USFWS 1980b).

1 T= Threatened; E = Endangered; C = Candidate.

2 T= Threatened; E = Endangered; R = Rare; FP = Fully Protected Species; SC = Species of Special Concern per California Department of Fish and Wildlife.

3 CNPS List 1B includes species that are rare, threatened, or endangered in California and elsewhere; List 2 includes plants that are rare, threatened or endangered in California but are more common elsewhere.

(*Viburnum ellipticum*) (Table 1 and CNDDB search results in Attachment B). Although not in the CNDDB (2019) search area, Colusa grass (*Neostapfia colusana*) is listed on the USFWS IPaC Trust Report (Attachment C).

SPECIAL-STATUS WILDLIFE: Several special-status wildlife were identified in the CNDDB (2019) search: burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), tricolored blackbird (*Agelaius tricolor*), California black rail (*Laterallus jamaicensis coturniculus*), bank swallow (*Riparia riparia*), saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*), loggerhead shrike (*Lanius ludovicianus*), Suisun song sparrow (*Melospiza melodia maxillaris*), song sparrow "Modesto population" (*Melospiza melodia*), San Joaquin kit fox (*Vulpes macrotis mutica*), American badger (*Taxidea taxus*), salt-marsh harvest mouse (*Reithrodontomys raviventris*), pallid bat (*Antrozous pallidus*), western red bat (*Lasiurus blossevillii*), California tiger salamander (*Ambystoma californiense*), giant garter snake (*Thamnophis gigas*), California red-legged frog (*Rana aurora draytonii*), foothill yellow-legged frog (*Rana boylii*), northern California legless lizard (*Anniella pulchra pulchra*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), California glossy snake (*Arizona elegans occidentalis*), western pond turtle (*Emys marmorata*), Central Valley steelhead (*Oncorhynchus mykiss irrideus*), delta smelt (*Hypomesus transpacificus*), longfin smelt (*Spirinchus thaleichthys*), Sacramento perch (*Archoplites interruptus*), vernal pool fairy shrimp (*Branchinecta lynchi*), Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool tadpole shrimp (*Lepidurus packardi*), and Lange's metalmark butterfly (*Apodemia mormo langei*) (Table 1 and Attachment C).

Although not included in the CNDDB within the search area, California clapper rail (*Rallus longirostris obsoletus*), California least tern (*Sternula antillarum browni*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), San Bruno elfin butterfly (*Callophrus mossii bayensis*), and delta green ground beetle (*Elaphrus viridis*) are in the USFWS IPaC Trust Resource Report (Attachment C). Additionally, winter-run Chinook salmon (*Oncorhynchus tshawytscha*), spring-run Chinook salmon (*Oncorhynchus tshawytscha*), and green sturgeon (*Acipenser medirostris*) were added to Table 1, as these fish are known to occur in the San Joaquin River just north of the site.

Focused surveys for many of the special-status plant species in Table 1 were recently conducted in support of the ongoing soil and groundwater remediation project at the site (California Environmental Services, 2017). Surveys for several of the special-status wildlife species have also been conducted in support of the ongoing soil and groundwater remediation project at the site. Surveys of the remediation areas were conducted by Ardea Consulting & Bumgardner Biological Consulting during 2017; the results of prior surveys at the site are also described by Ardea & Bumgardner (2017). The surveys encompassed the only seasonal wetland in the site that is located outside the boundaries of the ECCCHCP. The surveys also encompassed much of the ruderal grassland habitat in the portion of the site that is located outside the boundaries of the ECCCHCP. Finally, the surveys included the Permanent Wetland just north of the proposed outfall site, in an area with similar habitats as those found at the outfall site.

No special-status plants were located in the site during the 2017 surveys. A few special-status birds were documented in the site. California black rail, white-tailed kite, and loggerhead shrike were documented nesting in the overall property during surveys conducted in support of the ongoing soil and groundwater remediation project at the site (Ardea & Bumgardner, 2017). Saltmarsh common yellowthroat was also observed during the nesting season, but nesting was not documented. The trees and shrubs in the project site provide potentially suitable nesting habitat for white-tailed kite and loggerhead shrike. While the permanent wetland may be used nesting California black rail and saltmarsh common yellowthroat, the remainder of the project site does not provide suitable nesting habitat for either species.

Project Impact Overview and Potential Mitigation Options

The project will involve permanent impacts to approximately 14 acres of land outside of the ECCCHCP Permit Area and potential temporary impacts to approximately 8 acres of land outside the ECCCHCP Permit Area. The precise acreages will depend on final engineering design. Permanent impacts will include conversion of habitat to project features such as buildings, parking lots, and the storm drain outfall. In contrast, the temporary impacts will be from grading; following construction, these graded areas will support ruderal grassland vegetation, similar to that occurring on the site. The grassland will continue to provide foraging habitat to Swainson's hawk and other species.

In the event the loss of potential Swainson's hawk foraging habitat exceeds 5 acres, this would be a potentially significant impact, requiring compensatory mitigation. Consistent with CDFW's Staff Report regarding Mitigation for Impacts to Swainson's Hawks (*Buteo Swainsoni*) in the Central Valley of California (CDFG, 1994), mitigation would be provided at a 1:1 ratio at a CDFW-approved mitigation bank, such as the Elsie-Gridley Mitigation Bank. This purchase of credits would also provide compensatory mitigation for burrowing owl and other species that occur in ruderal grasslands in the project vicinity.

The 0.197+/- acre seasonal wetland that is outside the boundaries of the ECCCHCP Permit Area will be filled under Nationwide Permit 39. Approximately 0.035+/- acres of permanent wetlands outside the boundaries of the ECCCHCP Permit Area will be also be filled during construction of the storm drain outfall under Nationwide Permit 7. Outfall construction will also result in temporary impacts to an additional 0.030+/- acres of permanent wetlands surrounding the outfall. Potential project impacts to special-status fish from the storm drain outfall are being analyzed in a stand-alone Biological Assessment (BA). The BA will be submitted to USACE with the Nationwide Permit 7 & 39 Preconstruction Notification to support Section 7 Consultation(s) with USFWS and/or the National Marine Fisheries Service (NMFS). It is anticipated that NMFS and USFWS will require compensatory mitigation for impacts to the tidal wetlands and associated special-status fish species. The required mitigation would be provided at the standard ratio of 3:1 at a mitigation bank approved by USFWS, NMFS, ACOE and CDFW, such as the Cosumnes Floodplain Mitigation Bank.

Avoidance and Minimization Measures

Swainson's hawk could potentially nest in trees in or near the site and could be disturbed by construction noise and activity. Burrowing owls could potentially nest in the site and could be disturbed by construction noise and activity. Trees and grasslands in the site could be used by birds protected by the Migratory Bird Treaty Act of 1918 and Fish and Game Code of California. Special-status fish in downstream waterways could be impacted from sedimentation during construction of the outfall. In addition to providing compensatory mitigation, the applicant will employ standard avoidance and minimization measures during project construction:

- A pre-construction survey for nesting Swainson's hawks within 0.25 miles of the project site is recommended if construction commences between March 1 and September 15. If active nests are found, a qualified biologist should determine the need (if any) for temporal restrictions on construction. The determination should utilize criteria set forth by CDFW (CDFG, 1994).

- Pre-construction surveys for burrowing owls within 250 feet of the site will occur if construction commences between February 1 and August 31. If occupied burrows are found, a qualified biologist will determine the need (if any) for temporal restrictions on construction pursuant to criteria set forth by CDFW (CDFG, 2012).

- If vegetation removal or construction commences during the general avian nesting season (March 1 through July 31), a pre-construction survey for all species of nesting birds is recommended. If active nests are found, work in the vicinity of the nests should be delayed until the young fledge.

- Project construction should be scheduled between August 1 and November 30 to reduce the potential for sedimentation in the permanent wetland, and associated impacts to aquatic resources including special-status fish that occur in the downstream waterways on a seasonal basis. This work window may be adjusted through consultation with CDFW, NMFS and/or USFWS

References and Literature Consulted

Ardea & Bumgardner (Ardea Consulting & Bumgardner Biological Consulting). 2017. Wildlife Resources at Chemours-Oakley, California Site. Prepared for Parsons, Walnut Creek, California. October.

California Environmental Services. 2017. Focused Rare Plant Surveys, Chemours-Oakley, California Site. Prepared for Parsons, Walnut Creek, California. September 7.

CDFG (California Department of Fish and Game). 1994. Staff Report regarding Mitigation for Impacts to Swainson's Hawks (*Buteo Swainsoni*) in the Central Valley of California. November.

CDFG. 2012. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Wildlife, Sacramento, California. March 7.

CNDDB (California Natural Diversity Database). 2019. California Department of Fish and Wildlife's Natural Heritage Program, Sacramento, California.

CNPS (California Native Plant Society). 2019. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). California Native Plant Society, Sacramento, CA. http://www.rareplants.cnps.org

CFR (Code of Federal Regulations). 1999a. Title 50. Volume 1 - Wildlife and Fisheries. Section 17.96 - Critical habitat-plants. Designation of critical habitat for Contra Costa wallflower (*Erysimum capitatum* var. *angustatum*). Designated in Federal Register notice 43:39044; August 31, 1978.

CFR. 1999b. Title 50. Volume 1 - Wildlife and Fisheries. Section 17.96 - Critical habitat-plants. Designation of critical habitat for Antioch dunes evening primrose (*Oenothera deltoides var. howellii*). Designated in Federal Register notice 43:39042; August 31, 1978.

National Oceanic and Atmospheric Administration (NOAA). 2005. Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule. Federal Register 70 (170): 52488-52585. September 2, 2005.

USFWS (United States Fish and Wildlife Service). 1980a. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17. Listing the Valley Elderberry Longhorn Beetle as a Threatened Species with Critical Habitat. Federal Register 45 No. 155, pp. 52803-52807, August 8.

USFWS. 1980b. Endangered and Threatened Wildlife and Plants; Listing the Delta Green Ground Beetle as a Threatened Species with Critical Habitat; Final Rule. Federal Register Vol. 45, No. 155, August 8, 1980, pp. 52807 – 52810.

USFWS. 1994. Final Critical Habitat for the Delta Smelt (*Hypomesus transpacificus*). Federal Register Vol. 59, No. 242, December 19, 1994, pp. 65256 – 65279.

USFWS. 2005a. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Evaluation and Economic Exclusions from August 2003 Final Designation, Final Rule. Federal Register Vol. 70, No. 154, August 11.

USFWS. 2005b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Tiger Salamander, Central Population; Final Rule. Federal Register Vol. 70, No. 162, August 23, 2005, pp. 49390 – 49458.

USFWS. 2006a. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for California Red-Legged Frog, and Special Rule Exemption Associated with Final

Listing for Existing Routine Ranching Activities, Final Rule. Federal Register Vol. 71, No. 71, April 13.

USFWS. 2006b. Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Alameda Whipsnake, Final Rule. Federal Register Vol. 71, No. 190, October 2.

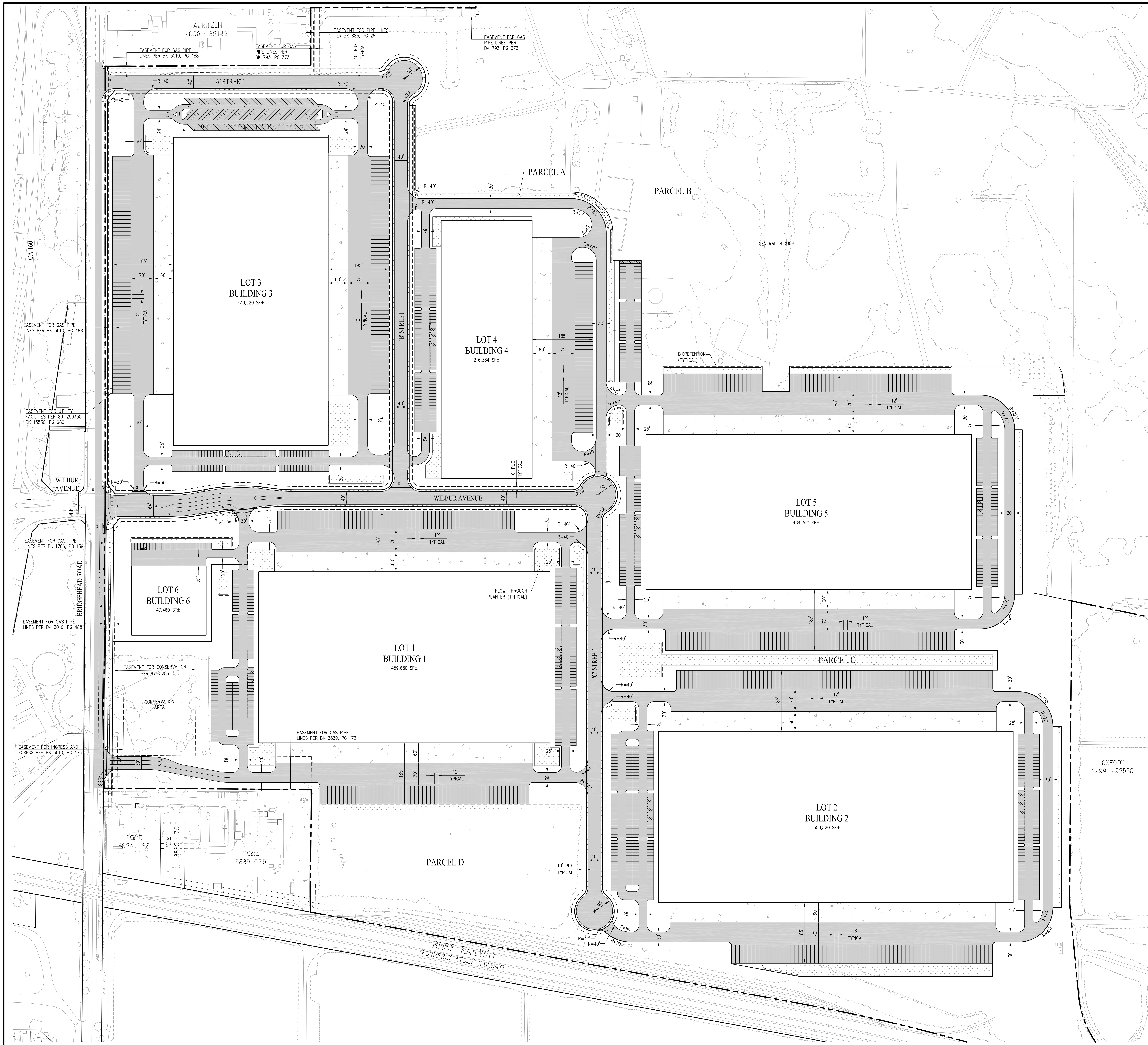
USFWS. 2007. Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Cirsium hydrophilum var. hydrophilum (Suisun thistle) and Cordylanthus mollis ssp. mollis (soft bird's-beak). Final Rule. Federal Register Vol. 72, No. 70, April 12.

USFWS. 2017. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 28pp.

Attachment A

Site Plan &

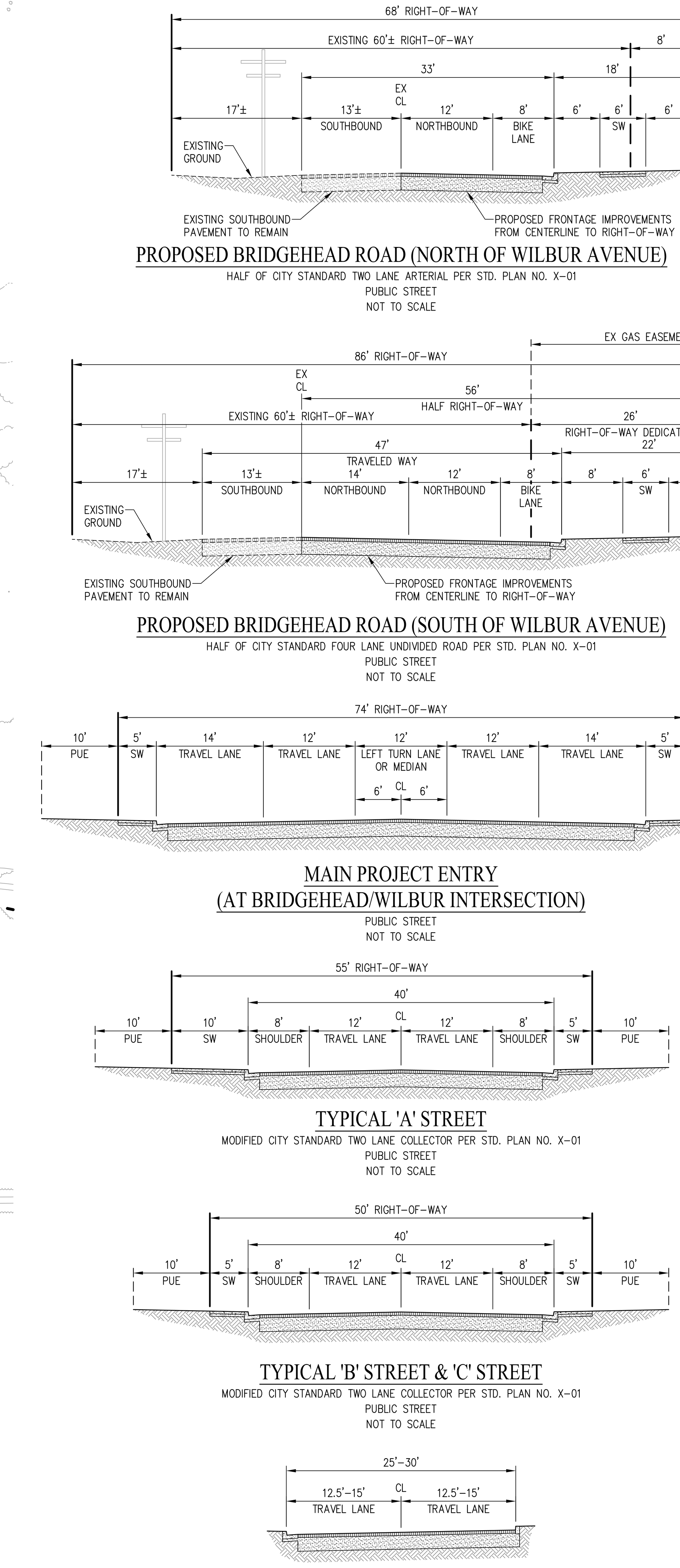
Conceptual Outfall Structure Exhibits



PARKING SUMMARY			
BUILDING NO.	BUILDING FOOTPRINT	PARKING STALLS PROVIDED	PARKING RATIO
BUILDING 1	459,680 SF±	250	1:2,000 SF
BUILDING 2	559,520 SF±	298	1:2,000 SF
BUILDING 3	439,920 SF±	234	1:2,000 SF
BUILDING 4	216,384 SF±	117	1:2,000 SF
BUILDING 5	464,360 SF±	246	1:2,000 SF
BUILDING 6	47,460 SF±	26	1:2,000 SF
TOTAL	2,187,324 SF±	1171	1:2,000 SF

PARKING NOTES:

1. PERPENDICULAR PARKING STALLS ARE SHOWN AT 9' WIDE BY 20' DEEP. DIMENSIONS MAY BE REDUCED TO 9' WIDE BY 19' DEEP PER CITY OF OAKLEY MUNICIPAL CODE SECTION 9.1.1402 FOR FINAL DESIGN.
2. ANGLED PARKING STALLS ARE SHOWN AS 8' WIDE BY 19' DEEP MINIMUM PER CITY OF OAKLEY MUNICIPAL CODE SECTION 9.1.1402.
3. MANEUVERING AISLES BETWEEN PERPENDICULAR PARKING STALLS ARE SHOWN AT 25' WIDE. AISLES MAY BE REDUCED TO 24' WIDE PER CITY OF OAKLEY MUNICIPAL CODE SECTION 9.1.1402 FOR FINAL DESIGN.
4. MANEUVERING AISLES BETWEEN ANGLED PARKING STALLS ARE SHOWN AT 14' PER CITY OF OAKLEY MUNICIPAL CODE SECTION 9.1.1402.



PROPOSED BRIDGEHEAD ROAD (NORTH OF WILBUR AVENUE)
HALF OF CITY STANDARD TWO LANE ARTERIAL PER STD. PLAN NO. X-01
PUBLIC STREET
NOT TO SCALE

PROPOSED BRIDGEHEAD ROAD (SOUTH OF WILBUR AVENUE)
HALF OF CITY STANDARD FOUR LANE UNDIVIDED ROAD PER STD. PLAN NO. X-01
PUBLIC STREET
NOT TO SCALE

MAIN PROJECT ENTRY (AT BRIDGEHEAD/WILBUR INTERSECTION)
PUBLIC STREET
NOT TO SCALE

TYPICAL 'A' STREET
MODIFIED CITY STANDARD TWO LANE COLLECTOR PER STD. PLAN NO. X-01
PUBLIC STREET
NOT TO SCALE

TYPICAL 'B' STREET & 'C' STREET
MODIFIED CITY STANDARD TWO LANE COLLECTOR PER STD. PLAN NO. X-01
PUBLIC STREET
NOT TO SCALE

PRIVATE ROADS
PRIVATE STREET
NOT TO SCALE

SUBDIVISION 9513
OAKLEY LOGISTICS CENTER
DIMENSIONED SITE PLAN
VESTING TENTATIVE MAP

CITY OF OAKLEY   CONTRA COSTA COUNTY   CALIFORNIA

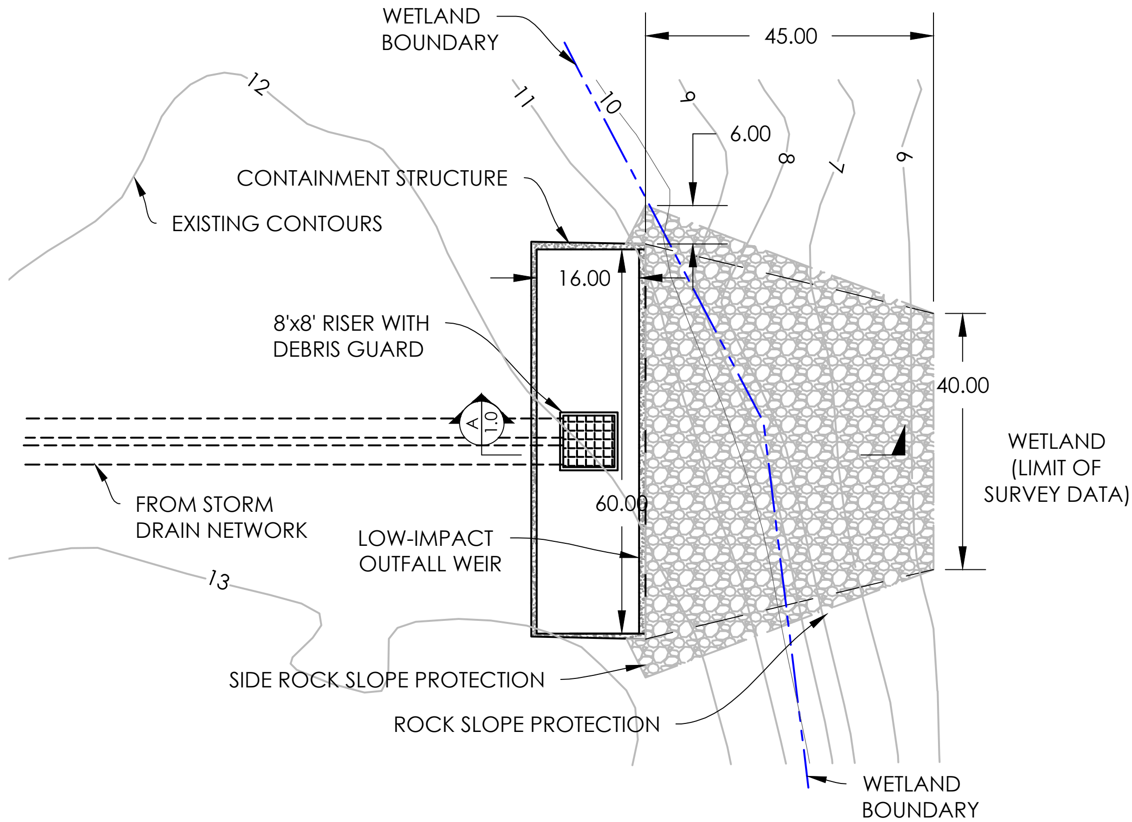
0' 100' 300' 400'
SCALE: 1" = 100'

DATE: JUNE 21, 2019
JOB NO.: 1073-010

cbg
CIVIL ENGINEERS ▪ SURVEYORS ▪ PLANNERS
SAN RAMON ▪ (925) 866-0322
SACRAMENTO ▪ (916) 375-1877
WWW.CBANDG.COM

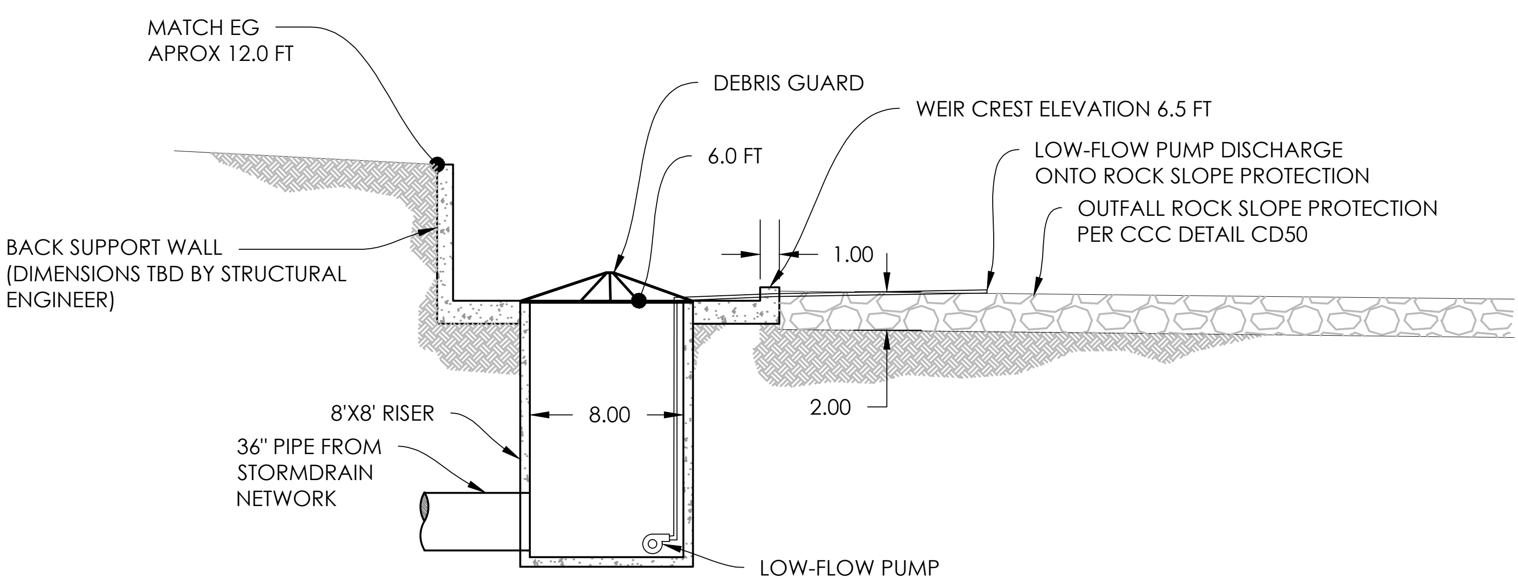
SHEET NO.
3
OF 7 SHEETS

6/21/2019 2:31 PM
G:\1073-010\ACAD\TM\TM03.DWG



1 CONCEPTUAL LOW-IMPACT OUTFALL STRUCTURE

SCALE: 1" = 30'



LOW-IMPACT OUTFALL STRUCTURE (A / 1.0)

PROFILE VIEW 1" = 10'

Balance Hydrologics, Inc.

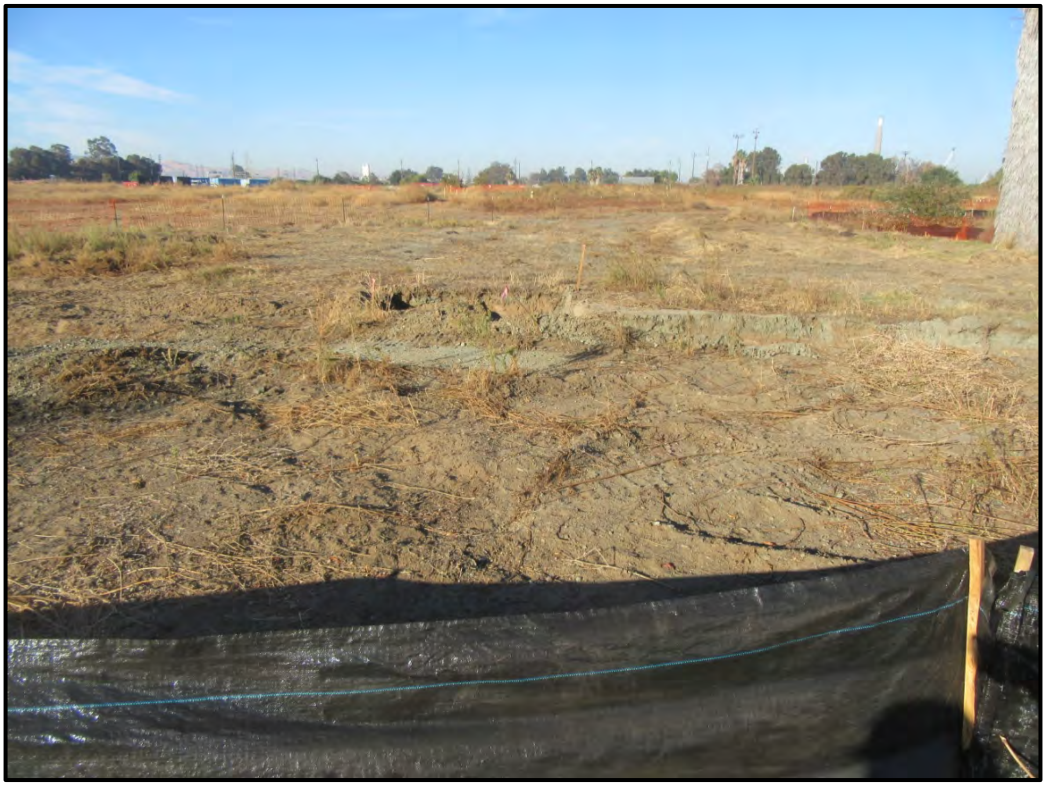
Conceptual Low-Impact Outfall Structure,
Oakley Logistics Center,
City of Oakley, Contra Costa County, California

N

BubbleUpDetail.dwg 6/20/2019 17:36, scaled as noted when printed on 8.5x11 sheet.

Attachment B

Photographs



Ruderal grassland with ongoing remediation just south of Central Slough in the "Outside HCP" area, looking west; 11/02/18.

Wilbur Avenue along the south side of the "Outside-HCP" area, looking west; 11/02/18.

Ruderal grassland in the southeast part of the "Outside-HCP" area, looking north; 11/02/18. The grassland is periodically mowed and/or disked.

Seasonal Wetland SW-C, looking south from the north end; 01/25/19. There are soil remediation acitivities underway in very close proximity to the wetland.

Approximate location of the proposed storm drain outfall, looking north; 03/21/19.

Vegetation at the location of the proposed storm drain outfall, looking west; 03/21/19. Dominant vegetation includes cattails and tules.

Attachment C

CNDDB Summary Report and Maps

USFWS IPaC Trust Report

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Jersey Island (3812116) OR Antioch North (3812117) OR Antioch South (3712187) OR Brentwood (3712186))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
Alkali Meadow Alkali Meadow	CTT45310CA	None	None	G3	S2.1	
Alkali Seep Alkali Seep	CTT45320CA	None	None	G3	S2.1	
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
Amsinckia grandiflora large-flowered fiddleneck	PDBOR01050	Endangered	Endangered	G1	S1	1B.1
Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S2	
Anniella pulchra northern California legless lizard	ARACC01020	None	None	G3	S3	SSC
Anomobryum julaceum slender silver moss	NBMUS80010	None	None	G5?	S2	4.2
Anthicus antiochensis Antioch Dunes anthicid beetle	IICOL49020	None	None	G1	S1	
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Apodemia mormo langei Lange's metalmark butterfly	IILEPH7012	Endangered	None	G5T1	S1	
Archoplites interruptus Sacramento perch	AFCQB07010	None	None	G2G3	S1	SSC
Arctostaphylos auriculata Mt. Diablo manzanita	PDERI04040	None	None	G2	S2	1B.3
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Blepharizonia plumosa big tarplant	PDAST1C011	None	None	G1G2	S1S2	1B.1

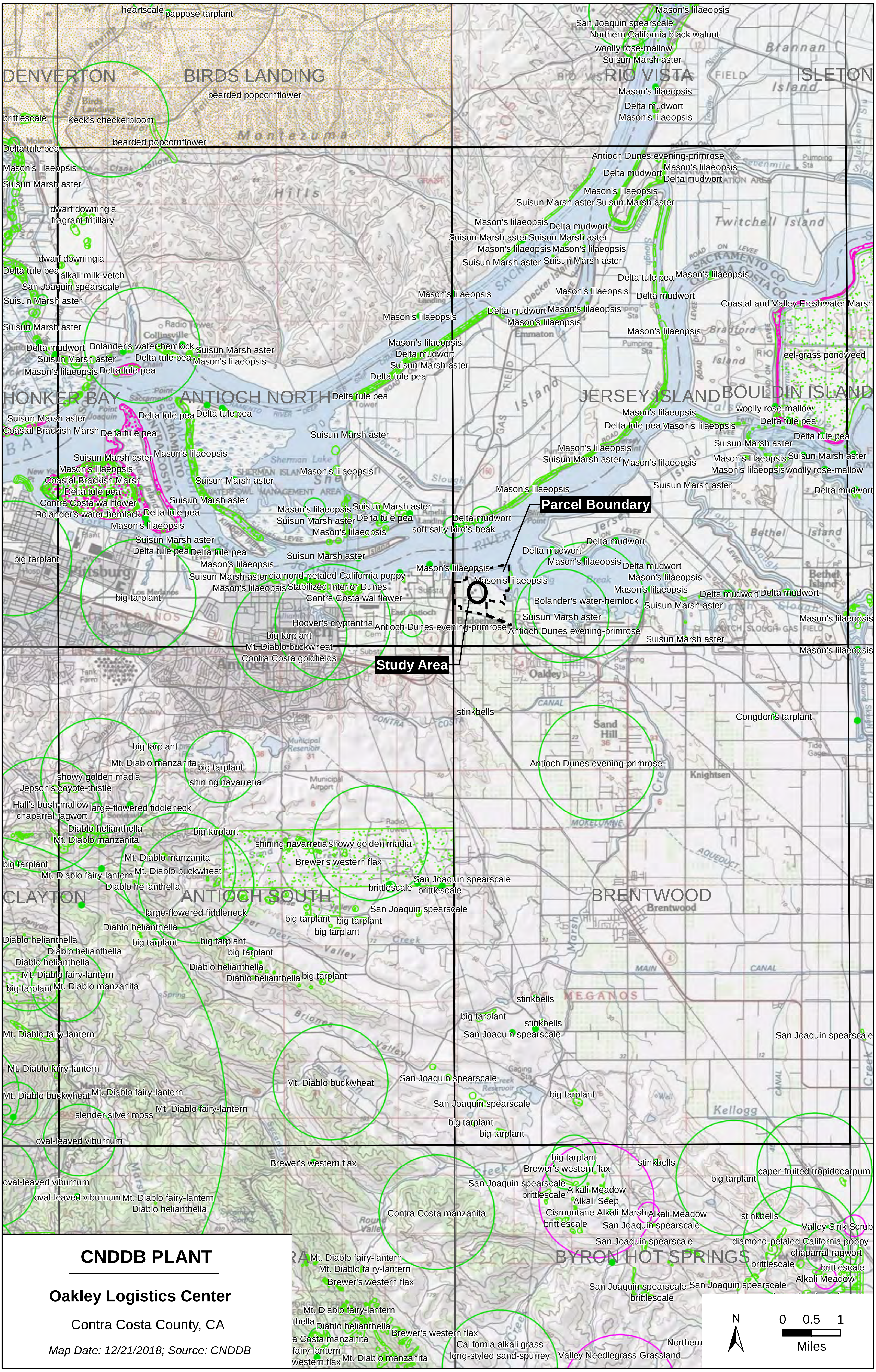
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Calochortus pulchellus Mt. Diablo fairy-lantern	PMLIL0D160	None	None	G2	S2	1B.2
Centromadia parryi ssp. congdonii Congdon's tarplant	PDAST4R0P1	None	None	G3T1T2	S1S2	1B.1
Chloropyron molle ssp. molle soft salty bird's-beak	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
Cicuta maculata var. bolanderi Bolander's water-hemlock	PDAPI0M051	None	None	G5T4T5	S2?	2B.1
Cismontane Alkali Marsh Cismontane Alkali Marsh	CTT52310CA	None	None	G1	S1.1	
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
Coastal Brackish Marsh Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
Coelus gracilis San Joaquin dune beetle	IICOL4A020	None	None	G1	S1	
Cryptantha hooveri Hoover's cryptantha	PDBOR0A190	None	None	GH	SH	1A
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Efferia antiochi Antioch efferian robberfly	IIDIP07010	None	None	G1G2	S1S2	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eriogonum nudum var. psychicola Antioch Dunes buckwheat	PDPGN0849Q	None	None	G5T1	S1	1B.1
Eriogonum truncatum Mt. Diablo buckwheat	PDPGN085Z0	None	None	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Eryngium jepsonii Jepson's coyote-thistle	PDAPI0Z130	None	None	G2	S2	1B.2
Erysimum capitatum var. angustatum Contra Costa wallflower	PDBRA16052	Endangered	Endangered	G5T1	S1	1B.1
Eschscholzia rhombipetala diamond-petaled California poppy	PDPAP0A0D0	None	None	G1	S1	1B.1
Eucerceris ruficeps redheaded sphecid wasp	IIHYM18010	None	None	G1G3	S1S2	
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
Helianthella castanea Diablo helianthella	PDAST4M020	None	None	G2	S2	1B.2
Helminthoglypta nickliniana bridgesi Bridges' coast range shoulderband	IMGASC2362	None	None	G3T1	S1S2	
Hesperolinon breweri Brewer's western flax	PDLIN01030	None	None	G2	S2	1B.2
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Hygrotus curvipes curved-foot hygrotus diving beetle	IICOL38030	None	None	G1	S1	
Hypomesus transpacificus Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
Idiostatus middlekauffi Middlekauff's shieldback katydid	IIORT31010	None	None	G1G2	S1	
Lanius ludovicianus loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Lathyrus jepsonii var. jepsonii Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Limosella australis Delta mudwort	PDSCR10030	None	None	G4G5	S2	2B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Lytta molesta molestan blister beetle	IICOL4C030	None	None	G2	S2	
Madia radiata showy golden madia	PDAST650E0	None	None	G3	S3	1B.1
Malacothamnus hallii Hall's bush-mallow	PDMAL0Q0F0	None	None	G2	S2	1B.2
Masticophis lateralis euryxanthus Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Melospiza melodia maxillaris Suisun song sparrow	ABPBXA301K	None	None	G5T3	S3	SSC
Metapogon hurdi Hurd's metapogon robberfly	IIDIP08010	None	None	G1G2	S1S2	
Myrmosula pacifica Antioch multilid wasp	IIHYM15010	None	None	GH	SH	
Navarretia nigelliformis ssp. radians shining navarretia	PDPLM0C0J2	None	None	G4T2	S2	1B.2
Oenothera deltoides ssp. howellii Antioch Dunes evening-primrose	PDONA0C0B4	Endangered	Endangered	G5T1	S1	1B.1
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Perdita scitula antiochensis Antioch andrenid bee	IIHYM01031	None	None	G1T1	S1	
Perognathus inornatus San Joaquin Pocket Mouse	AMAFD01060	None	None	G2G3	S2S3	
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Philanthus nasalis Antioch specid wasp	IIHYM20010	None	None	G1	S1	
Plagiobothrys hystriculus bearded popcornflower	PDBOR0V0H0	None	None	G2	S2	1B.1
Potamogeton zosteriformis eel-grass pondweed	PMPOT03160	None	None	G5	S3	2B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Rana boylii foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Sidalcea keckii Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
Sphecodogastra antiochensis Antioch Dunes halcitid bee	IIHYM78010	None	None	G1	S1	
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	SSC
Stabilized Interior Dunes Stabilized Interior Dunes	CTT23100CA	None	None	G1	S1.1	
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Tropidocarpum capparideum caper-fruited tropidocarpum	PDBRA2R010	None	None	G1	S1	1B.1
Viburnum ellipticum oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3
Vulpes macrotis mutica San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S2	

Record Count: 97

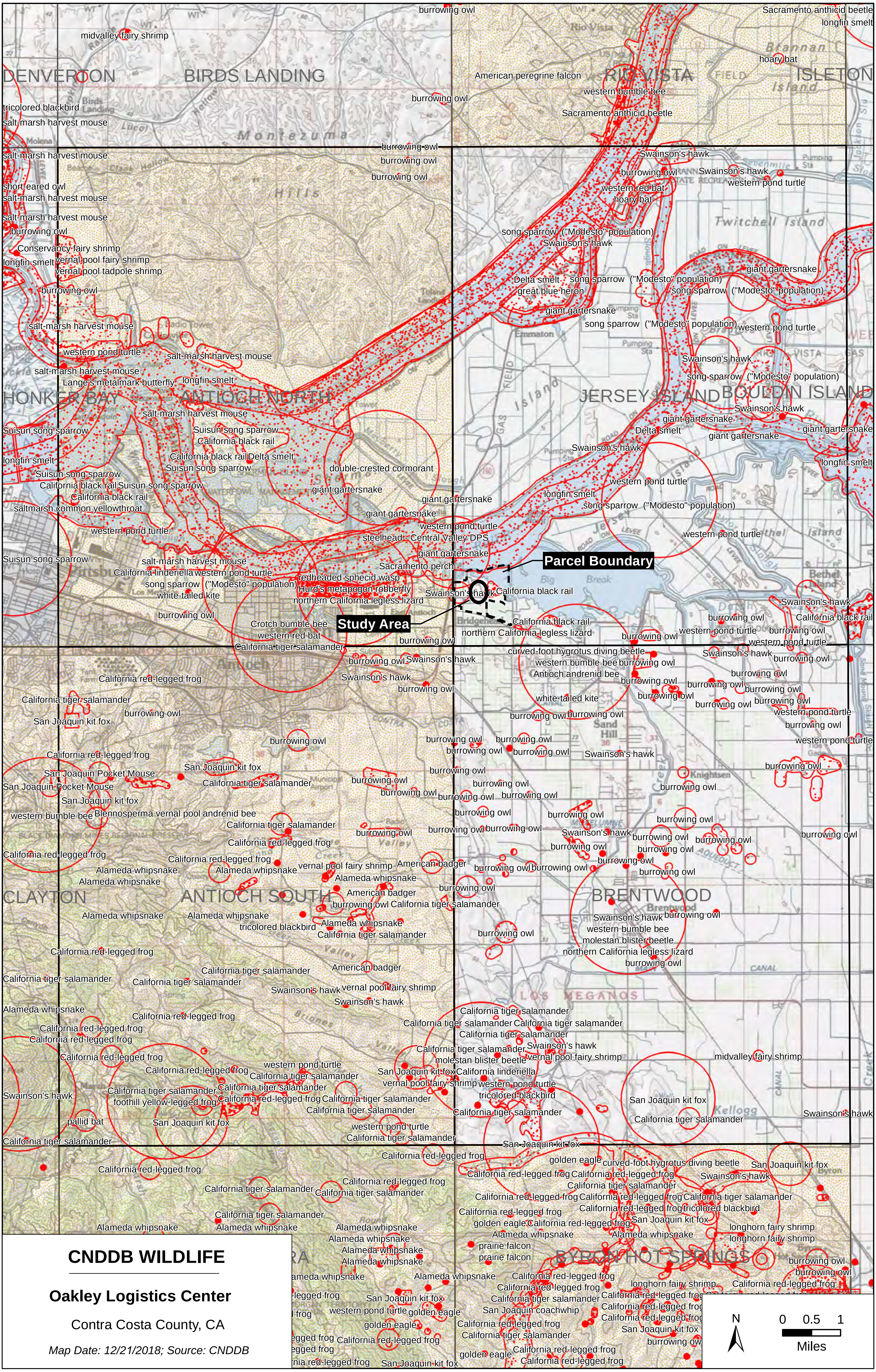


CNDDB PLANT

Oakley Logistics Center

Contra Costa County, CA

Map Date: 12/21/2018; Source: CNDDB



CNDDB WILDLIFE

Oakley Logistics Center

Contra Costa County, CA

Map Date: 12/21/2018; Source: CNDDB

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Contra Costa and Sacramento counties, California

Local offices

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

San Francisco Bay-Delta Fish And Wildlife

(916) 930-5603
(916) 930-5654

650 Capitol Mall
Suite 8-300
Sacramento, CA 95814

http://kim_squires@fws.gov

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Salt Marsh Harvest Mouse Reithrodontomys raviventris — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/613

San Joaquin Kit Fox Vulpes macrotis mutica — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/2873

Birds

NAME	STATUS
California Clapper Rail Rallus longirostris obsoletus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern Sterna antillarum browni No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) Masticophis lateralis euryxanthus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5524	Threatened
Giant Garter Snake Thamnophis gigas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Delta Green Ground Beetle *Elaphrus viridis* There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2319	Threatened
Lange's Metalmark Butterfly *Apodemia mormo langei* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/4382	Endangered
San Bruno Elfin Butterfly *Callophrys mossii bayensis* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3394	Endangered
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Vernal Pool Tadpole Shrimp Lepidurus packardi There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Antioch Dunes Evening-primrose Oenothera deltoides ssp. howellii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5970	Endangered
Colusa Grass Neostapfia colusana There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5690	Threatened
Contra Costa Goldfields Lasthenia conjugens There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7058	Endangered
Contra Costa Wallflower Erysimum capitatum var. angustatum There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7601	Endangered
Keck's Checker-mallow Sidalcea keckii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5704	Endangered
Soft Bird's-beak Cordylanthus mollis ssp. mollis There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8541	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE

Delta Smelt Hypomesus transpacificus https://ecos.fws.gov/ecp/species/321#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN

	THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Black Rail Laterallus jamaicensis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/7717	Breeds Mar 1 to Sep 15
Burrowing Owl Athene cunicularia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31
California Thrasher Toxostoma redivivum This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Lewis's Woodpecker Melanerpes lewis — Breeds Apr 20 to Sep 30

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9408

Long-billed Curlew Numenius americanus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5511

Marbled Godwit Limosa fedoa — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Rufous Hummingbird selasphorus rufus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Song Sparrow Melospiza melodia
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds Feb 20 to Sep 5

Spotted Towhee Pipilo maculatus clementae
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4243

Breeds Apr 15 to Jul 20

Tricolored Blackbird Agelaius tricolor
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Breeds Mar 15 to Aug 10

Whimbrel Numenius phaeopus
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9483

Breeds elsewhere

Willet Tringa semipalmata
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Wrentit Chamaea fasciata
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Mar 15 to Aug 10

Yellow-billed Magpie Pica nuttalli
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Breeds Apr 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

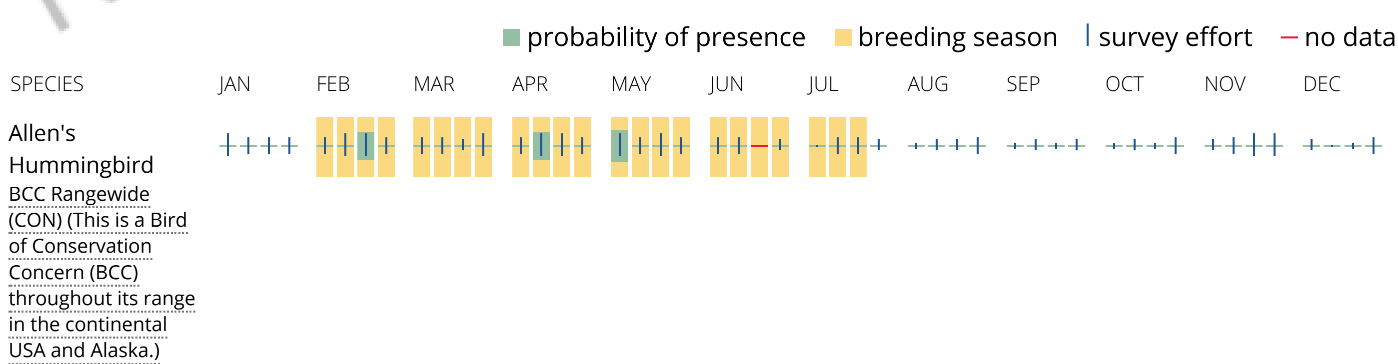
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

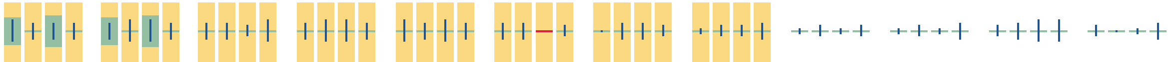
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

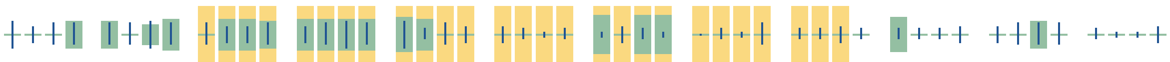
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



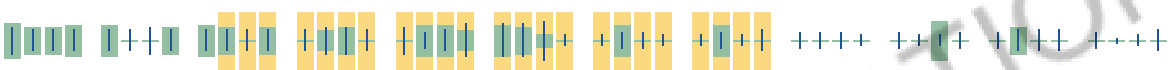
Bald Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



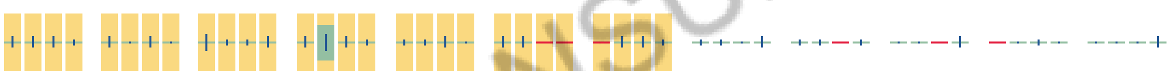
Black Rail
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



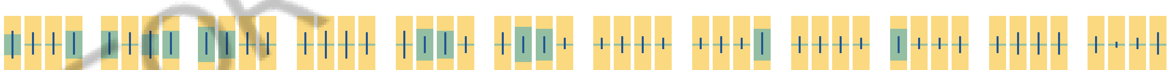
Burrowing Owl
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



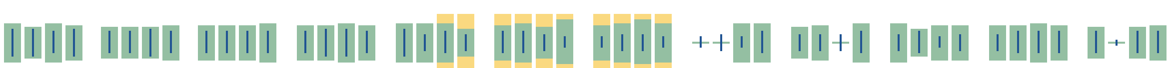
California Thrasher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



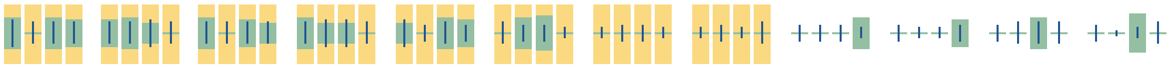
Clark's Grebe
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



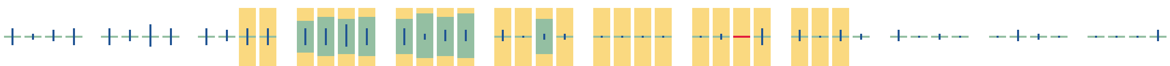
Common Yellowthroat
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



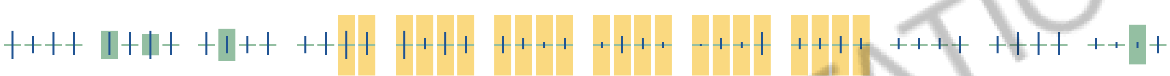
Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



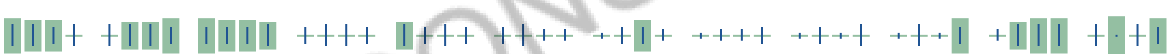
Lawrence's Goldfinch
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



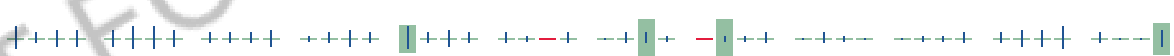
Lewis's Woodpecker
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Long-billed Curlew
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

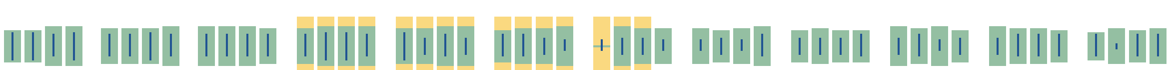


Marbled Godwit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

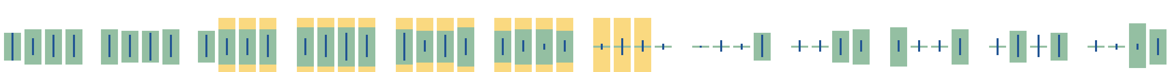


SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Nuttall's Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Oak Titmouse
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Short-billed Dowitcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

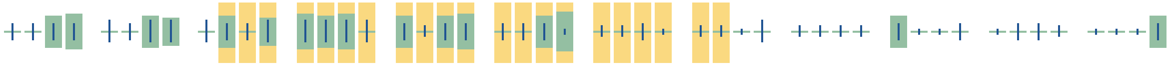
Spotted Towhee
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Tricolored Blackbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

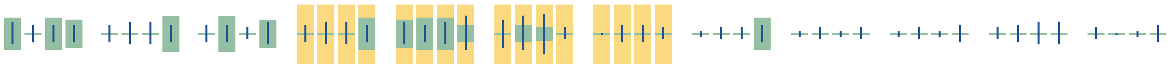
Whimbrel
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wrentit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Yellow-billed Magpie
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

ESTUARINE AND MARINE DEEPWATER
- E1UBL

ESTUARINE AND MARINE WETLAND
- E2EM1N
- E2USM
- E2EM1P

FRESHWATER EMERGENT WETLAND
- PEM1T

PEM1C
PEM1A
PEM1S
PEM1Ch
PEM1Fh

FRESHWATER FORESTED/SHRUB WETLAND

PSS/EM1R
PSSR
PSS1C

FRESHWATER POND

PUBK
PUBF
PUBHx
PABHh
PUBVx

OTHER

Pf

RIVERINE

R1UBV
R2UBHx
R1UBVx

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix F

TREES, BUGS, DIRT

LANDSCAPE CONSULTING & TRAINING

FINAL ARBORIST REPORT

Chemours Dupont Site - Oakley CA

December 7, 2018

Prepared For: Northpoint Development
12977 North Forty Drive - Suite 203
St. Louis MO 63141

PO Box 311, Orinda CA 94563 treesbugsdirt@gmail.com - email 925.254.7950 – Phone

TABLE OF CONTENTS

SUMMARY

Six hundred and sixty two trees (>=6.6" in diameter) are located in the areas to be developed on the site. Trunk diameters of trees inventoried range from 6.7" to 199.7, averaging 29.2". Tree health ranges from dead to excellent, averaging poor-fair. Structural quality ranges from very poor to good, averaging poor. Form ranges from very poor to excellent, averaging poor. One hundred and thirty trees are identified as heritage and protected trees on site.

INTRODUCTION

PURPOSE AND USE

This report is intended to provide information for the Client and the City of Oakley as part of a development permit for the property, in compliance with the City of Oakley Heritage and Protected Trees Ordinance 9.1.1112.

ASSIGNMENT

I was hired by Jed Momot, NorthPoint Development, to inventory & evaluate trees in proposed development areas and to provide an Arborist Report that includes a summary of my observations & a location map.

LIMITS OF ASSIGNMENT

- Did not evaluate trees below ground or aerially, nor use invasive or destructive methods to assess health
- Evaluated trees within proposed development areas 6.6" and greater in diameter
- No recommendations for care or preservation

BACKGROUND

Proposed development will require the removal of all trees in the development areas. However, trees are protected in Oakley if they are at least 15.6 inches in diameter and a "native oak", or at least 15.6" in diameter and providing benefits, or"adjacent" to a riparian habitat, foothill woodland or oak savanna and at least 6.5 inches in diameter (single trunk) or 12.5 inches in diameter (multiple trunks), and on the City of Oakley's list of "indigenous" trees. Removal of protected trees in Oakley requires a permit and mitigation.

OBSERVATIONS

LOCATION

The site is south of Highway 160 and Bridgehead Road, between railroad tracks and a fenceline next to the Oakley marina on both sides of Wilbur Ave.

SETTING

The relatively flat site includes some structures and historically maintained landscapes, roads, foundations, berms, parking lots, paved and unpaved areas and areas in the process of being mitigated for environmental contamination. A variety of areas host wetland habitat including detention basins and ponds.

Delhi sand is the soil series mapped in the area of the site. It is a somewhat excessively drained soil with rapid permeability and negligible to slow runoff. These poorly structured soils were typically dominated by grasses and herbaceous forbs with scattered trees and shrubs, later almonds & grapes were farmed in them.

METHODS

On October 10, 2018, I met with the client, began working on the site on October 11 and completed field work on November 14. I walked the site with a chaperone and looked at the trees in the development areas. I identified trees to species, measured **trunk circumferences** at 4.5 feet above grade, tagged trunks with numbered tags, digitally imaged the trees and assessed their health, structural quality and form.

Measurements & Estimates

- Trunk circumferences measured at 4.5 feet above grade, unless otherwise noted due to access problems
- Palm size estimated as trunk clear of new fronds, from ground level up
- Multiple trunks combined for a cumulative trunk measurement
- Trunk circumferences divided by 3.14 to calculate diameter, and rounded off to one significant digit

Health Structure & Form Evaluations

+numerical rating system; zero (dead), one (very poor), two (poor), three (fair), four (good) and five (excellent)

+ form assessed by rating specimens on their deviance from the norm for the species in this region, visual qualities such as attractiveness, and engineering functions such as screening, shading and creating views

+qualitative descriptions and items assessed for health & structure include

- rooting zone - bare, mulched, limited space, weeds, competing vegetation, moisture, debris
- root crown region (trunk & root junction) - buried, clear, pests, diseases, wet, wounds, cavities
- trunk - taper, lack of taper, wounds, lean, growth cracks, stress cracks, pests, diseases, wounds
- scaffold (large, major) branches - taper, distribution of branches, strength of branch connections, wounds, pests
- smaller branches - distribution, size, amount, strength of connections, pests, diseases
- twigs - annual growth, color, size, distribution, dead/live
- foliage - color, size, distribution, pests, diseases, leaf fall

DATA - *See Appendix A for complete data set*

- 662 trees measured, evaluated, tagged, digitally imaged & located with gps & on map
- 130 heritage & protected trees identified
- 3 indigenous species identified (#trees); CA sycamore (3), coast live oak (39), and fremont poplar (1)
  - 16 other species identified; Aleppo pine (1), almond (4), athel tamarisk (150), blue gum eucalyptus (127), CA peppertree (1), Chinese pistache (3), coast redwood (2), fruitless mulberry (1), Mexican fan palm (37), pacific willow (32), red river gum (228), shore pine (5), scots pine (1), southern magnolia (5), tree of heaven (16), willows not identified to species (4)
- trunk diameter (size) ranged from 6.7 inches to 199.7 inches, averaging 29.2 inches
- health ranged from dead to excellent, averaging
- structure & form ranged from very poor to, averaging

APPENDIX A - DATA

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
1	*Quercus agrifolia*	coast live oak	good	poor	poor	*19,6,6*	**9.9**
2	*Salix lucida*	pacific willow	good	fair	poor	*33*	**10.5**
3	*Salix lucida*	pacific willow	good	very poor	poor	*19,11,11*	**10.8**
4	*Salix lucida*	pacific willow	good	fair	poor	*32*	**10.2**
5	*Salix lucida*	pacific willow	good	poor	poor	*21*	**6.7**
6	*Salix lucida*	pacific willow	fair	poor	poor	*24,35,24,22.5,22,30*	**50.2**
7	*Salix lucida*	pacific willow	fair	poor	poor	*29,17,14,14*	**23.6**
8	*Salix lucida*	pacific willow	fair	poor	poor	*16,18,24,22*	**25.5**
9	*Populus fremontii*	fremont poplar	fair	fair	good	*57*	**18.2**
10	*Prunus amygdalus*	almond	poor	poor	fair	*9,11,8.5*	**9.1**
11	*Prunus amygdalus*	almond	poor	very poor	poor	*Multiple, >=40"*	**multiple >=12.7"**
12	*Prunus amygdalus*	almond	poor	fair	poor	*42.5,30*	**23.4**
13	*Washingtonia robusta*	Mexican fan palm	good	good	good	*34*	**na**
14	*Quercus agrifolia*	coast live oak	fair	fair	good	*39,28,20*	**27.7**
15	*Quercus agrifolia*	coast live oak	good	fair	good	*53,39.5,33*	**41.9**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
16	***Quercus agrifolia***	coast live oak	good	poor	fair	*41,43,37.5,30*	**48.2**
17	***Quercus agrifolia***	coast live oak	fair	poor	poor	*24*	**7.6**
18	***Quercus agrifolia***	coast live oak	good	fair	fair	*35,33,43*	**35.4**
19	***Salix lucida***	pacific willow	good	poor	fair	*32,54,43,38.5*	**53.3**
20	***Salix lucida***	pacific willow	fair	very poor	poor	*11.5,19.5,14,28,11*	**26.8**
21	***Salix lucida***	pacific willow	poor	very poor	poor	*13.5,12.5,17*	**13.7**
22	***Salix lucida***	pacific willow	poor	poor	poor	*46,37,27,17,24,16,12*	**57.0**
23	***Salix lucida***	pacific willow	poor	very poor	very poor	*56*	**17.8**
24	***Quercus agrifolia***	coast live oak	good	poor	poor	*11,18,13*	**13.4**
25	***Salix lucida***	pacific willow	fair	poor	poor	*18,18,12*	**15.3**
26	***Salix lucida***	pacific willow	fair	poor	poor	*9,9,9*	**9.0**
27	***Salix lucida***	pacific willow	poor	poor	poor	*19,21,19,25*	**26.8**
28	***Salix lucida***	pacific willow	poor	poor	poor	*20,20,16,11*	**21.3**
29	***Quercus agrifolia***	coast live oak	fair	poor	fair	*33,33,27*	**29.6**
30	***Quercus agrifolia***	coast live oak	good	fair	fair	*36,32,12*	**25.5**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
31	***Quercus agrifolia***	coast live oak	fair	fair	fair	*28,15,14.5*	**18.3**
33	***Quercus agrifolia***	coast live oak	good	poor	fair	*23,13,10,12*	**18.5**
34	***Quercus agrifolia***	coast live oak	good	poor	poor	*12,12,11,11,9*	**17.5**
35	***Pinus halepensis***	Aleppo pine	good	fair	excellen t	*67,100*	**53.2**
36	***Quercus agrifolia***	coast live oak	good	very poor	poor	*75.4*	**24.0**
37	***Quercus agrifolia***	coast live oak	good	very poor	poor	*76.9*	**24.5**
38	***Quercus agrifolia***	coast live oak	good	very poor	poor	*65.9*	**21.0**
39	***Quercus agrifolia***	coast live oak	fair	poor	poor	*58.1*	**18.5**
40	***Quercus agrifolia***	coast live oak	fair	very poor	poor	*44.0*	**14.0**
41	***Quercus agrifolia***	coast live oak	fair	very poor	poor	*69.1*	**22.0**
42	***Quercus agrifolia***	coast live oak	fair	very poor	poor	*9,5,5,5,10*	**10.8**
43	***Quercus agrifolia***	coast live oak	good	very poor	fair		**15.6**
44	***Salix lucida***	pacific willow	poor	poor	fair	*33,45,116,34,72,56, 56,30,141,17.5,24.5*	**199.7**
45	***Salix lucida***	pacific willow	fair	poor	poor	*7,8,9,8*	**10.2**
46	***Salix lucida***	pacific willow	good	poor	poor	*19.5,14.5,16,16,15, 9,18.5,18.5,17,17,1 7,12,8,26.5*	**71.5**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
47	***Salix lucida***	pacific willow	fair	poor	poor	*10.5,12.5,10,8,14,11*	**21.0**
48	***Salix lucida***	pacific willow	fair	poor	poor	*15,15,8,4*	**13.4**
49	***Salix lucida***	pacific willow	fair	poor	poor	*13,10,12*	**11.1**
50	***Salix lucida***	pacific willow	good	poor	poor	*12.5,13,9,9,13,12,12,9*	**28.5**
51	***Salix lucida***	pacific willow	fair	poor	poor	*9,8,17*	**10.8**
52	***Salix lucida***	pacific willow	poor	poor	very poor	*7,7,9.5*	**7.5**
53	***Salix lucida***	pacific willow	good	poor	fair	*24,16,8,8,8,8*	**20.4**
54	***Salix lucida***	pacific willow	good	poor	fair	*17,12,13,16,12,9,12,9,8,20*	**40.8**
55	***Salix lucida***	pacific willow	excellent	fair	fair	*6,9,9,19,16,7,7,19,19,16,14,19,13,12,21,16,16,16*	**80.9**
56	***Prunus amygdalus***	almond	poor	poor	poor	*14,8,9,7,7,7*	**16.6**
57	***Washingtonia robusta***	Mexican fan palm	fair	poor	poor	*	*
58	***Washingtonia robusta***	Mexican fan palm	good	good	good	*54*	**17.2**
59	***Platanus racemosa***	Ca sycamore	good	fair	excellent	*136.5,66.5*	**64.6**
60	***Platanus racemosa***	Ca sycamore	good	good	excellent	*137,144.5*	**89.6**
61	***Salix lucida***	pacific willow	poor	fair	poor	33.1,40.8	**23.5**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
66	***Quercus agrifolia***	coast live oak	good	good	fair	32.5,33.5,22.5	**28.2**
67	***Salix lucida***	pacific willow	poor	poor	poor	49	**15.6**
68	***Ailanthus altissima***	tree of heaven	fair	good	fair	13.5,13,10,7	**13.9**
69	***Ailanthus altissima***	tree of heaven	poor	poor	fair	37	**11.8**
70	***Quercus agrifolia***	coast live oak	good	good	fair	8,23,9	**12.7**
71	***Pistacia chinensis***	Chinese pistache	fair	poor	poor	14,15,8.5	**11.9**
72	***Pistacia chinensis***	Chinese pistache	fair	poor	poor	11,10,12,10,12,10	**20.7**
73	***Ailanthus altissima***	tree of heaven	poor	poor	poor	20,16	**11.5**
74	***Ailanthus altissima***	tree of heaven	poor	poor	poor	17,13	**9.6**
75	***Pistacia chinensis***	Chinese pistache	fair	poor	poor	13,15	**8.9**
76	***Ailanthus altissima***	tree of heaven	fair	poor	poor	16.5,18.5,9,7	**16.2**
77	***Ailanthus altissima***	tree of heaven	poor	poor	poor	30,9	**12.4**
78	***Ailanthus altissima***	tree of heaven	fair	fair	fair	16,15	**9.9**
79	***Ailanthus altissima***	tree of heaven	good	fair	fair	26,16	**13.4**
80	***Quercus agrifolia***	coast live oak	good	good	fair	31	**9.9**

#	SPECIES	NAME	Health	Structure	Form	CIRCUMFERENCE (inches)	DIAMETER (inches)
81	Quercus agrifolia	coast live oak	fair	poor	poor	19.5,18	11.9
82	Quercus agrifolia	coast live oak	good	fair	poor	19,32	16.2
83	Quercus agrifolia	coast live oak	good	fair	fair	37,12	15.6
84	Magnolia grandiflora	southern magnolia	poor	good	fair	43	13.7
85	Washingtonia robusta	Mexican fan palm	fair	good	fair	na	na
86	Ailanthus altissima	tree of heaven	fair	fair	good	22,25,7,8,10,7,22,28	41.1
87	Quercus agrifolia	coast live oak	fair	fair	poor	26.5	8.4
88	Magnolia grandiflora	southern magnolia	poor	fair	poor	34	10.8
89	Sequoia sempervirens	coast redwood	very poor	poor	poor	86	27.4
90	Sequoia sempervirens	coast redwood	very poor	poor	poor	118	37.6
91	Platanus racemosa	Ca sycamore	good	poor	poor	14,14,12,7	15.0
92	Magnolia grandiflora	southern magnolia	poor	fair	poor	19,20,24,19,14,10,10	36.9
93	Magnolia grandiflora	southern magnolia	poor	fair	poor	36	11.5
94	Magnolia grandiflora	southern magnolia	fair	fair	fair	49,19	21.7
95	Schinus molle	Ca peppertree	fair	poor	good	165	52.5

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
96	*Tamarix aphylla*	athel tamarisk	good	poor	good	36,160,12,13,11,64	**94.3**
97	*Ailanthus altissima*	tree of heaven	poor	poor	poor	15,10,8,12.5	**14.5**
98	*Tamarix aphylla*	athel tamarisk	poor	very poor	very poor	93	**29.6**
100	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	46	**14.6**
101	*Tamarix aphylla*	athel tamarisk	fair	poor	poor	60,108	**53.5**
102	*Tamarix aphylla*	athel tamarisk	fair	poor	poor	94,38,36,91,41,68	**117.2**
103	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	*24,26,78*	**40.8**
104	*Tamarix aphylla*	athel tamarisk	poor	very poor	very poor	*86,59*	**46.2**
105	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	33	**10.5**
106	*Tamarix aphylla*	athel tamarisk	fair	poor	poor	71	**22.6**
107	*Tamarix aphylla*	athel tamarisk	fair	very poor	poor	50	**15.9**
108	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	*72,58*	**41.4**
109	*Tamarix aphylla*	athel tamarisk	poor	very poor	very poor	88,31.5,29.5,45,41, 48,44	**104.1**
110	*Tamarix aphylla*	athel tamarisk	very poor	poor	poor	52.5,43	**30.4**
111	*Tamarix aphylla*	athel tamarisk	fair	poor	poor	74,28	**35.7**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
112	***Tamarix aphylla***	athel tamarisk	very poor	very poor	very poor	60.7	**19.3**
113	***Tamarix aphylla***	athel tamarisk	very poor	very poor	very poor	160	**51.0**
114	***Tamarix aphylla***	athel tamarisk	poor	poor	very poor	30,44	**23.6**
115	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	196,34	**73.2**
116	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	49	**15.6**
117	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	32	**10.2**
118	***Tamarix aphylla***	athel tamarisk	poor	fair	fair	115,34	**47.5**
119	***Tamarix aphylla***	athel tamarisk	poor	poor	very poor	32,75	**33.4**
120	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	13,17,33,40,49,31, 54	**75.5**
121	***Tamarix aphylla***	athel tamarisk	fair	poor	fair	45,41,46	**42.0**
122	***Tamarix aphylla***	athel tamarisk	fair	poor	fair	49,45,26,63,54	**75.5**
123	***Tamarix aphylla***	athel tamarisk	poor	very poor	poor	14,38	**16.6**
124	***Tamarix aphylla***	athel tamarisk	fair	poor	fair	54,112	**52.9**
125	***Tamarix aphylla***	athel tamarisk	poor	very poor	very poor	24,34,27	**27.1**
126	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	91	**29.0**

#	SPECIES	NAME	Health	Structure	Form	CIRCUMFERENCE (inches)	DIAMETER (inches)
127	*Tamarix aphylla*	athel tamarisk	fair	very poor	very poor	34	**10.8**
128	*Tamarix aphylla*	athel tamarisk	fair	very poor	very poor	42,34,18	**29.9**
129	*Tamarix aphylla*	athel tamarisk	poor	very poor	very poor	38	**12.1**
130	*Tamarix aphylla*	athel tamarisk	fair	poor	poor	39,24,68.5,44	**55.9**
131	*Tamarix aphylla*	athel tamarisk	fair	poor	poor	45.5,44,36	**40.0**
132	*Tamarix aphylla*	athel tamarisk	poor	very poor	very poor	28,25	**16.9**
133	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	41	**13.1**
134	*Tamarix aphylla*	athel tamarisk	poor	poor	very poor	48,79	**40.4**
135	*Tamarix aphylla*	athel tamarisk	poor	very poor	very poor	51,67	**37.6**
136	*Tamarix aphylla*	athel tamarisk	fair	poor	poor	84,58,42	**58.6**
137	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	39	**12.4**
138	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	24	**7.6**
139	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	36	**11.5**
140	*Tamarix aphylla*	athel tamarisk	fair	poor	poor	84	**26.8**
141	*Tamarix aphylla*	athel tamarisk	poor	very poor	very poor	61	**19.4**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
142	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	19,25	**14.0**
143	***Tamarix aphylla***	athel tamarisk	fair	very poor	very poor	40,24,31,52	**46.8**
144	***Tamarix aphylla***	athel tamarisk	poor	poor	very poor	36	**11.5**
145	***Tamarix aphylla***	athel tamarisk	fair	fair	fair	32,28,73,83,32,52	**96.5**
146	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	41,32	**23.2**
147	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	17,32,30,32	**35.4**
148	***Tamarix aphylla***	athel tamarisk	fair	fair	fair	77,53,28,61	**69.7**
149	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	38,52,38,30	**50.3**
150	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	47,66	**36.0**
151	***Tamarix aphylla***	athel tamarisk	fair	poor	very poor	26,41	**21.3**
152	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	53,55,31,38,50	**72.3**
153	***Tamarix aphylla***	athel tamarisk	poor	very poor	very poor	53	**16.9**
154	***Tamarix aphylla***	athel tamarisk	very poor	very poor	very poor	42,32	**23.6**
155	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	62,32	**29.9**
156	***Tamarix aphylla***	athel tamarisk	fair	poor	fair	56,68,42,40	**65.6**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
157	***Tamarix aphylla***	athel tamarisk	poor	poor	very poor	73	**23.2**
158	***Tamarix aphylla***	athel tamarisk	poor	very poor	very poor	67	**21.3**
159	***Tamarix aphylla***	athel tamarisk	poor	very poor	very poor	47	**15.0**
160	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	52	**16.6**
161	***Tamarix aphylla***	athel tamarisk	poor	very poor	very poor	52,79,38,47	**68.8**
162	***Tamarix aphylla***	athel tamarisk	poor	very poor	very poor	36	**11.5**
163	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	47,35,30	**35.7**
164	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	98,64	**51.6**
165	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	70,58,55	**58.3**
166	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	44,38,51,48	**57.6**
167	***Tamarix aphylla***	athel tamarisk	very poor	very poor	very poor	72,44	**36.9**
168	***Tamarix aphylla***	athel tamarisk	poor	very poor	very poor	25,21,17,72	**43.0**
169	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	60,84	**45.9**
170	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	72	**22.9**
171	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	78,70	**47.1**

#	SPECIES	NAME	Health	Structure	Form	CIRCUMFERENCE (inches)	DIAMETER (inches)
172	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	38,38,93	**53.8**
173	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	84,36	**38.2**
174	*Tamarix aphylla*	athel tamarisk	fair	very poor	poor	79,31,28,56	**61.8**
175	***Tamarix aphylla***	athel tamarisk	poor	poor	very poor	35,27,16,27	**33.4**
176	***Tamarix aphylla***	athel tamarisk	very poor	poor	poor	37,17,38,39	**41.7**
177	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	78,76	**49.0**
178	***Tamarix aphylla***	athel tamarisk	very poor	poor	very poor	38,66	**33.1**
179	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	78,80,39	**50.0**
180	***Tamarix aphylla***	athel tamarisk	poor	fair	poor	93	**29.6**
181	***Tamarix aphylla***	athel tamarisk	poor	poor	very poor	49,56	**33.4**
182	***Tamarix aphylla***	athel tamarisk	poor	poor	very poor	42,84,84	**66.9**
183	***Tamarix aphylla***	athel tamarisk	poor	poor	very poor	50	**15.9**
184	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	33,28,76	**43.6**
185	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	28,78,30	**43.3**
186	***Tamarix aphylla***	athel tamarisk	very poor	poor	very poor	72	**22.9**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
187	*Tamarix aphylla*	athel tamarisk	poor	fair	fair	117,36	**48.7**
188	*Tamarix aphylla*	athel tamarisk	poor	poor	poor	39,56,78	**55.1**
189	*Tamarix aphylla*	athel tamarisk	poor	poor	poor	19,89	**34.4**
190	*Tamarix aphylla*	athel tamarisk	poor	poor	poor	48	**15.3**
191	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	48	**15.3**
192	*Tamarix aphylla*	athel tamarisk	poor	poor	very poor	93	**29.6**
193	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	50	**15.9**
194	*Tamarix aphylla*	athel tamarisk	poor	poor	poor	59	**18.8**
195	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	38	**12.1**
196	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	43,18	**19.4**
197	*Tamarix aphylla*	athel tamarisk	poor	poor	poor	60,58	**37.6**
198	*Tamarix aphylla*	athel tamarisk	poor	poor	poor	40,25,30,19	**36.3**
199	*Tamarix aphylla*	athel tamarisk	poor	poor	poor	80	**25.5**
200	*Tamarix aphylla*	athel tamarisk	poor	very poor	very poor	26,74	**31.8**
201	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	54	**17.2**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
202	*Tamarix aphylla*	athel tamarisk	very poor	poor	very poor	32	**10.2**
203	*Tamarix aphylla*	athel tamarisk	poor	poor	poor	62,25	**27.7**
204	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	28	**8.9**
205	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	25,23	**15.3**
206	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	27,26	**16.9**
207	*Tamarix aphylla*	athel tamarisk	very poor	poor	poor	29,27,14,41	**35.4**
208	*Tamarix aphylla*	athel tamarisk	very poor	poor	poor	58	**18.5**
209	*Tamarix aphylla*	athel tamarisk	poor	poor	fair	13,13,21,15,53	**36.6**
210	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	24,26	**15.9**
211	*Tamarix aphylla*	athel tamarisk	poor	very poor	very poor	37	**11.8**
212	*Tamarix aphylla*	athel tamarisk	poor	poor	poor	21,20,54	**30.3**
213	*Tamarix aphylla*	athel tamarisk	very poor	poor	poor	30,36,58	**39.5**
214	*Tamarix aphylla*	athel tamarisk	poor	poor	poor	38,48,25	**35.4**
215	*Tamarix aphylla*	athel tamarisk	very poor	very poor	very poor	18,26	**14.0**
216	*Tamarix aphylla*	athel tamarisk	fair	poor	fair	33,25,36,58,37,34	**71.0**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
217	***Tamarix aphylla***	athel tamarisk	poor	very poor	very poor	72	**22.9**
218	***Eucalyptus globulus***	blue gum eucalyptus	good	poor	fair	108	**34.4**
219	***Eucalyptus globulus***	blue gum eucalyptus	good	poor	fair	100	**31.8**
220	***Tamarix aphylla***	athel tamarisk	good	poor	good	125,96	**70.4**
221	***Tamarix aphylla***	athel tamarisk	very poor	very poor	very poor	35	**11.1**
222	***Tamarix aphylla***	athel tamarisk	poor	very poor	poor	33,39,15,12,22	**38.5**
223	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	60	**19.1**
224	***Tamarix aphylla***	athel tamarisk	very poor	very poor	very poor	52	**16.6**
225	***Tamarix aphylla***	athel tamarisk	fair	fair	fair	38	**12.1**
226	***Tamarix aphylla***	athel tamarisk	very poor	very poor	very poor	27,25,15,24	**29.0**
227	***Tamarix aphylla***	athel tamarisk	poor	poor	very poor	70,50,48	**53.5**
228	***Tamarix aphylla***	athel tamarisk	very poor	very poor	very poor	42,38	**25.5**
229	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	38	**12.1**
230	***Eucalyptus globulus***	blue gum eucalyptus	good	good	good	114	**36.3**
231	***Eucalyptus globulus***	blue gum eucalyptus	good	fair	fair	108	**34.4**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
232	***Tamarix aphylla***	athel tamarisk	poor	very poor	poor	57	**18.2**
233	***Tamarix aphylla***	athel tamarisk	poor	very poor	very poor	53,74	**40.4**
234	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	48,25	**22.9**
235	***Tamarix aphylla***	athel tamarisk	fair	poor	poor	25,13,74	**35.7**
236	***Tamarix aphylla***	athel tamarisk	fair	very poor	poor	46,65,18,18,13	**51.0**
237	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	fair	186	**59.2**
238	***Eucalyptus globulus***	blue gum eucalyptus	dead	very poor	very poor	112	**35.7**
239	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	116	**36.9**
240	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	82,42,19	**45.5**
241	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	38	**12.1**
242	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	26	**8.3**
243	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	52	**16.6**
244	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	fair	62,88	**47.8**
245	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	31,59	**28.7**
246	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	310	**98.7**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
247	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	38,33	**22.6**
248	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	46,39,37	**38.9**
249	***Tamarix aphylla***	athel tamarisk	very poor	very poor	very poor	29,26	**17.5**
250	***Tamarix aphylla***	athel tamarisk	very poor	poor	poor	23	**7.3**
251	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	32,27	**18.8**
252	***Eucalyptus globulus***	blue gum eucalyptus	good	fair	good	84,122,94,40,70	**130.6**
253	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	40,24	**20.4**
254	***Tamarix aphylla***	athel tamarisk	very poor	very poor	very poor	54	**17.2**
255	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	27,27	**17.2**
256	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	38	**12.1**
257	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	29,36,36	**32.2**
258	***Tamarix aphylla***	athel tamarisk	poor	poor	poor	29	**9.2**
259	***Tamarix aphylla***	athel tamarisk	poor	very poor	very poor	39	**12.4**
260	***Tamarix aphylla***	athel tamarisk	poor	very poor	very poor	22	**7.0**
261	***Tamarix aphylla***	athel tamarisk	poor	poor	very poor	36	**11.5**

#	SPECIES	NAME	Health	Structure	Form	CIRCUMFERENCE (inches)	DIAMETER (inches)
262	***Tamarix aphylla***	athel tamarisk	fair	poor	very poor	19,20,7	**14.6**
263	***Eucalyptus globulus***	blue gum eucalyptus	very poor	fair	fair	126	**40.1**
264	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	36,20	**17.8**
265	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	good	172,44,100	**100.6**
266	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	fair	288	**91.7**
267	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	fair	184,30,39,36	**92.0**
268	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	fair	90	**28.7**
269	***Eucalyptus globulus***	blue gum eucalyptus	fair	good	good	106	**33.8**
270	***Eucalyptus globulus***	blue gum eucalyptus	good	good	good	199	**63.4**
271	***Eucalyptus globulus***	blue gum eucalyptus	good	fair	good	131	**41.7**
272	***Ailanthus altissima***	tree of heaven	good	poor	fair	10,24,28	**19.7**
273	***Quercus agrifolia***	coast live oak	excellent	good	good	59	**18.8**
274	***Quercus agrifolia***	coast live oak	good	good	good	51	**16.2**
275	***Washingtonia robusta***	Mexican fan palm	fair	good	good	na	**na**
276	***Washingtonia robusta***	Mexican fan palm	fair	good	good	na	**na**

#	SPECIES	NAME	Health	Structure	Form	CIRCUMFERENCE (inches)	DIAMETER (inches)
277	*Quercus agrifolia*	coast live oak	fair	poor	poor	36,12,13	**19.4**
278	*Washingtonia robusta*	Mexican fan palm	good	fair	good	na	**na**
279	*Quercus agrifolia*	coast live oak	good	fair	fair	35	**11.1**
280	*Washingtonia robusta*	Mexican fan palm	fair	fair	good	na	**na**
281	*Eucalyptus camaldulensis*	red river gum	fair	good	good	48	**15.3**
282	*Eucalyptus camaldulensis*	red river gum	fair	fair	fair	31	**9.9**
283	*Eucalyptus camaldulensis*	red river gum	fair	poor	poor	16,33	**15.6**
284	*Eucalyptus camaldulensis*	red river gum	poor	poor	poor	28,28	**17.8**
285	*Eucalyptus camaldulensis*	red river gum	poor	poor	poor	36,30	**21.0**
286	*Eucalyptus camaldulensis*	red river gum	poor	poor	poor	25	**8.0**
287	*Eucalyptus camaldulensis*	red river gum	good	poor	fair	62	**19.7**
288	*Eucalyptus camaldulensis*	red river gum	poor	poor	poor	37	**11.8**
289	*Eucalyptus camaldulensis*	red river gum	fair	poor	poor	48	**15.3**
290	*Eucalyptus camaldulensis*	red river gum	poor	poor	poor	28,12	**12.7**
291	*Eucalyptus camaldulensis*	red river gum	poor	poor	poor	33	**10.5**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
292	***Eucalyptus camaldulensis***	red river gum	good	fair	poor	56	**17.8**
293	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	40	**12.7**
294	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	37	**11.8**
295	***Eucalyptus camaldulensis***	red river gum	fair	fair	poor	54	**17.2**
296	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	51	**16.2**
297	***Eucalyptus camaldulensis***	red river gum	fair	fair	poor	35	**11.1**
298	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	30	**9.6**
299	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	86	**27.4**
300	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	78	**24.8**
301	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	56	**17.8**
302	***Eucalyptus camaldulensis***	red river gum	fair	poor	fair	65	**20.7**
303	***Eucalyptus camaldulensis***	red river gum	poor	poor	very poor	25	**8.0**
304	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	39,20	**18.8**
305	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	68,53,27	**47.1**
306	***Eucalyptus camaldulensis***	red river gum	fair	poor	fair	62,37	**31.5**

#	SPECIES	NAME	Health	Structure	Form	CIRCUMFERENCE (inches)	DIAMETER (inches)
307	*Eucalyptus camaldulensis*	red river gum	fair	poor	poor	57	18.2
308	*Eucalyptus camaldulensis*	red river gum	fair	very poor	very poor	34	10.8
309	*Eucalyptus camaldulensis*	red river gum	fair	very poor	very poor	31,25	17.8
310	*Eucalyptus camaldulensis*	red river gum	poor	poor	very poor	26	8.3
311	*Eucalyptus camaldulensis*	red river gum	poor	poor	fair	98	31.2
312	*Eucalyptus camaldulensis*	red river gum	poor	very poor	very poor	17,30	15.0
313	*Eucalyptus camaldulensis*	red river gum	fair	fair	poor	64	20.4
314	*Eucalyptus camaldulensis*	red river gum	fair	poor	poor	40,23	20.1
315	*Eucalyptus camaldulensis*	red river gum	poor	poor	very poor	25	8.0
316	*Eucalyptus camaldulensis*	red river gum	poor	fair	fair	73	23.2
317	*Eucalyptus camaldulensis*	red river gum	poor	poor	poor	50	15.9
318	*Eucalyptus camaldulensis*	red river gum	poor	poor	poor	25,18	13.7
319	*Eucalyptus camaldulensis*	red river gum	poor	very poor	very poor	24,23	15.0
320	*Eucalyptus camaldulensis*	red river gum	fair	poor	poor	26	8.3
321	*Eucalyptus camaldulensis*	red river gum	fair	poor	very poor	26	8.3

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
322	***Eucalyptus camaldulensis***	red river gum	good	fair	fair	68	**21.7**
323	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	50	**15.9**
324	***Eucalyptus camaldulensis***	red river gum	poor	poor	very poor	22	**7.0**
325	***Eucalyptus camaldulensis***	red river gum	fair	fair	good	21,25,61	**34.1**
326	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	29	**9.2**
327	***Eucalyptus camaldulensis***	red river gum	good	very poor	very poor	54,60	**33.1**
328	***Eucalyptus camaldulensis***	red river gum	poor	poor	very poor	22	**7.0**
329	***Eucalyptus camaldulensis***	red river gum	good	poor	poor	76	**24.2**
330	***Eucalyptus camaldulensis***	red river gum	poor	very poor	very poor	52,16	**21.7**
331	***Eucalyptus camaldulensis***	red river gum	fair	poor	fair	113	**36.0**
332	***Eucalyptus camaldulensis***	red river gum	poor	poor	very poor	24	**7.6**
333	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	50	**15.9**
334	***Eucalyptus camaldulensis***	red river gum	good	very poor	very poor	30,39	**22.0**
335	***Eucalyptus camaldulensis***	red river gum	fair	poor	very poor	26	**8.3**
336	***Eucalyptus camaldulensis***	red river gum	poor	poor	very poor	21,12,19	**16.9**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
337	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	37,32,27	**30.6**
338	***Eucalyptus camaldulensis***	red river gum	poor	very poor	very poor	22	**7.0**
339	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	34	**10.8**
340	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	46	**14.6**
341	***Eucalyptus camaldulensis***	red river gum	poor	fair	good	128	**40.8**
342	***Eucalyptus camaldulensis***	red river gum	poor	fair	good	139	**44.3**
343	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	73	**23.2**
344	***Eucalyptus camaldulensis***	red river gum	poor	fair	fair	84,96	**57.3**
345	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	78	**24.8**
346	***Eucalyptus camaldulensis***	red river gum	poor	fair	fair	116	**36.9**
347	***Eucalyptus camaldulensis***	red river gum	very poor	very poor	very poor	78	**24.8**
348	***Eucalyptus camaldulensis***	red river gum	very poor	very poor	very poor	27,19	**14.6**
349	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	56	**17.8**
350	***Eucalyptus camaldulensis***	red river gum	poor	fair	fair	116	**36.9**
351	***Eucalyptus camaldulensis***	red river gum	poor	fair	fair	47,98	**46.2**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
352	***Eucalyptus camaldulensis***	red river gum	poor	fair	poor	94	**29.9**
353	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	71	**22.6**
354	***Eucalyptus camaldulensis***	red river gum	fair	very poor	very poor	12,15,14,26	**21.3**
355	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	54	**17.2**
355	***Eucalyptus camaldulensis***	red river gum	fair	very poor	very poor	12,16,25	**20.1**
356	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	80	**25.5**
357	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	96	**30.6**
358	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	117	**37.3**
359	***Eucalyptus camaldulensis***	red river gum	very poor	very poor	very poor	43	**13.7**
360	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	85	**27.1**
361	***Eucalyptus camaldulensis***	red river gum	very poor	very poor	very poor	42	**13.4**
362	***Eucalyptus camaldulensis***	red river gum	fair	poor	very poor	34	**10.8**
363	***Eucalyptus camaldulensis***	red river gum	very poor	very poor	very poor	31	**9.9**
364	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	16,37	**16.9**
365	***Eucalyptus camaldulensis***	red river gum	fair	good	fair	156	**49.7**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
366	*Eucalyptus camaldulensis*	red river gum	poor	fair	fair	63	**20.1**
367	*Eucalyptus camaldulensis*	red river gum	fair	fair	fair	56	**17.8**
368	*Eucalyptus camaldulensis*	red river gum	good	poor	good	55,62,50,38	**65.3**
369	*Eucalyptus camaldulensis*	red river gum	fair	fair	fair	50	**15.9**
370	*Eucalyptus camaldulensis*	red river gum	fair	poor	fair	44,27	**22.6**
371	*Eucalyptus camaldulensis*	red river gum	fair	poor	fair	43,45,73	**51.3**
372	*Eucalyptus camaldulensis*	red river gum	fair	fair	fair	116	**36.9**
373	*Eucalyptus camaldulensis*	red river gum	good	fair	good	112	**35.7**
374	*Eucalyptus camaldulensis*	red river gum	fair	fair	fair	120	**38.2**
375	*Eucalyptus camaldulensis*	red river gum	fair	poor	poor	85	**27.1**
376	*Eucalyptus camaldulensis*	red river gum	fair	poor	fair	81	**25.8**
377	*Eucalyptus camaldulensis*	red river gum	poor	poor	poor	98	**31.2**
378	*Eucalyptus camaldulensis*	red river gum	poor	fair	fair	68	**21.7**
379	*Eucalyptus camaldulensis*	red river gum	very poor	fair	poor	97	**30.9**
380	*Eucalyptus camaldulensis*	red river gum	fair	poor	poor	15,46,21,13	**30.3**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
381	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	82,118	**63.7**
382	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	152	**48.4**
383	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	32,32	**20.4**
384	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	21,14,10,11	**17.8**
385	***Eucalyptus camaldulensis***	red river gum	poor	fair	fair	124	**39.5**
386	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	37,51	**28.0**
387	***Eucalyptus camaldulensis***	red river gum	very poor	very poor	very poor	43	**13.7**
388	***Eucalyptus camaldulensis***	red river gum	poor	fair	fair	114	**36.3**
389	***Eucalyptus camaldulensis***	red river gum	poor	fair	fair	78	**24.8**
390	***Eucalyptus camaldulensis***	red river gum	good	fair	good	22,45,35,42,15,33	**61.1**
391	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	164	**52.2**
392	***Eucalyptus camaldulensis***	red river gum	poor	poor	very poor	38	**12.1**
393	***Eucalyptus camaldulensis***	red river gum	poor	poor	fair	53,82	**43.0**
394	***Eucalyptus camaldulensis***	red river gum	very poor	poor	fair	83	**26.4**
395	***Eucalyptus camaldulensis***	red river gum	poor	poor	fair	170	**54.1**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
396	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	61	**19.4**
397	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	96	**30.6**
398	***Eucalyptus camaldulensis***	red river gum	poor	good	fair	116	**36.9**
399	***Eucalyptus camaldulensis***	red river gum	very poor	very poor	very poor	55	**17.5**
400	***Eucalyptus camaldulensis***	red river gum	poor	fair	fair	90	**28.7**
401	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	174	**55.4**
402	***Eucalyptus camaldulensis***	red river gum	fair	fair	poor	31,21	**16.6**
403	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	60,68	**40.8**
404	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	61	**19.4**
405	***Eucalyptus camaldulensis***	red river gum	very poor	poor	poor	61,33,51	**46.2**
406	***Eucalyptus camaldulensis***	red river gum	very poor	very poor	very poor	36	**11.5**
407	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	86	**27.4**
408	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	88	**28.0**
409	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	45	**14.3**
410	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	67	**21.3**

#	SPECIES	NAME	Health	Structure	Form	CIRCUMFERENCE (inches)	DIAMETER (inches)
411	**Eucalyptus camaldulensis**	red river gum	poor	poor	poor	84	**26.8**
412	**Eucalyptus camaldulensis**	red river gum	fair	poor	very poor	22	**7.0**
413	**Eucalyptus camaldulensis**	red river gum	poor	poor	very poor	22	**7.0**
414	**Eucalyptus camaldulensis**	red river gum	very poor	poor	poor	69	**22.0**
415	**Eucalyptus camaldulensis**	red river gum	fair	good	good	118	**37.6**
416	**Eucalyptus camaldulensis**	red river gum	fair	very poor	very poor	15,24,21,17	**24.5**
417	**Eucalyptus camaldulensis**	red river gum	fair	poor	fair	52,87	**44.3**
418	**Eucalyptus camaldulensis**	red river gum	poor	poor	very poor	28,22	**15.9**
419	**Eucalyptus camaldulensis**	red river gum	poor	poor	very poor	46	**14.6**
420	**Eucalyptus camaldulensis**	red river gum	fair	fair	good	154	**49.0**
421	**Eucalyptus camaldulensis**	red river gum	poor	poor	poor	67	**21.3**
422	**Eucalyptus camaldulensis**	red river gum	poor	poor	poor	39	**12.4**
423	**Eucalyptus camaldulensis**	red river gum	very poor	very poor	very poor	38	**12.1**
424	**Eucalyptus camaldulensis**	red river gum	good	poor	fair	24,21,50,25	**38.2**
425	**Eucalyptus camaldulensis**	red river gum	fair	poor	poor	68	**21.7**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
426	***Eucalyptus camaldulensis***	red river gum	very poor	very poor	very poor	38	**12.1**
427	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	60	**19.1**
428	***Eucalyptus camaldulensis***	red river gum	poor	fair	fair	55,18,58	**41.7**
429	***Eucalyptus camaldulensis***	red river gum	very poor	very poor	very poor	44	**14.0**
430	***Eucalyptus camaldulensis***	red river gum	very poor	very poor	very poor	53,18,25	**30.6**
431	***Eucalyptus camaldulensis***	red river gum	fair	fair	good	97	**30.9**
432	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	60,12	**22.9**
433	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	93	**29.6**
434	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	70	**22.3**
435	***Eucalyptus globulus***	blue gum eucalyptus	good	poor	poor	38,15,15,32,44,18	**51.6**
436	***Eucalyptus globulus***	blue gum eucalyptus	good	fair	fair	112	**35.7**
437	***Eucalyptus globulus***	blue gum eucalyptus	good	fair	fair	168	**53.5**
438	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	75	**23.9**
439	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	78	**24.8**
440	***Eucalyptus globulus***	blue gum eucalyptus	good	good	good	180	**57.3**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
441	***Eucalyptus globulus***	blue gum eucalyptus	good	fair	fair	161	**51.3**
442	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	fair	129,16,38,35	**69.4**
443	***Eucalyptus globulus***	blue gum eucalyptus	good	fair	fair	128	**40.8**
444	***Eucalyptus globulus***	blue gum eucalyptus	good	good	good	146	**46.5**
445	***Eucalyptus globulus***	blue gum eucalyptus	good	fair	good	140,142	**89.8**
446	***Eucalyptus globulus***	blue gum eucalyptus	good	fair	fair	120	**38.2**
447	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	84,62,52	**63.1**
448	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	32,49,19	**31.8**
449	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	53	**16.9**
450	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	68	**21.7**
451	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	very poor	64	**20.4**
452	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	poor	74	**23.6**
453	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	60	**19.1**
454	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	fair	44,40,89	**55.1**
455	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	100	**31.8**

#	SPECIES	NAME	Health	Structure	Form	CIRCUMFERENCE (inches)	DIAMETER (inches)
456	*Eucalyptus globulus*	blue gum eucalyptus	poor	poor	poor	84,35	**37.9**
457	*Eucalyptus globulus*	blue gum eucalyptus	fair	poor	fair	86	**27.4**
458	*Eucalyptus globulus*	blue gum eucalyptus	poor	poor	very poor	62	**19.7**
459	*Eucalyptus globulus*	blue gum eucalyptus	fair	poor	poor	116	**36.9**
460	*Eucalyptus globulus*	blue gum eucalyptus	fair	poor	fair	84	**26.8**
461	*Eucalyptus globulus*	blue gum eucalyptus	good	good	good	140	**44.6**
462	*Eucalyptus globulus*	blue gum eucalyptus	good	fair	fair	128	**40.8**
463	*Eucalyptus globulus*	blue gum eucalyptus	fair	poor	fair	106	**33.8**
464	*Eucalyptus globulus*	blue gum eucalyptus	fair	good	good	151	**48.1**
465	*Eucalyptus globulus*	blue gum eucalyptus	poor	poor	fair	94	**29.9**
466	*Eucalyptus globulus*	blue gum eucalyptus	poor	poor	poor	90	**28.7**
467	*Eucalyptus globulus*	blue gum eucalyptus	fair	fair	fair	94	**29.9**
468	*Eucalyptus globulus*	blue gum eucalyptus	poor	poor	poor	106	**33.8**
469	*Eucalyptus globulus*	blue gum eucalyptus	fair	poor	poor	120	**38.2**
470	*Eucalyptus globulus*	blue gum eucalyptus	very poor	very poor	very poor	76	**24.2**

#	SPECIES	NAME	Health	Structure	Form	CIRCUMFERENCE (inches)	DIAMETER (inches)
471	***Eucalyptus globulus***	blue gum eucalyptus	very poor	very poor	very poor	64	**20.4**
472	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	126	**40.1**
473	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	fair	100,10	**35.0**
474	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	88	**28.0**
475	***Eucalyptus globulus***	blue gum eucalyptus	poor	very poor	very poor	100	**31.8**
476	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	fair	116	**36.9**
478	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	76	**24.2**
479	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	fair	133	**42.4**
480	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	94	**29.9**
481	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	148	**47.1**
482	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	66	**21.0**
483	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	94	**29.9**
484	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	fair	116	**36.9**
485	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	fair	92	**29.3**
486	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	fair	100	**31.8**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
487	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	fair	74	**23.6**
488	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	fair	94	**29.9**
489	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	fair	80	**25.5**
490	***Eucalyptus globulus***	blue gum eucalyptus	good	fair	good	136	**43.3**
491	***Eucalyptus globulus***	blue gum eucalyptus	very poor	very poor	very poor	72	**22.9**
492	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	74	**23.6**
493	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	120	**38.2**
494	***Eucalyptus globulus***	blue gum eucalyptus	very poor	poor	very poor	96	**30.6**
495	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	115	**36.6**
496	***Eucalyptus globulus***	blue gum eucalyptus	very poor	poor	very poor	16,35,25,16,15,13	**38.2**
497	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	fair	94	**29.9**
498	***Eucalyptus globulus***	blue gum eucalyptus	poor	fair	fair	154	**49.0**
499	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	25,52	**24.5**
500	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	90	**28.7**
501	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	82	**26.1**

#	SPECIES	NAME	Health	Structure	Form	CIRCUMFERENCE (inches)	DIAMETER (inches)
502	***Eucalyptus globulus***	blue gum eucalyptus	poor	fair	fair	114	**36.3**
503	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	28,113	**43.9**
504	***Eucalyptus globulus***	blue gum eucalyptus	good	poor	good	153	**48.7**
505	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	62	**19.7**
506	***Eucalyptus globulus***	blue gum eucalyptus	good	poor	fair	166	**52.9**
507	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	99	**31.5**
508	***Eucalyptus globulus***	blue gum eucalyptus	poor	very poor	very poor	92	**29.3**
509	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	132	**42.0**
510	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	poor	158	**50.3**
511	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	68,31	**31.5**
512	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	fair	134	**42.7**
513	***Eucalyptus globulus***	blue gum eucalyptus	very poor	poor	poor	73	**23.2**
514	***Eucalyptus globulus***	blue gum eucalyptus	very poor	fair	fair	125	**39.8**
515	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	fair	112	**35.7**
516	***Eucalyptus globulus***	blue gum eucalyptus	very poor	poor	poor	84	**26.8**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
517	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	fair	127	**40.4**
518	***Eucalyptus globulus***	blue gum eucalyptus	very poor	very poor	very poor	68	**21.7**
519	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	good	121	**38.5**
520	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	fair	99	**31.5**
521	***Eucalyptus globulus***	blue gum eucalyptus	very poor	very poor	very poor	82	**26.1**
522	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	35	**11.1**
523	***Eucalyptus globulus***	blue gum eucalyptus	poor	very poor	poor	80	**25.5**
524	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	43,21	**20.1**
525	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	90	**28.7**
526	***Eucalyptus globulus***	blue gum eucalyptus	fair	fair	fair	115	**36.6**
527	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	90	**28.7**
528	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	fair	80	**25.5**
529	***Eucalyptus globulus***	blue gum eucalyptus	very poor	poor	poor	77	**24.5**
530	***Eucalyptus globulus***	blue gum eucalyptus	fair	poor	fair	114	**36.3**
531	***Eucalyptus globulus***	blue gum eucalyptus	poor	poor	poor	72	**22.9**

#	SPECIES	NAME	Health	Structure	Form	CIRCUMFERENCE (inches)	DIAMETER (inches)
532	*Eucalyptus globulus*	blue gum eucalyptus	poor	poor	poor	110	**35.0**
533	*Eucalyptus globulus*	blue gum eucalyptus	poor	poor	very poor	40	**12.7**
534	*Eucalyptus globulus*	blue gum eucalyptus	poor	poor	fair	26,24,66,33,30	**57.0**
535	*Eucalyptus globulus*	blue gum eucalyptus	fair	poor	poor	96	**30.6**
536	*Eucalyptus globulus*	blue gum eucalyptus	very poor	poor	poor	75	**23.9**
537	*Eucalyptus globulus*	blue gum eucalyptus	fair	poor	fair	82	**26.1**
538	*Eucalyptus globulus*	blue gum eucalyptus	fair	fair	fair	240	**76.4**
539	*Washingtonia robusta*	Mexican fan palm	fair	good	good	na	**na**
540	*Washingtonia robusta*	Mexican fan palm	fair	good	fair	na	**na**
542	*Salix spp.*	willow	fair	fair	good	29,19,6,18,18	**88.0**
543	*Salix spp.*	willow	good	good	fair	120	**38.2**
544	*Salix spp.*	willow	poor	poor	poor	18,24,6	**48.0**
545	*Salix lucida*	pacific willow	poor	poor	poor	76	**24.2**
546	*Washingtonia robusta*	Mexican fan palm	poor	fair	fair	na	**na**
547	*Washingtonia robusta*	Mexican fan palm	fair	fair	fair	na	**na**
548	*Washingtonia robusta*	Mexican fan palm	fair	good	fair	na	**na**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
549	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	27	**8.6**
550	***Eucalyptus camaldulensis***	red river gum	good	fair	poor	39	**12.4**
551	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	37	**11.8**
552	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	113.5	**36.1**
553	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	21,63,27	**37.3**
554	***Eucalyptus camaldulensis***	red river gum	very poor	poor	poor	24,20,14	**18.5**
555	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	34	**10.8**
556	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	68,48	**36.9**
557	***Eucalyptus camaldulensis***	red river gum	good	poor	fair	100	**31.8**
558	***Eucalyptus camaldulensis***	red river gum	poor	poor	fair	34,28,24	**27.4**
559	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	34,18	**16.6**
560	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	29,6,3	**12.1**
561	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	25	**8.0**
562	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	32	**10.2**
563	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	78	**24.8**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
564	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	64,20	**26.8**
565	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	34	**10.8**
566	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	36	**11.5**
567	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	90	**28.7**
568	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	12,30	**13.4**
569	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	22,25,26	**23.2**
570	***Eucalyptus camaldulensis***	red river gum	very poor	poor	poor	33,35	**21.7**
571	***Eucalyptus camaldulensis***	red river gum	good	poor	fair	53,52,48	**48.7**
572	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	30,37	**21.3**
573	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	40	**12.7**
574	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	31	**9.9**
575	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	41	**13.1**
576	***Eucalyptus camaldulensis***	red river gum	fair	poor	fair	44,53,43	**44.6**
577	***Eucalyptus camaldulensis***	red river gum	poor	poor	very poor	22	**7.0**
578	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	31	**9.9**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
579	***Eucalyptus camaldulensis***	red river gum	good	fair	fair	64	**20.4**
580	***Eucalyptus camaldulensis***	red river gum	poor	poor	fair	37,36	**23.2**
581	***Eucalyptus camaldulensis***	red river gum	fair	fair	fair	54,31	**27.1**
582	***Eucalyptus camaldulensis***	red river gum	fair	fair	poor	25	**8.0**
583	***Eucalyptus camaldulensis***	red river gum	fair	fair	poor	24	**7.6**
584	***Quercus agrifolia***	coast live oak	good	poor	fair	76	**24.2**
585	***Quercus agrifolia***	coast live oak	excellent	fair	good	82	**26.1**
586	***Quercus agrifolia***	coast live oak	excellent	poor	good	32,40,38	**35.0**
587	***Eucalyptus camaldulensis***	red river gum	fair	very poor	very poor	16,12	**8.9**
588	***Eucalyptus camaldulensis***	red river gum	fair	poor	very poor	32	**10.2**
589	***Eucalyptus camaldulensis***	red river gum	fair	poor	very poor	18,11,24	**16.9**
590	***Eucalyptus camaldulensis***	red river gum	fair	fair	poor	38	**12.1**
591	***Eucalyptus camaldulensis***	red river gum	fair	fair	poor	25	**8.0**
592	***Eucalyptus camaldulensis***	red river gum	good	poor	fair	45,34	**25.2**
593	***Ulmus parvifolia***	Siberian elm	good	poor	good	114	**36.3**
594	***Salix spp.***	willow	good	good	good	152	**48.4**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
595	*Eucalyptus camaldulensis*	red river gum	good	fair	fair	49	**15.6**
596	*Eucalyptus camaldulensis*	red river gum	fair	fair	poor	36	**11.5**
597	*Eucalyptus camaldulensis*	red river gum	fair	fair	fair	54,40,29	**39.2**
598	*Eucalyptus camaldulensis*	red river gum	good	poor	fair	28,22,19,32	**32.2**
599	*Eucalyptus camaldulensis*	red river gum	fair	very poor	poor	26	**8.3**
600	*Eucalyptus camaldulensis*	red river gum	good	poor	good	22,49,38,32,60,32, 23,31	**91.4**
601	*Eucalyptus camaldulensis*	red river gum	poor	poor	poor	42,28	**22.3**
602	*Eucalyptus camaldulensis*	red river gum	fair	poor	poor	42,37	**25.2**
603	*Eucalyptus camaldulensis*	red river gum	poor	poor	very poor	36,10	**14.6**
604	*Eucalyptus camaldulensis*	red river gum	fair	fair	fair	47	**15.0**
605	*Eucalyptus camaldulensis*	red river gum	fair	fair	good	77	**24.5**
606	*Eucalyptus camaldulensis*	red river gum	poor	poor	fair	38,38	**24.2**
607	*Eucalyptus camaldulensis*	red river gum	poor	poor	fair	24,54	**24.8**
608	*Eucalyptus camaldulensis*	red river gum	fair	very poor	poor	44	**14.0**
609	*Eucalyptus camaldulensis*	red river gum	poor		poor	22,24,33,15,24,20	**43.9**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
610	***Eucalyptus camaldulensis***	red river gum	good	fair	good	93	**29.6**
611	***Eucalyptus camaldulensis***	red river gum	good	poor	fair	78	**24.8**
612	***Eucalyptus camaldulensis***	red river gum	good	fair	fair	65,86	**48.1**
613	***Eucalyptus camaldulensis***	red river gum	fair	fair	poor	49,24,29,17,16	**43.0**
614	***Eucalyptus camaldulensis***	red river gum	poor	poor	poor	22,34,12,21	**28.3**
616	***Eucalyptus camaldulensis***	red river gum	fair	poor	poor	38,24	**19.7**
617	***Eucalyptus camaldulensis***	red river gum	fair	poor	fair	18,30,29,27,32,22, 24	**58.0**
618	***Eucalyptus camaldulensis***	red river gum	fair	fair	poor	27	**8.6**
619	***Eucalyptus camaldulensis***	red river gum	good	poor	fair	60,67,70	**62.7**
620	***Eucalyptus camaldulensis***	red river gum	fair	poor	fair	100,57,21,18	**62.4**
621	***Eucalyptus camaldulensis***	red river gum	good	very poor	very poor	22,9,12	**13.7**
622	***Eucalyptus camaldulensis***	red river gum	good	very poor	very poor	15,18	**10.5**
623	***Eucalyptus camaldulensis***	red river gum	good	very poor	poor	18,18,18,17,20	**29.0**
624	***Eucalyptus camaldulensis***	red river gum	fair	very poor	very poor	30,15,16,11,11	**26.4**
625	***Quercus agrifolia***	Coast live oak	fair	poor	poor	14,22	**8.3**

#	SPECIES	NAME	Health	Structure	Form	CIRCUMFERENCE (inches)	DIAMETER (inches)
626	*Eucalyptus camaldulensis*	red river gum	fair	fair	poor	26,31	**18.2**
627	*Eucalyptus camaldulensis*	red river gum	fair	fair	poor	24,15	**12.4**
628	*Eucalyptus camaldulensis*	red river gum	fair	fair	fair	na	**na**
629	*Ailanthus altissima*	tree of heaven	poor	poor	poor	25	**8.0**
630	*Ailanthus altissima*	tree of heaven	poor	poor	poor	6,6,14,21,18,21	**27.4**
631	*Ailanthus altissima*	tree of heaven	poor	poor	poor	25,20,30,25,30,25, 20	**38.2**
632	*Ailanthus altissima*	tree of heaven	poor	poor	poor	24,13,20,13,8,16,8, 22,31	**49.4**
633	*Ailanthus altissima*	tree of heaven	poor	fair		29,13,20,13,8,8	**29.0**
634	*Quercus agrifolia*	Coast live oak	fair	fair	fair	32,22,50	**34.7**
635	*Quercus agrifolia*	Coast live oak	good	fair	fair	21,32,31	**26.8**
636	*Pinus contorta*	shore pine	fair	fair	good	29,20	**15.6**
637	*Pinus contorta*	shore pine	fair	fair	good	38,17	**17.5**
638	*Pinus contorta*	shore pine	fair	fair	fair	33	**10.5**
639	*Pinus sylvestris*	scots pine	fair	fair	fair	58	**18.5**
640	*Quercus agrifolia*	Coast live oak	fair	poor	very poor	14,14,17	**11.1**
641	*Pinus contorta*	shore pine	fair	fair	fair	38	**12.1**
642	*Pinus contorta*	shore pine	fair	fair	fair	61	**19.4**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
643	***Morus alba `fruitless'***	fruitless mulberry	fair	fair	fair	21,14,17,11	**20.1**
644	***Washingtonia robusta***	Mexican fan palm	good	fair	fair	na	**na**
645	***Washingtonia robusta***	Mexican fan palm	good	good	fair	na	**na**
646	***Washingtonia robusta***	Mexican fan palm	fair	poor	very poor	na	**na**
647	***Salix lucida***	pacific willow	good	fair	excellen t	48,47,17,43,52,20, 11,26,26	**92.4**
648	***Quercus agrifolia***	Coast live oak	fair		very poor	36, 58	**29.9**
649	***Washingtonia robusta***	Mexican fan palm	good	fair	poor	na	**na**
650	***Washingtonia robusta***	Mexican fan palm	fair	fair	fair	na	**na**
651	***Washingtonia robusta***	Mexican fan palm	poor	fair	fair	na	**na**
652	***Washingtonia robusta***	Mexican fan palm	poor	fair	fair	na	**na**
653	***Washingtonia robusta***	Mexican fan palm	fair	fair	poor	na	**na**
654	***Washingtonia robusta***	Mexican fan palm	poor	fair	very poor	na	**na**
655	***Washingtonia robusta***	Mexican fan palm	fair	fair	poor	na	**na**
656	***Washingtonia robusta***	Mexican fan palm	poor	fair	fair	na	**na**
657	***Washingtonia robusta***	Mexican fan palm	fair	poor	very poor	na	**na**

#	*SPECIES*	NAME	Health	Structure	Form	*CIRCUMFERENCE (inches)*	DIAMETER (inches)
658	***Washingtonia robusta***	Mexican fan palm	fair	fair	poor	na	**na**
659	***Washingtonia robusta***	Mexican fan palm	fair	fair	poor	na	**na**
660	***Washingtonia robusta***	Mexican fan palm	fair	fair	very poor	na	**na**
661	***Washingtonia robusta***	Mexican fan palm	fair	fair	fair	na	**na**
662	***Washingtonia robusta***	Mexican fan palm	fair	fair	poor	na	**na**
663	***Washingtonia robusta***	Mexican fan palm	fair	fair	poor	na	**na**
664	***Washingtonia robusta***	Mexican fan palm	poor	fair	fair	na	**na**
665	***Washingtonia robusta***	Mexican fan palm	poor	fair	fair	na	**na**
666	***Washingtonia robusta***	Mexican fan palm	fair	fair	poor	na	**na**
667	***Washingtonia robusta***	Mexican fan palm	fair	fair	fair	na	**na**
668	***Washingtonia robusta***	Mexican fan palm	fair	poor	poor	na	**na**
669	***Olea europaea***	Olive	fair	poor	very poor	20,6,6	**10.2**
670	***Washingtonia robusta***	Mexican fan palm	fair	fair	very poor	na	**na**

APPENDIX B Additional TREE INFORMATION

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
1	coast live oak	**9.9**		*wetlands near Bridgehead Rd.*			*yes*
2	pacific willow	**10.5**		*wetlands near Bridgehead Rd.*			*yes*
3	pacific willow	**10.8**		*wetlands near Bridgehead Rd.*			
4	pacific willow	**10.2**		*wetlands near Bridgehead Rd.*			
5	pacific willow	**6.7**		*wetlands near Bridgehead Rd.*			
6	pacific willow	**50.2**		*wetlands near Bridgehead Rd.*		*yes*	*yes*
7	pacific willow	**23.6**		*wetlands near Bridgehead Rd.*		*yes*	*yes*
8	pacific willow	**25.5**		*wetlands near Bridgehead Rd.*		*yes*	*yes*
9	fremont poplar	**18.2**		*wetlands near Bridgehead Rd.*		*yes*	*yes*
10	almond	**9.1**		*wetlands near Bridgehead Rd.*			
11	almond	**multiple >=12.7"**	*Fallen failed live many trunk, approximately 15 small trunks*	*wetlands near Bridgehead Rd.*			*yes*

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
12	almond	23.4	*Trunk measured at 24 below multiple trunks*	*detention basin near Bridgehead Rd.*			
13	Mexican fan palm	na	*3.5' trunk*	*detention basin near Bridgehead Rd.*			
14	coast live oak	27.7	*Root crown buried, ground squirrels at base*	*detention basin near Bridgehead Rd.*	*yes*		*yes*
15	coast live oak	41.9	*Root crown buried, ground squirrels at base*	*detention basin near Bridgehead Rd.*	*yes*		*yes*
16	coast live oak	48.2	*Multiple trunks with included bark*	*detention basin near Bridgehead Rd.*	*yes*		*yes*
17	coast live oak	7.6	*Suppressed*	*detention basin near Bridgehead Rd.*			*yes*
18	coast live oak	35.4	*Codominant scaffolds with included bark, leaning unbalanced*	*detention basin near Bridgehead Rd.*	*yes*		*yes*
19	pacific willow	53.3	*Trunk grown around outfall pipe, raccoon latrine in crotch, mistletoe*	*detention basin near Bridgehead Rd.*			*yes*
20	pacific willow	26.8	*Mistletoe*	*detention basin near Bridgehead Rd.*		*yes*	*yes*

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
21	pacific willow	13.7	*Mistletoe*	*detention basin near Bridgehead Rd.*			
22	pacific willow	57.0	*Mistletoe*	*detention basin near Bridgehead Rd.*			
23	pacific willow	17.8	*Fallen down trunk , partially uprooted , estimated at grade*	*detention basin near Bridgehead Rd.*			
24	coast live oak	13.4	*Suppressed*	*detention basin near Bridgehead Rd.*			*yes*
25	pacific willow	15.3		*detention basin near Bridgehead Rd.*			
26	pacific willow	9.0		*detention basin near Bridgehead Rd.*			
27	pacific willow	26.8	*Mistletoe*	*detention basin near Bridgehead Rd.*			
28	pacific willow	21.3	*Mistletoe*	*detention basin near Bridgehead Rd.*			
29	coast live oak	29.6	*Trunk split & in fence, estimated circumference*	*detention basin near Bridgehead Rd.*	*yes*		*yes*

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
30	coast live oak	**25.5**	*Trunk in fence*	*detention basin near Bridgehead Rd.*	*yes*		*yes*
31	coast live oak	**18.3**		*detention basin near Bridgehead Rd.*	*yes*		*yes*
33	coast live oak	**18.5**	*Embedded in fence, multiple trunks where topped at 2'*	*Bridgehead Rd., north of Wilbur*	*yes*		*yes*
34	coast live oak	**17.5**	*Embedded in fence, multiple trunks where topped at grade, circumferences estimated*	*Bridgehead Rd., north of Wilbur*	*yes*		*yes*
35	Aleppo pine	**53.2**		*Bridgehead Rd., north of Wilbur*		*yes*	*yes*
36	coast live oak	**24.0**	*Embedded in fence, multiple trunks where topped at grade, diameters estimated (3,4,5,1,4,4,3)*	*Bridgehead Rd., north of Wilbur*	*yes*		*yes*
37	coast live oak	**24.5**	*Embedded in fence, multiple trunks where topped at grade, diameters estimated (2.5,2,1,3,3,1,2,2,2,2,2,2)*	*Bridgehead Rd., north of Wilbur*	*yes*		*yes*

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
38	coast live oak	21.0	*Embedded in fence, multiple trunks where topped at grade, estimated diameters (2,2,3,2,1,3,3,2,2,1)*	*Bridgehead Rd., north of Wilbur*	*yes*		*yes*
39	coast live oak	18.5	*Embedded in fence, multiple trunks where topped at 3' diameters estimated (2,2,4,4.5,4,2)*	*Bridgehead Rd., north of Wilbur*	*yes*		*yes*
40	coast live oak	14.0	*Embedded in fence, multiple trunks where topped at grade, estimated diameters (1,1,2,2,3,2,2,1)*	*Bridgehead Rd., north of Wilbur*			*yes*
41	coast live oak	22.0	*Embedded in fence, multiple trunks where topped at grade, estimated diameters (2,2,1,2,1,2,2,2,2,2,3), woolly aphid on foliage*	*Bridgehead Rd., north of Wilbur*	*yes*		*yes*
42	coast live oak	10.8	*Embedded in fence, multiple trunks where topped at grade*	*Bridgehead Rd., north of Wilbur*			*yes*

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
43	coast live oak	15.6	*Embedded in fence, multiple trunks where topped at grade, estimated diameters, (2,3,3,5,5,4,2,23,2) woolly aphid on foliage*	*Bridgehead Rd., north of Wilbur*	*yes*		*yes*
44	pacific willow	199.7	*Stump sprouted, 65% dead, raccoon latrine*	*between Bridgehead & Admin Bldg.*			
45	pacific willow	10.2	*Pole sprout next to two other clumps *<6 cumulative diameter*	*between Bridgehead & Admin Bldg.*			
46	pacific willow	71.5	*Pole sprout **	*between Bridgehead & Admin Bldg.*			
47	pacific willow	21.0	*Pole sprout, <=1 diameter not estimated*	*between Bridgehead & Admin Bldg.*			
48	pacific willow	13.4	*Pole sprout , circumference estimated*	*between Bridgehead & Admin Bldg.*			
49	pacific willow	11.1	*Pole sprouts, estimated*	*between Bridgehead & Admin Bldg.*			
50	pacific willow	28.5	*Pole sprouts, estimated*	*between Bridgehead & Admin Bldg.*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
51	pacific willow	**10.8**	*Pole sprout*	*between Bridgehead & Admin Bldg.*			
52	pacific willow	**7.5**	*Pole sprout with tamarix*	*between Bridgehead & Admin Bldg.*			
53	pacific willow	**20.4**	*Pole sprout*	*between Bridgehead & Admin Bldg.*			
54	pacific willow	**40.8**	*Pole sprout estimated circumference*	*between Bridgehead & Admin Bldg.*			
55	pacific willow	**80.9**	*Pole sprout*	*between Bridgehead & Admin Bldg.*			
56	almond	**16.6**		*between Bridgehead & Admin Bldg.*			
57	Mexican fan palm	*	*Trunk leaning, 5' clear trunk*	*below Admin. Bldg.*			
58	Mexican fan palm	**17.2**	*8' brown trunk*	*below Admin. Bldg.*			
59	Ca sycamore	**64.6**		*below Admin. Bldg.*		*yes*	
60	Ca sycamore	**89.6**	*Ivy on trunk , small spot of decay of root crown*	*below Admin. Bldg.*		*yes*	

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
61	pacific willow	23.5	*Mistletoe, dieback, blackberry vines engulfed , circumference estimated*	*below Admin. Bldg.*			
66	coast live oak	28.2	*Engulfed by blackberry & juniper*	*below Admin. Bldg.*	*yes*		*yes*
67	pacific willow	15.6	*One sided, leaning trunk, mistletoe*	*below Admin. Bldg.*			
68	tree of heaven	13.9	*Iceplant groundcover*	*northeast of Admin. Bldg.*			
69	tree of heaven	11.8	*Large trunk wound, leaning trunk*	*northeast of Admin. Bldg.*			
70	coast live oak	12.7		*northeast of Admin. Bldg.*			
71	Chinese pistache	11.9	*One sided*	*northeast of Admin. Bldg.*			
72	Chinese pistache	20.7	*One sided*	*northeast of Admin. Bldg.*		*yes*	*yes*
73	tree of heaven	11.5	*Trunk fallen over & corrected , trunk cavities & shelf fungus*	*northeast of Admin. Bldg.*			
74	tree of heaven	9.6		*northeast of Admin. Bldg.*			
75	Chinese pistache	8.9		*northeast of Admin. Bldg.*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
76	tree of heaven	16.2		northeast of Admin. Bldg.			
77	tree of heaven	12.4		northeast of Admin. Bldg.			
78	tree of heaven	9.9		northeast of Admin. Bldg.			
79	tree of heaven	13.4		northeast of Admin. Bldg.			
80	coast live oak	9.9		northeast of Admin. Bldg.			
81	coast live oak	11.9	*Suppressed, codominant trunks with included bark*	*northeast of Admin. Bldg.*			
82	coast live oak	16.2	*Codominant trunks with included bark*	*northeast of Admin. Bldg.*	*yes*		*yes*
83	coast live oak	15.6	*Codominant scaffolds with included bark*	*northeast of Admin. Bldg.*	*yes*		*yes*
84	southern magnolia	13.7	*Drought stressed, small variety*	*in front of Admin. Bldg.*			
85	Mexican fan palm	na, however = 24"	*7' brown bare trunk*	*in front of Admin. Bldg.*			
86	tree of heaven	41.1	*Gravel mulch*	*west of Admin. Bldg.*			
87	coast live oak	8.4	*In juniper groundcover*	*west of Admin. Bldg.*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
88	southern magnolia	**10.8**	*Circumference at 20, dying back*	*south of Admin. Bldg.*			
89	coast redwood	**27.4**	*Limited rooting zone, dying*	*south of Admin. Bldg.*			
90	coast redwood	**37.6**	*Dying*	*south of Admin. Bldg.*			
91	Ca sycamore	**15.0**	*Stump sprout*	*south of Admin. Bldg.*			
92	southern magnolia	**36.9**	*Top dieback*	*south of Admin. Bldg.*			
93	southern magnolia	**11.5**	*Circumference at 2"*	*south of Admin. Bldg.*			
94	southern magnolia	**21.7**		*south of Admin. Bldg.*			
95	Ca peppertree	**52.5**	*Two large hollow trunks*	*Bridgehead Road, north of Wilbur*		*yes*	*yes*
96	athel tamarisk	**94.3**	*Edge , split trunk, codominant trunks with included bark, hacked, 64c trunk measured at 1'*	*North Bridgehead Rd. Berm*			
97	tree of heaven	**14.5**	*Next to 24 out of sequence Root sprout, foliage curling as if sprayed*	*North Bridgehead Rd. Berm*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
98	athel tamarisk	**29.6**	*Fallen over*	*North Bridgehead Rd. Berm*			
100	athel tamarisk	**14.6**	*Suppressed sprout*	*North Bridgehead Rd. Berm*			
101	athel tamarisk	**53.5**	*Codominant trunks with included bark, leaning one sided*	*North Bridgehead Rd. Berm*			
102	athel tamarisk	**117.2**	*Fallen, codominant trunks with included bark*	*North Bridgehead Rd. Berm*			
103	athel tamarisk	**40.8**	*Fallen, mostly dead*	*North Bridgehead Rd. Berm*			
104	athel tamarisk	**46.2**	*Fallen, codominant trunks with included bark*	*North Bridgehead Rd. Berm*			
105	athel tamarisk	**10.5**	*Fallen suppressed*	*North Bridgehead Rd. Berm*			
106	athel tamarisk	**22.6**	*Leaning*	*North Bridgehead Rd. Berm*			
107	athel tamarisk	**15.9**	*Fallen one sided*	*North Bridgehead Rd. Berm*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
108	athel tamarisk	41.4	*Fallen, split*	*North Bridgehead Rd. Berm*			
109	athel tamarisk	104.1	*Fallen, codominant trunks with included bark splitting*	*North Bridgehead Rd. Berm*			
110	athel tamarisk	30.4	*Codominant trunks with included bark, sparse*	*North Bridgehead Rd. Berm*			
111	athel tamarisk	35.7		*North Bridgehead Rd. Berm*			
112	athel tamarisk	19.3	*Fallen*	*North Bridgehead Rd. Berm*			
113	athel tamarisk	51.0	*Measured at one foot, trunk fallen*	*North Bridgehead Rd. Berm*			
114	athel tamarisk	23.6	*Leaning, codominant trunks with included bark*	*North Bridgehead Rd. Berm*			
115	athel tamarisk	73.2	*Fallen, codominant trunks with included bark*	*North Bridgehead Rd. Berm*			
116	athel tamarisk	15.6	*Suppressed*	*North Bridgehead Rd. Berm*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
117	athel tamarisk	**10.2**		*North Bridgehead Rd. Berm*			
118	athel tamarisk	**47.5**		*North Bridgehead Rd. Berm*			
119	athel tamarisk	**33.4**		*North Bridgehead Rd. Berm*			
120	athel tamarisk	**75.5**	*Fallen, split trunks*	*North Bridgehead Rd. Berm*			
121	athel tamarisk	**42.0**	*Leaning codominant trunks with included bark*	*North Bridgehead Rd. Berm*			
122	athel tamarisk	**75.5**	*Multiple trunks with included bark*	*North Bridgehead Rd. Berm*			
123	athel tamarisk	**16.6**	*Suppressed*	*North Bridgehead Rd. Berm*			
124	athel tamarisk	**52.9**	*Multiple trunks with included bark, one split*	*North Bridgehead Rd. Berm*			
125	athel tamarisk	**27.1**	*Suppressed*	*North Bridgehead Rd. Berm*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
126	athel tamarisk	29.0		North Bridgehead Rd. Berm			
127	athel tamarisk	10.8		North Bridgehead Rd. Berm			
128	athel tamarisk	29.9		North Bridgehead Rd. Berm			
129	athel tamarisk	12.1	*Fallen*	North Bridgehead Rd. Berm			
130	athel tamarisk	55.9		North Bridgehead Rd. Berm			
131	athel tamarisk	40.0	*Fallen*	North Bridgehead Rd. Berm			
132	athel tamarisk	16.9	*Fallen & suppressed*	North Bridgehead Rd. Berm			
133	athel tamarisk	13.1		North Bridgehead Rd. Berm			
134	athel tamarisk	40.4	*90 Degree bent trunk, codominant with included bark*	North Bridgehead Rd. Berm			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
135	athel tamarisk	37.6	*Fallen*	*North Bridgehead Rd. Berm*			
136	athel tamarisk	58.6	*Fallen, multiple trunks with included bark*	*North Bridgehead Rd. Berm*			
137	athel tamarisk	12.4	*Fallen*	*North Bridgehead Rd. Berm*			
138	athel tamarisk	7.6	*Bent*	*North Bridgehead Rd. Berm*			
139	athel tamarisk	11.5		*North Bridgehead Rd. Berm*			
140	athel tamarisk	26.8	*One sided*	*North Bridgehead Rd. Berm*			
141	athel tamarisk	19.4	*Suppressed*	*North Bridgehead Rd. Berm*			
142	athel tamarisk	14.0		*North Bridgehead Rd. Berm*			
143	athel tamarisk	46.8	*Suppressed, fallen*	*North Bridgehead Rd. Berm*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
144	athel tamarisk	11.5	*Suppressed*	*North Bridgehead Rd. Berm*			
145	athel tamarisk	96.5		*North Bridgehead Rd. Berm*			
146	athel tamarisk	23.2	*Suppressed*	*North Bridgehead Rd. Berm*			
147	athel tamarisk	35.4	*Suppressed*	*North Bridgehead Rd. Berm*			
148	athel tamarisk	69.7		*North Bridgehead Rd. Berm*			
149	athel tamarisk	50.3		*North Bridgehead Rd. Berm*			
150	athel tamarisk	36.0		*North Bridgehead Rd. Berm*			
151	athel tamarisk	21.3		*North Bridgehead Rd. Berm*			
152	athel tamarisk	72.3		*North Bridgehead Rd. Berm*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
153	athel tamarisk	16.9	*Fallen*	*North Bridgehead Rd. Berm*			
154	athel tamarisk	23.6	*Suppressed*	*North Bridgehead Rd. Berm*			
155	athel tamarisk	29.9	*One sided, fallen*	*North Bridgehead Rd. Berm*			
156	athel tamarisk	65.6	*Leaning spread out , raccoon latrine*	*North Bridgehead Rd. Berm*			
157	athel tamarisk	23.2	*Leaning*	*North Bridgehead Rd. Berm*			
158	athel tamarisk	21.3	*Leaning suppressed*	*North Bridgehead Rd. Berm*			
159	athel tamarisk	15.0	*Fallen*	*North Bridgehead Rd. Berm*			
160	athel tamarisk	16.6	*Severe lean*	*North Bridgehead Rd. Berm*			
161	athel tamarisk	68.8	*Fallen*	*North Bridgehead Rd. Berm*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
162	athel tamarisk	**11.5**		*North Bridgehead Rd. Berm*			
163	athel tamarisk	**35.7**	*Suppressed*	*North Bridgehead Rd. Berm*			
164	athel tamarisk	**51.6**	*Fallen*	*North Bridgehead Rd. Berm*			
165	athel tamarisk	**58.3**	*Suppressed*	*North Bridgehead Rd. Berm*			
166	athel tamarisk	**57.6**	*Trunk split & fallen*	*North Bridgehead Rd. Berm*			
167	athel tamarisk	**36.9**	*Fallen & trunks split*	*North Bridgehead Rd. Berm*			
168	athel tamarisk	**43.0**	*Fallen*	*North Bridgehead Rd. Berm*			
169	athel tamarisk	**45.9**	*Severe lean*	*North Bridgehead Rd. Berm*			
170	athel tamarisk	**22.9**	*Leaning decay in trunk*	*North Bridgehead Rd. Berm*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
171	athel tamarisk	47.1	*Severe trunk lean*	*North Bridgehead Rd. Berm*			
172	athel tamarisk	53.8	*Severe trunk lean*	*North Bridgehead Rd. Berm*			
173	athel tamarisk	38.2	*Stump measured at 1'*	*North Bridgehead Rd. Berm*			
174	athel tamarisk	61.8	*Stump sprout, multiple trunks with included bark*	*North Bridgehead Rd. Berm*			
175	athel tamarisk	33.4	*Stump sprout*	*North Bridgehead Rd. Berm*			
176	athel tamarisk	41.7	*Stump sprout*	*North Bridgehead Rd. Berm*			
177	athel tamarisk	49.0	*Trunk cavities*	*North Bridgehead Rd. Berm*			
178	athel tamarisk	33.1	*Dying*	*North Bridgehead Rd. Berm*			
179	athel tamarisk	50.0		*North Bridgehead Rd. Berm*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
180	athel tamarisk	29.6		North Bridgehead Rd. Berm			
181	athel tamarisk	33.4		North Bridgehead Rd. Berm			
182	athel tamarisk	66.9		North Bridgehead Rd. Berm			
183	athel tamarisk	15.9		North Bridgehead Rd. Berm			
184	athel tamarisk	43.6		North Bridgehead Rd. Berm			
185	athel tamarisk	43.3		North Bridgehead Rd. Berm			
186	athel tamarisk	22.9		North Bridgehead Rd. Berm			
187	athel tamarisk	48.7		North Bridgehead Rd. Berm			
188	athel tamarisk	55.1		North Bridgehead Rd. Berm			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
189	athel tamarisk	**34.4**		*North Bridgehead Rd. Berm*			
190	athel tamarisk	**15.3**		*North Bridgehead Rd. Berm*			
191	athel tamarisk	**15.3**		*North Bridgehead Rd. Berm*			
192	athel tamarisk	**29.6**		*North Bridgehead Rd. Berm*			
193	athel tamarisk	**15.9**		*North Bridgehead Rd. Berm*			
194	athel tamarisk	**18.8**		*North Bridgehead Rd. Berm*			
195	athel tamarisk	**12.1**		*North Bridgehead Rd. Berm*			
196	athel tamarisk	**19.4**		*North Bridgehead Rd. Berm*			
197	athel tamarisk	**37.6**	*Severe lean one sided*	*North Bridgehead Rd. Berm*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
198	athel tamarisk	36.3		*North Bridgehead Rd. Berm*			
199	athel tamarisk	25.5		*North Bridgehead Rd. Berm*			
200	athel tamarisk	31.8	*Severe trunk lean*	*North Bridgehead Rd. Berm*			
201	athel tamarisk	17.2	*Fallen*	*North Bridgehead Rd. Berm*			
202	athel tamarisk	10.2	*Fallen*	*North Bridgehead Rd. Berm*			
203	athel tamarisk	27.7	*Upright & fallen, codominant trunks with included bark*	*North Bridgehead Rd. Berm*			
204	athel tamarisk	8.9	*Dying*	*North Bridgehead Rd. Berm*			
205	athel tamarisk	15.3	*Fallen*	*North Bridgehead Rd. Berm*			
206	athel tamarisk	16.9		*North Bridgehead Rd. Berm*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
207	athel tamarisk	35.4		North Bridgehead Rd. Berm			
208	athel tamarisk	18.5		North Bridgehead Rd. Berm			
209	athel tamarisk	36.6	*Split, fallen*	North Bridgehead Rd. Berm			
210	athel tamarisk	15.9	*Leaning*	North Bridgehead Rd. Berm			
211	athel tamarisk	11.8		North Bridgehead Rd. Berm			
212	athel tamarisk	30.3		North Bridgehead Rd. Berm			
213	athel tamarisk	39.5		North Bridgehead Rd. Berm			
214	athel tamarisk	35.4		North Bridgehead Rd. Berm			
215	athel tamarisk	14.0	*Measured at 3'*	North Bridgehead Rd. Berm			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
216	athel tamarisk	**71.0**	*Split trunks, fallen*	*North Bridgehead Rd. Berm*			
217	athel tamarisk	**22.9**	*Fallen*	*North Bridgehead Rd. Berm*			
218	blue gum eucalyptus	**34.4**	*Multiple measured at grade*	*North Bridgehead Rd. Berm*			
219	blue gum eucalyptus	**31.8**	*Multiple measured at grade*	*North Bridgehead Rd. Berm*			
220	athel tamarisk	**70.4**	*Multiple measured at 2', codominant trunks with included bark*	*North Bridgehead Rd. Berm*			
221	athel tamarisk	**11.1**		*North Bridgehead Rd. Berm*			
222	athel tamarisk	**38.5**		*North Bridgehead Rd. Berm*			
223	athel tamarisk	**19.1**		*North Bridgehead Rd. Berm*			
224	athel tamarisk	**16.6**		*North Bridgehead Rd. Berm*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
225	athel tamarisk	12.1		North Bridgehead Rd. Berm			
226	athel tamarisk	29.0		North Bridgehead Rd. Berm			
227	athel tamarisk	53.5		North Bridgehead Rd. Berm			
228	athel tamarisk	25.5		North Bridgehead Rd. Berm			
229	athel tamarisk	12.1		North Bridgehead Rd. Berm			
230	blue gum eucalyptus	36.3		North Bridgehead Rd. Berm			
231	blue gum eucalyptus	34.4		North Bridgehead Rd. Berm			
232	athel tamarisk	18.2		North Bridgehead Rd. Berm			
233	athel tamarisk	40.4		North Bridgehead Rd. Berm			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
234	athel tamarisk	22.9		North Bridgehead Rd. Berm			
235	athel tamarisk	35.7		North Bridgehead Rd. Berm			
236	athel tamarisk	51.0		North Bridgehead Rd. Berm			
237	blue gum eucalyptus	59.2		North Bridgehead Rd. Berm		yes	yes
238	blue gum eucalyptus	35.7	Dead, eucalyptus long horned borer, wildlife habitat	North Bridgehead Rd. Berm		yes	yes
239	blue gum eucalyptus	36.9		North Bridgehead Rd. Berm			
240	blue gum eucalyptus	45.5		North Bridgehead Rd. Berm			
241	blue gum eucalyptus	12.1	No taper	North Bridgehead Rd. Berm			
242	blue gum eucalyptus	8.3	No taper	North Bridgehead Rd. Berm			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
243	blue gum eucalyptus	16.6	No taper	North Bridgehead Rd. Berm			
244	blue gum eucalyptus	47.8	Stump sprout	North Bridgehead Rd. Berm			
245	blue gum eucalyptus	28.7		North Bridgehead Rd. Berm			
246	blue gum eucalyptus	98.7		North Bridgehead Rd. Berm			
247	athel tamarisk	22.6		North Bridgehead Rd. Berm			
248	athel tamarisk	38.9		North Bridgehead Rd. Berm			
249	athel tamarisk	17.5	Fallen	North Bridgehead Rd. Berm			
250	athel tamarisk	7.3		North Bridgehead Rd. Berm			
251	athel tamarisk	18.8		North Bridgehead Rd. Berm			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
252	blue gum eucalyptus	130.6	*Stump sprout*	*NE corner misc. areas*		*yes*	*yes*
253	athel tamarisk	20.4	*Suppressed*	*NE corner misc. areas*			
254	athel tamarisk	17.2	*Fallen*	*NE corner misc. areas*			
255	athel tamarisk	17.2	*Codominant trunks with included bark*	*NE corner misc. areas*			
256	athel tamarisk	12.1	*Leaning*	*NE corner misc. areas*			
257	athel tamarisk	32.2	*Fallen split*	*NE corner misc. areas*			
258	athel tamarisk	9.2	*Suppressed*	*NE corner misc. areas*			
259	athel tamarisk	12.4	*Falling*	*NE corner misc. areas*			
260	athel tamarisk	7.0	*Suppressed*	*NE corner misc. areas*			
261	athel tamarisk	11.5	*Leaning*	*NE corner misc. areas*			
262	athel tamarisk	14.6	*Edge*	*NE corner misc. areas*			
263	blue gum eucalyptus	40.1	*Dying , measured at 12"*	*NE corner misc. areas*			
264	blue gum eucalyptus	17.8	*Suppressed , measured at 12"*	*NE corner misc. areas*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
265	blue gum eucalyptus	**100.6**	*Stump sprout , measured at 12*	*NE corner misc. areas*		*yes*	*yes*
266	blue gum eucalyptus	**91.7**	*Codominant measured at 12"*	*NE corner misc. areas*			
267	blue gum eucalyptus	**92.0**	*Codominant measured at 12"*	*NE corner misc. areas*			
268	blue gum eucalyptus	**28.7**	*Measured at 12"*	*NE corner misc. areas*			
269	blue gum eucalyptus	**33.8**	*Measured at 12", scrapes at base*	*NE corner misc. areas*		*yes*	*yes*
270	blue gum eucalyptus	**63.4**	*Measured at 12"*	*NE corner misc. areas*		*yes*	*yes*
271	blue gum eucalyptus	**41.7**	*Measured at 12"*	*NE corner misc. areas*		*yes*	*yes*
272	tree of heaven	**19.7**	*Growing in gravel up against structure*	*NE corner misc. areas*		*yes*	*yes*
273	coast live oak	**18.8**		*NE corner misc. areas*	*yes*		*yes*
274	coast live oak	**16.2**		*NE corner misc. areas*	*yes*		*yes*
275	Mexican fan palm	**na**	*30' trunk*	*NE corner misc. areas*			
276	Mexican fan palm	**na**	*35 feet trunk, **owl pellets** & raccoon latrine*	*NE corner misc. areas*			
277	coast live oak	**19.4**	*Suppressed by palm*	*NE corner misc. areas*	*yes*		*yes*

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
278	Mexican fan palm	na	*50' trunk , embedded in power pole*	*NE corner misc. areas*			
279	coast live oak	11.1	*Next to power pole*	*NE corner misc. areas*			
280	Mexican fan palm	na	*30' trunk*	*NE corner misc. areas*			
281	red river gum	15.3		*East corner near Cline vineyard*			
282	red river gum	9.9		*East corner near Cline vineyard*			
283	red river gum	15.6	*Fallen*	*East corner near Cline vineyard*		*yes*	*yes*
284	red river gum	17.8		*East corner near Cline vineyard*			
285	red river gum	21.0	*Codominant trunks with included bark*	*East corner near Cline vineyard*			
286	red river gum	8.0	*No taper*	*East corner near Cline vineyard*			
287	red river gum	19.7	*Eroding slope*	*East corner near Cline vineyard*		*yes*	*yes*

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
288	red river gum	11.8	*Fallen, cut off*	*East corner near Cline vineyard*			
289	red river gum	15.3	*Root crown buried , leaning*	*East corner near Cline vineyard*			
290	red river gum	12.7		*East corner near Cline vineyard*			
291	red river gum	10.5	*Leaning*	*East corner near Cline vineyard*			
292	red river gum	17.8	*Edge of slope*	*East corner near Cline vineyard*		*yes*	*yes*
293	red river gum	12.7	*Edge of slope*	*East corner near Cline vineyard*			
294	red river gum	11.8	*Edge of slope*	*East corner near Cline vineyard*			
295	red river gum	17.2	*Edge of slope*	*East corner near Cline vineyard*			
296	red river gum	16.2	*Edge of slope , no taper*	*East corner near Cline vineyard*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
297	red river gum	11.1	*Edge of slope*	*East corner near Cline vineyard*			
298	red river gum	9.6	*Edge of slope , leaning*	*East corner near Cline vineyard*			
299	red river gum	27.4	*Edge of slope , leaning*	*East corner near Cline vineyard*		*yes*	*yes*
300	red river gum	24.8	*Edge of slope , leaning*	*East corner near Cline vineyard*		*yes*	*yes*
301	red river gum	17.8	*Trunk leaning*	*East corner near Cline vineyard*			
302	red river gum	20.7	*Leaning on bank, codominant scaffolds*	*East corner near Cline vineyard*			
303	red river gum	8.0	*No taper*	*East corner near Cline vineyard*			
304	red river gum	18.8	*Trunk sprouts*	*East corner near Cline vineyard*			
305	red river gum	47.1	*Multiple trunks*	*East corner near Cline vineyard*		*yes*	*yes*

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
306	red river gum	**31.5**	*Leaning , stump sprouts*	*East corner near Cline vineyard*			
307	red river gum	**18.2**	*Leaning root crown buried*	*East corner near Cline vineyard*			
308	red river gum	**10.8**	*Severe lean*	*East corner near Cline vineyard*			
309	red river gum	**17.8**	*Severe lean , stump sprout*	*East corner near Cline vineyard*			
310	red river gum	**8.3**	*Trunk buried no taper*	*East corner near Cline vineyard*			
311	red river gum	**31.2**	*Leaning , sparse*	*East corner near Cline vineyard*			
312	red river gum	**15.0**	*Stump sprouts*	*East corner near Cline vineyard*			
313	red river gum	**20.4**	*Lerp psyllids on foliage & trunk*	*East corner near Cline vineyard*			
314	red river gum	**20.1**	*Stump sprouts*	*East corner near Cline vineyard*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
315	red river gum	8.0	*Suppressed*	*East corner near Cline vineyard*			
316	red river gum	23.2	*Thin*	*East corner near Cline vineyard*			
317	red river gum	15.9	*Leaning*	*East corner near Cline vineyard*			
318	red river gum	13.7	*Suppressed split trunks*	*East corner near Cline vineyard*			
319	red river gum	15.0	*Stump sprouts leaning*	*East corner near Cline vineyard*			
320	red river gum	8.3	*Leaning untapered*	*East corner near Cline vineyard*			
321	red river gum	8.3	*No taper*	*East corner near Cline vineyard*			
322	red river gum	21.7		*East corner near Cline vineyard*		*yes*	*yes*
323	red river gum	15.9		*East corner near Cline vineyard*		*yes*	*yes*

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
324	red river gum	**7.0**	*Twisted untapered*	*East corner near Cline vineyard*			
325	red river gum	**34.1**	*Leaning*	*East corner near Cline vineyard*		*yes*	*yes*
326	red river gum	**9.2**	*Leaning suppressed*	*East corner near Cline vineyard*			
327	red river gum	**33.1**	*Fallen*	*East corner near Cline vineyard*			
328	red river gum	**7.0**	*Twisted untapered*	*East corner near Cline vineyard*			
329	red river gum	**24.2**	*Leaning hit by fallen tree trunk buried*	*East corner near Cline vineyard*			
330	red river gum	**21.7**	*1/2 Dead*	*East corner near Cline vineyard*			
331	red river gum	**36.0**	*Codominant trunks , dying back*	*East corner near Cline vineyard*			
332	red river gum	**7.6**	*No taper*	*East corner near Cline vineyard*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
333	red river gum	15.9	*Leaning*	*East corner near Cline vineyard*			
334	red river gum	22.0	*Fallen*	*East corner near Cline vineyard*			
335	red river gum	8.3	*Suppressed*	*East corner near Cline vineyard*			
336	red river gum	16.9	*Trunk sprouts , suppressed*	*East corner near Cline vineyard*			
337	red river gum	30.6	*Trunk sprouts*	*East corner near Cline vineyard*			
338	red river gum	7.0	*Suppressed*	*East corner near Cline vineyard*			
339	red river gum	10.8	*Leaning*	*East corner near Cline vineyard*			
340	red river gum	14.6	*Leaning*	*East corner near Cline vineyard*		*yes*	*yes*
341	red river gum	40.8	*Codominant*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
342	red river gum	**44.3**	*Codominant*	*Southern side bermed windbreaks*			
343	red river gum	**23.2**	*No taper*	*Southern side bermed windbreaks*			
344	red river gum	**57.3**	*Codominant trunks*	*Southern side bermed windbreaks*			
345	red river gum	**24.8**	*Codominant*	*Southern side bermed windbreaks*			
346	red river gum	**36.9**	*Codominant*	*Southern side bermed windbreaks*			
347	red river gum	**24.8**	*Leaning, trunk cavities*	*Southern side bermed windbreaks*			
348	red river gum	**14.6**	*Suppressed*	*Southern side bermed windbreaks*			
349	red river gum	**17.8**	*Codominant minimal taper*	*Southern side bermed windbreaks*			
350	red river gum	**36.9**	*Codominant*	*Southern side bermed windbreaks*			

#	NAME	DIAMETE R (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
351	red river gum	**46.2**	*Lerp psyllid on foliage*	*Southern side bermed windbreaks*			
352	red river gum	**29.9**	*Foliage sparse*	*Southern side bermed windbreaks*			
353	red river gum	**22.6**	*Leaning twisted*	*Southern side bermed windbreaks*			
354	red river gum	**21.3**	*Center died, intertwined with 355*	*Southern side bermed windbreaks*			
355	red river gum	**17.2**	*Dominating 354*	*Southern side bermed windbreaks*		*yes*	*yes*
355	red river gum	**20.1**	*Intertwined with 355, center died back*	*Southern side bermed windbreaks*			
356	red river gum	**25.5**	*Codominant , no taper*	*Southern side bermed windbreaks*		*yes*	*yes*
357	red river gum	**30.6**	*Codominant, cavity on scaffold where branch failed*	*Southern side bermed windbreaks*			
358	red river gum	**37.3**	*Dominant,*	*Southern side bermed windbreaks*		*yes*	*yes*

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
359	red river gum	**13.7**	*Suppressed trunk cavities*	*Southern side bermed windbreaks*			
360	red river gum	**27.1**	*Dominant minimal taper*	*Southern side bermed windbreaks*		*yes*	*yes*
361	red river gum	**13.4**	*Cavity nest holes, suppressed*	*Southern side bermed windbreaks*			
362	red river gum	**10.8**	*Suppressed*	*Southern side bermed windbreaks*			
363	red river gum	**9.9**	*Suppressed*	*Southern side bermed windbreaks*			
364	red river gum	**16.9**	*Suppressed*	*Southern side bermed windbreaks*			
365	red river gum	**49.7**	*Dominant*	*Southern side bermed windbreaks*		*yes*	*yes*
366	red river gum	**20.1**	*Edge of steep cut*	*Southern side bermed windbreaks*			
367	red river gum	**17.8**	*Minimal taper*	*Southern side bermed windbreaks*		*yes*	*yes*

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
368	red river gum	65.3	*Multiple trunks, edge of cut, psyllid*	*Southern side bermed windbreaks*			
369	red river gum	15.9	*Old burrow next to trunk*	*Southern side bermed windbreaks*		*yes*	*yes*
370	red river gum	22.6		*Southern side bermed windbreaks*			
371	red river gum	51.3	*Edge of berm*	*Southern side bermed windbreaks*			
372	red river gum	36.9	*Edge of berm*	*Southern side bermed windbreaks*		*yes*	*yes*
373	red river gum	35.7	*Edge of berm*	*Southern side bermed windbreaks*		*yes*	*yes*
374	red river gum	38.2	*Codominant*	*Southern side bermed windbreaks*		*yes*	*yes*
375	red river gum	27.1	*Severe lean*	*Southern side bermed windbreaks*			
376	red river gum	25.8	*Codominant*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
377	red river gum	**31.2**	*Dying back*	*Southern side bermed windbreaks*			
378	red river gum	**21.7**	*Thin*	*Southern side bermed windbreaks*			
379	red river gum	**30.9**	*Dying*	*Southern side bermed windbreaks*			
380	red river gum	**30.3**	*Resprouted from trunk dieback*	*Southern side bermed windbreaks*			
381	red river gum	**63.7**	*Codominant trunks*	*Southern side bermed windbreaks*		*yes*	*yes*
382	red river gum	**48.4**	*Codominant*	*Southern side bermed windbreaks*		*yes*	*yes*
383	red river gum	**20.4**		*Southern side bermed windbreaks*			
384	red river gum	**17.8**		*Southern side bermed windbreaks*			
385	red river gum	**39.5**	*Codominant scaffolds , psyllid damage*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
386	red river gum	28.0	*Codominant trunks & scaffolds*	*Southern side bermed windbreaks*			
387	red river gum	13.7	*Measured at 2.5' above ground*	*Southern side bermed windbreaks*			
388	red river gum	36.3	*Codominant scaffolds*	*Southern side bermed windbreaks*			
389	red river gum	24.8	*Upright*	*Southern side bermed windbreaks*			
390	red river gum	61.1	*Multiple trunks*	*Southern side bermed windbreaks*		*yes*	*yes*
391	red river gum	52.2	*Codominant trunks*	*Southern side bermed windbreaks*		*yes*	*yes*
392	red river gum	12.1	*Suppressed*	*Southern side bermed windbreaks*			
393	red river gum	43.0	*Codominant trunks, dying back*	*Southern side bermed windbreaks*			
394	red river gum	26.4	*Dying back*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
395	red river gum	**54.1**	*Codominant scaffolds*	*Southern side bermed windbreaks*			
396	red river gum	**19.4**	*Codominant*	*Southern side bermed windbreaks*			
397	red river gum	**30.6**	*Codominant Leaning*	*Southern side bermed windbreaks*			
398	red river gum	**36.9**		*Southern side bermed windbreaks*			
399	red river gum	**17.5**	*Suppressed*	*Southern side bermed windbreaks*			
400	red river gum	**28.7**	*Dominant*	*Southern side bermed windbreaks*			
401	red river gum	**55.4**	*Codominant trunks thin top*	*Southern side bermed windbreaks*		*yes*	*yes*
402	red river gum	**16.6**	*Codominant trunks*	*Southern side bermed windbreaks*			
403	red river gum	**40.8**	*Codominant trunks*	*Southern side bermed windbreaks*		*yes*	*yes*

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
404	red river gum	**19.4**	*Trunk buried leaning*	*Southern side bermed windbreaks*			
405	red river gum	**46.2**	*Multiple trunks one dying edge of row*	*Southern side bermed windbreaks*			
406	red river gum	**11.5**	*Edge dying*	*Southern side bermed windbreaks*			
407	red river gum	**27.4**	*No taper*	*Southern side bermed windbreaks*			
408	red river gum	**28.0**		*Southern side bermed windbreaks*		*yes*	*yes*
409	red river gum	**14.3**	*Surviving sprout from stump*	*Southern side bermed windbreaks*			
410	red river gum	**21.3**		*Southern side bermed windbreaks*		*yes*	*yes*
411	red river gum	**26.8**	*Leaning thin*	*Southern side bermed windbreaks*			
412	red river gum	**7.0**	*Suppressed*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
413	red river gum	7.0	*Suppressed*	*Southern side bermed windbreaks*			
414	red river gum	22.0	*Dying*	*Southern side bermed windbreaks*			
415	red river gum	37.6	*Dominant*	*Southern side bermed windbreaks*		*yes*	*yes*
416	red river gum	24.5	*Stump sprouts*	*Southern side bermed windbreaks*			
417	red river gum	44.3	*Codominant trunks*	*Southern side bermed windbreaks*			
418	red river gum	15.9	*Suppressed*	*Southern side bermed windbreaks*			
419	red river gum	14.6	*Suppressed*	*Southern side bermed windbreaks*			
420	red river gum	49.0	*Dominant*	*Southern side bermed windbreaks*		*yes*	*yes*
421	red river gum	21.3	*Suppressed leaning twisted*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
422	red river gum	12.4	*Suppressed*	*Southern side bermed windbreaks*			
423	red river gum	12.1	*Stump sprout*	*Southern side bermed windbreaks*			
424	red river gum	38.2	*Multiple trunks leaning*	*Southern side bermed windbreaks*			
425	red river gum	21.7	*No taper*	*Southern side bermed windbreaks*			
426	red river gum	12.1	*Suppressed*	*Southern side bermed windbreaks*			
427	red river gum	19.1		*Southern side bermed windbreaks*			
428	red river gum	41.7	*Dominant multiple trunks*	*Southern side bermed windbreaks*			
429	red river gum	14.0	*Dying codominant*	*Southern side bermed windbreaks*			
430	red river gum	30.6	*Dying lean codominant*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
431	red river gum	**30.9**	*Dominant*	*Southern side bermed windbreaks*		*yes*	*yes*
432	red river gum	**22.9**	*Codominant*	*Southern side bermed windbreaks*			
433	red river gum	**29.6**	*Codominant broken branches*	*Southern side bermed windbreaks*		*yes*	*yes*
434	red river gum	**22.3**	*Edge one sided*	*Southern side bermed windbreaks*		*yes*	*yes*
435	blue gum eucalyptus	**51.6**	*Stump sprouts*	*Southern side bermed windbreaks*			
436	blue gum eucalyptus	**35.7**	*Codominant*	*Southern side bermed windbreaks*		*yes*	*yes*
437	blue gum eucalyptus	**53.5**	*Codominant multiple leaning trunks*	*Southern side bermed windbreaks*		*yes*	*yes*
438	blue gum eucalyptus	**23.9**	*Resprouted top dead scaffold cavity*	*Southern side bermed windbreaks*			
439	blue gum eucalyptus	**24.8**	*Resprouted top dead scaffold cavity , sulfur fungus on wound*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
440	blue gum eucalyptus	57.3	*Codominant many burls*	*Southern side bermed windbreaks*		*yes*	*yes*
441	blue gum eucalyptus	51.3	*Codominant*	*Southern side bermed windbreaks*		*yes*	*yes*
442	blue gum eucalyptus	69.4	*Codominant*	*Southern side bermed windbreaks*		*yes*	*yes*
443	blue gum eucalyptus	40.8	*Codominant Leaning*	*Southern side bermed windbreaks*		*yes*	*yes*
444	blue gum eucalyptus	46.5	*Dominant*	*Southern side bermed windbreaks*		*yes*	*yes*
445	blue gum eucalyptus	89.8	*Codominant , multiple trunks low*	*Southern side bermed windbreaks*		*yes*	*yes*
446	blue gum eucalyptus	38.2		*Southern side bermed windbreaks*		*yes*	*yes*
447	blue gum eucalyptus	63.1	*Declining*	*Southern side bermed windbreaks*			
448	blue gum eucalyptus	31.8	*Stump sprouts*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
449	blue gum eucalyptus	16.9	*Measured at 3', suppressed*	*Southern side bermed windbreaks*			
450	blue gum eucalyptus	21.7	*Measured at 6 suppressed*	*Southern side bermed windbreaks*			
451	blue gum eucalyptus	20.4	*Stump sprouts , measured at 2'*	*Southern side bermed windbreaks*			
452	blue gum eucalyptus	23.6		*Southern side bermed windbreaks*			
453	blue gum eucalyptus	19.1	*Measured at 2'*	*Southern side bermed windbreaks*			
454	blue gum eucalyptus	55.1		*Southern side bermed windbreaks*		*yes*	*yes*
455	blue gum eucalyptus	31.8	*Measured at 3'*	*Southern side bermed windbreaks*			
456	blue gum eucalyptus	37.9		*Southern side bermed windbreaks*			
457	blue gum eucalyptus	27.4		*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
458	blue gum eucalyptus	19.7	*Large trunk cavities*	*Southern side bermed windbreaks*			
459	blue gum eucalyptus	36.9		*Southern side bermed windbreaks*			
460	blue gum eucalyptus	26.8		*Southern side bermed windbreaks*			
461	blue gum eucalyptus	44.6	*Edge solo*	*Southern side bermed windbreaks*		*yes*	*yes*
462	blue gum eucalyptus	40.8	*Edge row*	*Southern side bermed windbreaks*		*yes*	*yes*
463	blue gum eucalyptus	33.8	*Measured at 24*	*Southern side bermed windbreaks*			
464	blue gum eucalyptus	48.1	*Owl pellets*	*Southern side bermed windbreaks*		*yes*	*yes*
465	blue gum eucalyptus	29.9		*Southern side bermed windbreaks*			
466	blue gum eucalyptus	28.7		*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
467	blue gum eucalyptus	**29.9**	*Codominant scaffolds upright*	*Southern side bermed windbreaks*		*yes*	*yes*
468	blue gum eucalyptus	**33.8**		*Southern side bermed windbreaks*			
469	blue gum eucalyptus	**38.2**	*Stump sprouts*	*Southern side bermed windbreaks*			
470	blue gum eucalyptus	**24.2**	*Measured at 1'*	*Southern side bermed windbreaks*			
471	blue gum eucalyptus	**20.4**	*Measured at 1'*	*Southern side bermed windbreaks*			
472	blue gum eucalyptus	**40.1**		*Southern side bermed windbreaks*			
473	blue gum eucalyptus	**35.0**		*Southern side bermed windbreaks*			
474	blue gum eucalyptus	**28.0**		*Southern side bermed windbreaks*			
475	blue gum eucalyptus	**31.8**	*Suppressed*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
476	blue gum eucalyptus	36.9	*Measured at 2'*	*Southern side bermed windbreaks*			
478	blue gum eucalyptus	24.2	*Suppressed*	*Southern side bermed windbreaks*			
479	blue gum eucalyptus	42.4		*Southern side bermed windbreaks*		*yes*	*yes*
480	blue gum eucalyptus	29.9		*Southern side bermed windbreaks*			
481	blue gum eucalyptus	47.1		*Southern side bermed windbreaks*			
482	blue gum eucalyptus	21.0		*Southern side bermed windbreaks*			
483	blue gum eucalyptus	29.9		*Southern side bermed windbreaks*			
484	blue gum eucalyptus	36.9	*Leaning , trunk decay*	*Southern side bermed windbreaks*		*yes*	*yes*
485	blue gum eucalyptus	29.3		*Southern side bermed windbreaks*		*yes*	*yes*

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
486	blue gum eucalyptus	**31.8**	*Edge of row*	*Southern side bermed windbreaks*		*yes*	*yes*
487	blue gum eucalyptus	**23.6**	*Edge of row*	*Southern side bermed windbreaks*		*yes*	*yes*
488	blue gum eucalyptus	**29.9**	*Codominant upright scaffolds*	*Southern side bermed windbreaks*			
489	blue gum eucalyptus	**25.5**		*Southern side bermed windbreaks*		*yes*	*yes*
490	blue gum eucalyptus	**43.3**	*Barn owl hooting from tree , measured at 23*	*Southern side bermed windbreaks*		*yes*	*yes*
491	blue gum eucalyptus	**22.9**	*Measured st 12*	*Southern side bermed windbreaks*			
492	blue gum eucalyptus	**23.6**	*Measured at 12*	*Southern side bermed windbreaks*			
493	blue gum eucalyptus	**38.2**	*Measured at 12*	*Southern side bermed windbreaks*			
494	blue gum eucalyptus	**30.6**	*Measured at 12*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
495	blue gum eucalyptus	36.6	*Measured at 3.5'*	*Southern side bermed windbreaks*			
496	blue gum eucalyptus	38.2		*Southern side bermed windbreaks*			
497	blue gum eucalyptus	29.9	*Leaning*	*Southern side bermed windbreaks*			
498	blue gum eucalyptus	49.0		*Southern side bermed windbreaks*			
499	blue gum eucalyptus	24.5		*Southern side bermed windbreaks*			
500	blue gum eucalyptus	28.7		*Southern side bermed windbreaks*			
501	blue gum eucalyptus	26.1	*Suppressed codominant scaffolds upright*	*Southern side bermed windbreaks*			
502	blue gum eucalyptus	36.3	*Dominant multiple scaffolds measured at 4'*	*Southern side bermed windbreaks*			
503	blue gum eucalyptus	43.9	*Suppressed measured at 3'*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
504	blue gum eucalyptus	**48.7**	*Dominant measured at 3'*	*Southern side bermed windbreaks*			
505	blue gum eucalyptus	**19.7**	*Suppressed measured at 2.5'*	*Southern side bermed windbreaks*			
506	blue gum eucalyptus	**52.9**	*Dominant multiple trunks measured at 2.5'*	*Southern side bermed windbreaks*			
507	blue gum eucalyptus	**31.5**	*Measured at 2', codominant trunks with included bark suppressed*	*Southern side bermed windbreaks*			
508	blue gum eucalyptus	**29.3**	*Uprooted measured at 2'*	*Southern side bermed windbreaks*			
509	blue gum eucalyptus	**42.0**	*Measured at 2', codominant trunks at 2.5'*	*Southern side bermed windbreaks*			
510	blue gum eucalyptus	**50.3**	*Measured at 1' codominant trunks at 1.5'*	*Southern side bermed windbreaks*			
511	blue gum eucalyptus	**31.5**	*Codominant trunks*	*Southern side bermed windbreaks*			
512	blue gum eucalyptus	**42.7**	*Measured at 2' multiple trunks*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
513	blue gum eucalyptus	23.2	*Measured at 2' multiple trunks*	*Southern side bermed windbreaks*			
514	blue gum eucalyptus	39.8	*Measured at 3'*	*Southern side bermed windbreaks*			
515	blue gum eucalyptus	35.7		*Southern side bermed windbreaks*			
516	blue gum eucalyptus	26.8	*Measured at 3'*	*Southern side bermed windbreaks*			
517	blue gum eucalyptus	40.4	*Measured at 3.5'*	*Southern side bermed windbreaks*			
518	blue gum eucalyptus	21.7	*Measured at 12" dying*	*Southern side bermed windbreaks*			
519	blue gum eucalyptus	38.5	*Profusely bleeding blooming edge*	*Southern side bermed windbreaks*		*yes*	*yes*
520	blue gum eucalyptus	31.5	*Measured at 2' trunk buried multiple trunks edge*	*Southern side bermed windbreaks*			
521	blue gum eucalyptus	26.1	*Measured at 6"*	*Southern side bermed windbreaks*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
522	blue gum eucalyptus	11.1	Suppressed	Southern side bermed windbreaks			
523	blue gum eucalyptus	25.5	Measured at 2' topped T 2.5' resprouted	Southern side bermed windbreaks			
524	blue gum eucalyptus	20.1	Topped resprouted	Southern side bermed windbreaks			
525	blue gum eucalyptus	28.7	Measured at 2.5' cut back near towers	Southern side bermed windbreaks			
526	blue gum eucalyptus	36.6		Southern side bermed windbreaks		yes	yes
527	blue gum eucalyptus	28.7	Suppressed	Southern side bermed windbreaks			
528	blue gum eucalyptus	25.5		Southern side bermed windbreaks			
529	blue gum eucalyptus	24.5	Measured at 2.5'	Southern side bermed windbreaks			
530	blue gum eucalyptus	36.3	Measured at 2.5'	Southern side bermed windbreaks			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
531	blue gum eucalyptus	22.9	*Measured at 3'*	*Southern side bermed windbreaks*			
532	blue gum eucalyptus	35.0	*Measured at 3'*	*Southern side bermed windbreaks*			
533	blue gum eucalyptus	12.7	*Measured at 2.5'*	*Southern side bermed windbreaks*			
534	blue gum eucalyptus	57.0	*Sulfur mushroom*	*Southern side bermed windbreaks*			
535	blue gum eucalyptus	30.6	*Measured at 18" sulfur mushroom*	*Southern side bermed windbreaks*			
536	blue gum eucalyptus	23.9	*Measured at 2'*	*Southern side bermed windbreaks*			
537	blue gum eucalyptus	26.1	*Minimal taper*	*Southern side bermed windbreaks*			
538	blue gum eucalyptus	76.4	*Edge end tree*	*Southern side bermed windbreaks*		*yes*	*yes*
539	Mexican fan palm	na	*18' trunk, roots disturbed*	*near red pipe wetlands*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
540	Mexican fan palm	na	10' trunk, roots disturbed	near red pipe wetlands			
542	willow	88.0	Near red pipe in swale	near red pipe wetlands		yes	yes
543	willow	38.2	In swale	near red pipe wetlands		yes	yes
544	willow	48.0	In swale	near red pipe wetlands		yes	yes
545	pacific willow	24.2	In swale measured at 2'	near red pipe wetlands		yes	yes
546	Mexican fan palm	na	30' not clear before new growth Stunted new growth , excavation next to trunk	near red pipe wetlands			
547	Mexican fan palm	na	30' not clear trunk	Wilbur Ave.			
548	Mexican fan palm	na	8' not clear trunk, owl pellets, lightpole	shed road-cross road			
549	red river gum	8.6	Ants	southern edge of white drainage area			
550	red river gum	12.4	Ants lerp psyllid	southern edge of white drainage area			
551	red river gum	11.8	In flat area	east corner berm			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
552	red river gum	36.1	*Near solar pump , trunk leaning codominant scaffolds*	*east corner berm*		*yes*	*yes*
553	red river gum	37.3	*Near solar pump*	*east corner berm*		*yes*	*yes*
554	red river gum	18.5	*Dying*	*east corner berm*			
555	red river gum	10.8		*east corner berm*			
556	red river gum	36.9		*east corner berm*		*yes*	*yes*
557	red river gum	31.8	*In asphalt measured at 12" multiple trunks with included bark leaning*	*near east corner berm*			
558	red river gum	27.4	*Root crown buried twig dieback*	*east corner berm*			
559	red river gum	16.6	*No taper*	*east corner berm*			
560	red river gum	12.1	*Stump sprout*	*east corner berm*			
561	red river gum	8.0	*No taper leaning may be stump sprout*	*east corner berm*			
562	red river gum	10.2	*No taper leaning may be stump sprout*	*east corner berm*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
563	red river gum	24.8	*Root crown buried leaning one sided*	*east corner berm*			
564	red river gum	26.8	*No taper*	*east corner berm*			
565	red river gum	10.8	*No taper leaning*	*east corner berm*			
566	red river gum	11.5	*No taper*	*east corner berm*			
567	red river gum	28.7	*Root crown buried codominant trunks with included bark*	*east corner berm*		*yes*	*yes*
568	red river gum	13.4	*In swale*	*east corner berm*			
569	red river gum	23.2		*east corner berm*			
570	red river gum	21.7		*east corner berm*			
571	red river gum	48.7	*In swale, large bird egg cracked*	*east corner berm*			
572	red river gum	21.3	*In search suppressed*	*east corner berm*			
573	red river gum	12.7	*No taper*	*east corner berm*			
574	red river gum	9.9	*No taper*	*east corner berm*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
575	red river gum	13.1	*No taper*	*east corner berm*			
576	red river gum	44.6	*Root crown buried trunks leaning stump sprout*	*east corner berm*			
577	red river gum	7.0	*Suppressed*	*east corner berm*			
578	red river gum	9.9		*east corner berm*			
579	red river gum	20.4	*Leaning root crown buried*	*east corner berm*		*yes*	*yes*
580	red river gum	23.2	*Leaning*	*east corner berm*			
581	red river gum	27.1	*Edge of pavement*	*east corner berm*			
582	red river gum	8.0	*Near old rail bed & new eucalyptus plantings nearby*	*near old rr bed new euc plantings east*			
583	red river gum	7.6	*Near old rail bed & new eucalyptus plantings nearby*	*near old rr bed new euc plantings east*			
584	coast live oak	24.2	*Embedded in fence measured at grade multiple trunks with included bark , may be hybridized with interior live oak*	*next to Wilbur, parking lot, guard shack & admin bldg*	*yes*		*yes*

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
585	coast live oak	26.1	*Multiple trunks with included bark measured at 18", may be hybridized with interior live oak*	*next to Wilbur, parking lot, guard shack & admin bldg*	*yes*		*yes*
586	coast live oak	35.0	*Embedded in trunk codominant trunks with included bark , , may be hybridized with interior live oak*	*next to Wilbur, parking lot, guard shack & admin bldg*	*yes*		*yes*
587	red river gum	8.9	*In asphalt stump sprout*	*on old foundation between berms, south*			
588	red river gum	10.2	*In pavement*	*on old foundation between berms, south*			
589	red river gum	16.9	*In pavement*	*on old foundation between berms, south*			
590	red river gum	12.1	*Pit with codominant trunks & included bark*	*on & near old foundation, SE quad*			
591	red river gum	8.0		*on old foundation between berms, south*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
592	red river gum	25.2	*Stump sprout in asphalt*	*on old foundation between berms, south*			
593	Siberian elm	36.3	*Edge of drain or culvert measured at 12" multiple trunks*	*on old foundation between berms, south*			
594	willow	48.4	*Multiple trunks included bark measured at 18"*	*on old foundation between berms, south*		*yes*	*yes*
595	red river gum	15.6	*Squeezed s between pillars*	*on old foundation between berms, south*		*yes*	*yes*
596	red river gum	11.5		*on old foundation between berms, south*			
597	red river gum	39.2	*Edge of standing water*	*on old foundation between berms, south*		*yes*	*yes*
598	red river gum	32.2	*Edge of standing water Stump sprout*	*on old foundation between berms, south*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
599	red river gum	8.3	*Fallen next to water*	*on old foundation between berms, south*			
600	red river gum	91.4	*Next to water multiple trunks with included bark*	*on old foundation between berms, south*			
601	red river gum	22.3	*Stump sprout*	*on old foundation between berms, south*			
602	red river gum	25.2	*Codominant trunks edge of slab*	*on old foundation between berms, south*			
603	red river gum	14.6	*Suppressed, skink*	*on old foundation between berms, south*			
604	red river gum	15.0		*on old foundation between berms, south*		*yes*	*yes*
605	red river gum	24.5		*on old foundation between berms, south*		*yes*	*yes*

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
606	red river gum	24.2	*Embedded in steel sawhorse*	*on old foundation between berms, south*			
607	red river gum	24.8		*on old foundation between berms, south*			
608	red river gum	14.0	*Fallen measured at 3'*	*on old foundation between berms, south*			
609	red river gum	43.9	*Stump sprout, one stem fallen*	*on old foundation between berms, south*		*yes*	*yes*
610	red river gum	29.6	*Edge of grove*	*on old foundation between berms, south*			
611	red river gum	24.8	*Leaning one sided*	*on old foundation between berms, south*			
612	red river gum	48.1	*Interior tree might be stump sprout*	*on old foundation between berms, south*		*yes*	*yes*

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
613	red river gum	43.0	*Might be stump sprout*	*on old foundation between berms, south*			
614	red river gum	28.3	*Suppressed*	*on old foundation between berms, south*			
616	red river gum	19.7	*In asphalt one trunk split & dead another fallen*	*on old foundation between berms, south*			
617	red river gum	58.0	*In asphalt*	*on old foundation between berms, south*			
618	red river gum	8.6		*on old foundation between berms, south*			
619	red river gum	62.7	*Next to concrete pad, trunk split scaffold failure*	*on old foundation between berms, south*			
620	red river gum	62.4		*on old foundation between berms, south*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
621	red river gum	13.7	*In concrete*	*on old foundation between berms, south*			
622	red river gum	10.5	*In concrete*	*on old foundation between berms, south*			
623	red river gum	29.0	*In asphalt*	*on old foundation between berms, south*			
624	red river gum	26.4	*In asphalt*	*on old foundation between berms, south*			
625	Coast live oak	8.3	*In gravel woolly aphids, measured at 30"*	*on old foundation between berms, south*			
626	red river gum	18.2		*on old foundation between berms, south*			
627	red river gum	12.4		*on old foundation between berms, south*			

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
628	red river gum	na	*40' clear trunk, large deposit of owl pellets*	*on old foundation between berms, south*		*yes*	*yes*
629	tree of heaven	8.0	*In asphalt*	*old foundations sw quadrant*			
630	tree of heaven	27.4	*In asphalt*	*old foundations sw quadrant*			
631	tree of heaven	38.2	*In fence*	*PG & E fenceline near office foundations*			
632	tree of heaven	49.4	*Against fence*	*PG & E fenceline near office foundations*			
633	tree of heaven	29.0	*In asphalt*	*PG & E fenceline near office foundations*			
634	Coast live oak	34.7	*Codominant trunks with included bark*	*office foundations*	*yes*		*yes*
635	Coast live oak	26.8	*Codominant trunks with included bark*	*office foundations*	*yes*		*yes*
636	shore pine	15.6		*office foundations*		*yes*	*yes*

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
637	shore pine	17.5	*Topped*	*office foundations*		*yes*	*yes*
638	shore pine	10.5		*office foundations*			
639	scots pine	18.5	*Red turpentine beetle attacks sapsucker damage , canine scat, bone*	*office foundations*		*yes*	*yes*
640	Coast live oak	11.1	*Suppressed growing at pine root crown , jawbone on ground*	*office foundations*			
641	shore pine	12.1		*office foundations*			
642	shore pine	19.4	*Codominant trunks with included bark oozing sap from sequoyah pitch moth, surrounded by interior live oak & coast live oak saplings*	*office foundations*		*yes*	*yes*
643	fruitless mulberry	20.1	*In gravel & fence, bonsai small specimen*	*next to guard shack*		*yes*	*yes*
644	Mexican fan palm	na	*15' trunk*	*near Wilbur & office foundations*			
645	Mexican fan palm	na	*10' trunk*	*next to Wilbur*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
646	Mexican fan palm	na	*4' trunk multiple plants*	*next to Wilbur*			
647	pacific willow	92.4	*In asphalt, nest in tree*	*next to Wilbur*			
648	Coast live oak	29.9		*near Wilbur nw quadrant*	*yes*		*yes*
649	Mexican fan palm	na	*In concrete 3.5 feet trunk*	*foundations nw quadrant*			
650	Mexican fan palm	na	*In asphalt ,?23' trunk*	*near shed*			
651	Mexican fan palm	na	*25' trunk codominant*	*near shed*			
652	Mexican fan palm	na	*15' trunk codominant*	*near shed*			
653	Mexican fan palm	na	*18' trunk dominant*	*near shed*			
654	Mexican fan palm	na	*Suppressed 10' trunk*	*near shed*			
655	Mexican fan palm	na	*In asphalt next to shed*	*near shed*			
656	Mexican fan palm	na	*35' trunk next to light pole , across from 548*	*near shed road intersection*			
657	Mexican fan palm	na	*3' trunk dominant*	*near shed*			
658	Mexican fan palm	na	*10' trunk in concrete*	*near shed*			

#	NAME	DIAMETER (inches)	NOTES	Locale	native oak >=15.6" (heritage)	beneficial >=15.6" (heritage)	near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)
659	Mexican fan palm	na	*7' trunk*	*near shed*			
660	Mexican fan palm	na	*4' trunk*	*near shed*			
661	Mexican fan palm	na	*20' trunk next to light pole*	*near shed*			
662	Mexican fan palm	na	*6' trunk*	*near shed*			
663	Mexican fan palm	na	*11' trunk*	*near shed*			
664	Mexican fan palm	na	*35' trunk next to light pole codominant*	*near shed*			
665	Mexican fan palm	na	*40' trunk codominant*	*near shed*			
666	Mexican fan palm	na	*6' trunk in concrete*	*near shed*			
667	Mexican fan palm	na	*30' trunk next to concrete area dominant*	*near shed*			
668	Mexican fan palm	na	*15' trunk suppressed*	*near shed*			
669	Olive	10.2	*Bent and suppressed by palm*	*near shed*			
670	Mexican fan palm	na	*In concrete*	*near shed*			
	min	6.7					

#	NAME	DIAMETER (inches)	*NOTES*	*Locale*	*native oak >=15.6" (heritage)*	*beneficial >=15.6" (heritage)*	*near habitat native listed >=6.5 or multi >=12.7 or heritage (protected)*
	max	199.7					
	avg	29.2					

APPENDIX C - GLOSSARY

dripline - region underneath tree canopy

form - genetically determined appearance that includes spread, height & configuration

health - tree growth as expressed by foliage, twigs, branches & trunks including resistance to pests

root crown – region where trunk and root system meet, also called `buttress' or `butt'

rooting zone – area where roots are likely to survive, beginning at the trunk and extending up to three times the radius of a tree's dripline region

scaffold – large, structural branch

structure - physical and mechanical qualities of tree

trunk circumference – measurement of trunk, distance around

trunk diameter - trunk circumference divided by 3.14

APPENDIX E - TREE LOCATION MAP (Also available as pdf & kmz files)

APPENDIX F - CERTIFICATE OF PERFORMANCE

I, Michael Baefsky certify:

- That I have reviewed City of Oakley Heritage and Protected Trees Ordinance 9.1.1112
- That I have evaluated the subject trees, and stated my findings accurately. The extent of the evaluation is stated in the attached report;
- That I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved;
- That the analysis, opinions, and conclusions stated herein are my own;
- That my analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted professional practices;
- That no one provided significant professional assistance to the consultant, except as indicated within the report;
- That my compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party.

I certify that I am Registered Consulting Arborist #456, a member of the American Society of Consulting Arborists, and am Certified Arborist & Qualified Risk Assessor #WE0222A, Agricultural Pest Control Advisor #074617, Qualified Applicator #99864, Licensed Landscape Contractor #931410, and have been involved in the practice of Arboriculture, Integrated Pest Management, Plant Health Care and Ecological Soils Management, and the study of soils and horticulture for over thirty years.

Michael Baefsky

Appendix G

Transportation Impact Analysis

Oakley Logistics Center

City of Oakley

Prepared by:
Abrams Associates
1875 Olympic Boulevard, Suite 210
Walnut Creek CA 94596

Abrams Associates
TRAFFIC ENGINEERING, INC.

October 9, 2019

Oakley Logistics Center Project

City of Oakley

TRANSPORTATION IMPACT ANALYSIS

---

1) INTRODUCTION

This traffic impact study describes the existing and future conditions for transportation with and without the proposed project, which consists of construction of five warehouse buildings with a total of 1,985,304 square feet of space. The proposed project would have its main entrance on the eastern side of the intersection of Wilbur Avenue and Bridgehead Road. Two secondary access points will also be provided on Bridgehead Road. One access would be located to the north of the Wilbur Avenue entrance and another would be located to the south. This study also describes the regulatory setting; the criterion used for determining the significance of environmental impacts; and summarizes potential environmental impacts and appropriate mitigation measures. This study has been conducted in accordance with the requirements and methodologies set forth by the City of Oakley, the Contra Costa Transportation Authority (CCTA), Caltrans, and the applicable provisions of CEQA.

Summary of Required Mitigations and Recommended Improvement Measures - The following is a summary of the proposed mitigation measures to address the transportation impacts of the project. Based on a detailed analysis of traffic operations with and without each of the proposed mitigations, implementation of the following mitigation measures could reduce some project impacts to a *less-than-significant* level. The remaining impacts would be *significant and unavoidable*.

Impact #1 Impacts to intersection operations - The project would contribute to LOS operations exceeding the established standards at the following seven intersections:

Wilbur Avenue at Bridgehead Road (Intersection #5)
Main Street at Bridgehead Road (Intersection #9)
Big Break Road at Main Street (Intersection #11)
Oakley Road at Live Oak Avenue (Intersection #13)
Main Street at Empire Avenue (Intersection #14)
Laurel Road at Empire Avenue (Intersection #19)
Gateway Drive at Empire Avenue (Intersection #24)

The addition of traffic from the proposed project would contribute to these seven intersections exceeding the established LOS standards or resulting in queuing impacts. With future planned improvements at Intersections #19 and #24 (a westbound dual left turn lane and installation of a traffic signal, respectively) the project's impacts would be reduced to less than significant. However, without implementation of the recommended mitigations below, the development of the proposed project would result in a potentially significant impact to the LOS and queuing at the intersections of Wilbur Avenue at Bridgehead Road, Main Street at Bridgehead Road, Big Break at Main Street, Oakley Road at Live Oak Avenue, and Main Street and Empire Avenue. Implementation of the following mitigation measures would reduce the impacts at these intersections to a less-than-significant level in all of the plus project scenarios.

<u>Mitigation Measures</u>

Prior to construction the project would mitigate the above-identified impacts by paying a proportionate share of the construction costs of the following improvement, subject to City approval. The intersection mitigations required for the project to meet the established LOS standards are:

MM 1 (a) *<u>Wilbur Avenue at Bridgehead Road</u> – Installation of a four-way traffic signal with crosswalks.*

MM 1 (b) *<u>Main Street at Bridgehead Road/Neroly Road</u> – 1) Installation of a dual eastbound left turn lane and a dual northbound left turn lane and 2) Implementation of signal coordination with the adjacent traffic signal at the SR 160 Eastbound Ramps.*

MM 1 (c) *<u>Big Break Road at Main Street</u> – 1) Widening of the southbound Big Break Road approach to the intersection to allow for an additional approach lane, 2) Construction of a dual left turn lane on the eastbound Main Street approach to the intersection, and 3) Widening of the eastbound and westbound Main Street approaches to allow for three through lanes in each direction.*

MM 1 (d) *<u>Oakley Road at Live Oak Avenue</u> – Widening of the westbound Oakley Road approach to the intersection to allow for a separate right turn lane.*

MM 1 (e) *<u>Main Street at Empire Avenue</u> – Installation of a dual westbound left turn lane.*

Impact #2 Impacts to roadway segment operations - The project would contribute to LOS operations exceeding the established standards on the following roadway segment:

Bridgehead Road between the Planned River Oaks Crossing Entrance and the Main Street/Neroly Road Intersection

The addition of traffic from the proposed project would contribute to this roadway segment exceeding the established LOS standards. Without implementation of the recommended mitigation below, the development of the proposed project would result in a potentially significant impact to the LOS on Bridgehead Road. Implementation of the following mitigation measures would reduce the impact to a less-than-significant level in all of the plus project scenarios.

<u>Mitigation Measures</u>

Prior to construction the project would mitigate the above-identified impacts by paying a proportionate share of the construction costs of the following improvement, subject to City approval. The mitigation required for the project to meet the established LOS standards is:

MM 2 *<u>Bridgehead Road between the Planned River Oaks Crossing Entrance and the Main Street/Neroly Road Intersection</u> – Widening of this segment of Bridgehead Road from a two lane to a four lane cross-section.*

Impact #3 Impacts to freeway operations – The project would contribute to State Route 4 exceeding the established delay index standards during the AM peak hour.

The development of the proposed project would increase the total traffic during both AM and PM peak hours. For SR 4 the East County Action Plan specifies a maximum delay index of 2.5. As shown in Table 9 in Section 5.13 the proposed project would not significantly increase the delay index under existing or cumulative conditions. However, the proposed project would add traffic to State Route 4 in the westbound direction during the AM peak hour, which is forecast to exceed the County's established delay index standard of 2.5. Therefore, the proposed project would have a ***significant impact*** to freeway operations.

<u>Mitigation Measure</u>

Prior to construction the project would mitigate the above-identified impacts by paying the required traffic impact fees, subject to City approval.

MM 3 *Payment of the Regional Transportation Development Impact Mitigation Fee – The project will pay the Regional Transportation Development Impact Mitigation Fee (the "RTDIM") to fund regional freeway system improvements including State Route 4 improvements. Because the City of Oakley does not control the funding, prioritization and/or construction of improvement projects, this impact would remain* ***significant and unavoidable.***

2) PROJECT DESCRIPTION

As noted above, the proposed project consists of construction of five warehouse buildings with a total of 1,985,304 square feet of space. For the purposes of the trip generation forecasts this is assumed to include an e-commerce fulfillment center with a total of 134,474 square feet of space plus 15,526 square feet of storage space. The proposed project would have its main entrance on the eastern side of the intersection of Wilbur Avenue and Bridgehead Road. Two secondary access points will also be provided on Bridgehead Road. One access would be located to the north of the Wilbur Avenue entrance and another would be located to the south. The former buildings on the site are currently vacant. **Figure 1** shows the location of the project and the surrounding roadway network. **Figure 2** shows the proposed site plan for the project.

3) EXISTING CONDITIONS

This section of the report describes the roadways, traffic conditions and other existing transportation characteristics in the vicinity of the project. The primary basis of the analysis is the peak hour level of service for the key intersections. The hours identified as the "peak" hours are generally between 7:30 a.m. and 8:30 a.m. and 4:30 p.m. and 5:30 p.m. for the transportation facilities described, based on the intersection turning movement counts collected for this analysis. Throughout this report, these peak hours will be identified as the AM and PM peak hours, respectively.

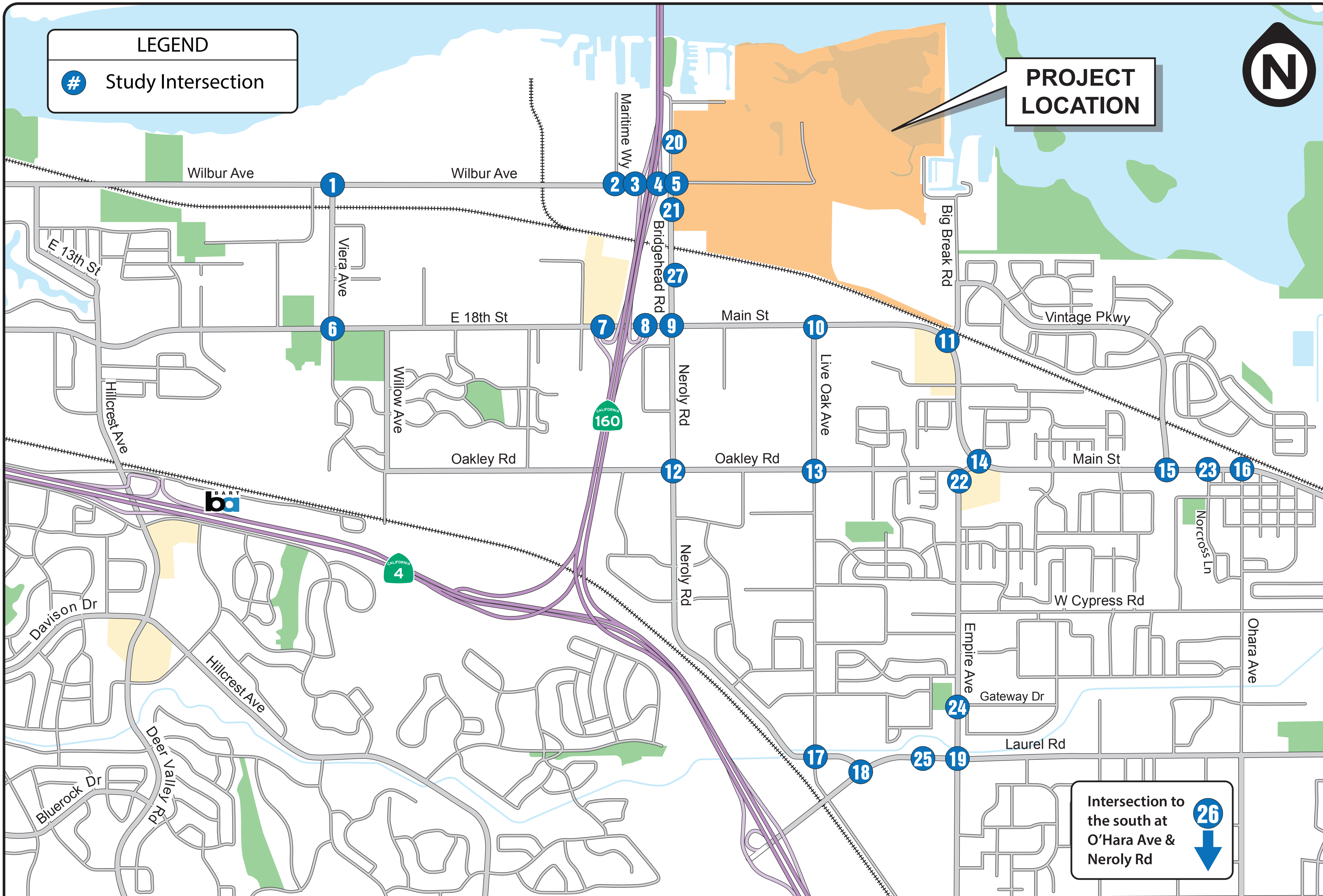


FIGURE 1 | PROJECT LOCATION AND STUDY INTERSECTIONS

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

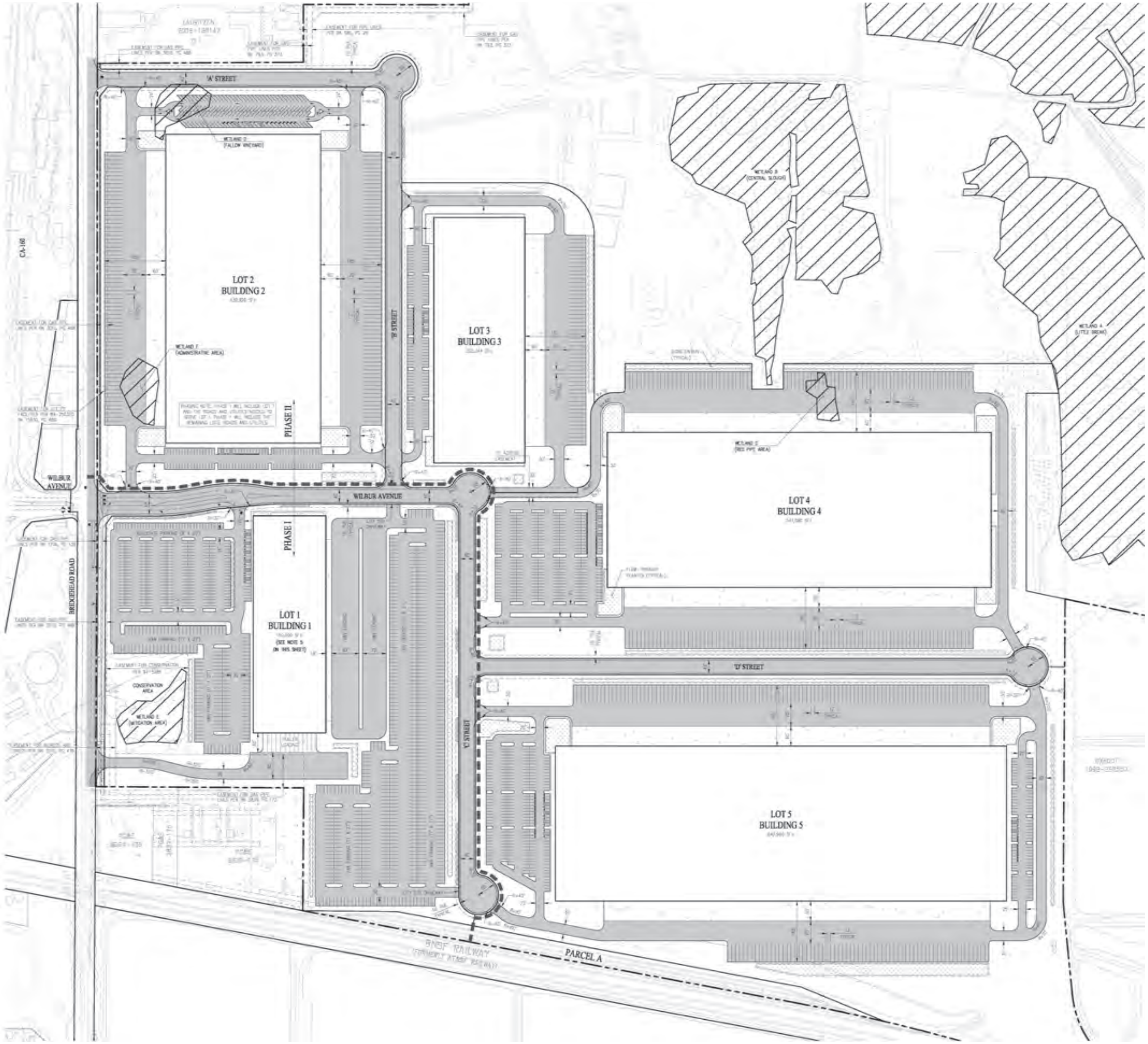


FIGURE 2 | SITE PLAN
TRANSPORTATION IMPACT ANALYSIS
Oakley Logistics Center
City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

3.1 Project Study Intersections

Based on the project's trip generation and the potential for traffic impacts a list of project study intersections was prepared including all signalized intersections where more than 50 peak hour trips would be added as per the Contra Costa Transportation Authority's Technical Procedures.[1] **Figure 1** shows the location of the project study intersections. As mentioned above, all access to the site will be via three access points on Bridgehead Road with the main entrance opposite of Wilbur Avenue. There are twenty-six (26) study intersections included in the analysis.

3.2 Traffic Analysis Scenarios

The study intersections were evaluated for the following six scenarios:

- Scenario 1: *Existing Conditions* – Level of Service (LOS) based on existing peak hour volumes and existing intersection configurations.
- Scenario 2: *Existing Plus Project* – Existing traffic volumes plus trips from the proposed project.
- Scenario 3: *Baseline (No Project) Conditions* – The Baseline scenario is based on the existing volumes plus growth in background traffic (for three years) plus the traffic from all reasonably foreseeable developments that could substantially affect the volumes at the project study intersections.
- Scenario 4: *Baseline Plus Project Conditions* – This scenario is based on the Baseline traffic volumes plus the trips from the proposed project.
- Scenario 5: *Cumulative Conditions* – This scenario includes year 2040 cumulative volumes based on planned and approved projects the Countywide Travel Demand Model.
- Scenario 6: *Cumulative Plus Project Conditions* – This scenario includes year 2040 cumulative volumes based on the Countywide Travel Demand Model plus the trips from the proposed project.

3.3 Existing Roadway Network

Routes of Regional Significance - Routes of Regional Significance (RRS) are major roadway and freeway corridors that serve regional traffic. These are identified in Action Plans adopted by the Contra Costa Transportation Authority under the countywide Measure J program. State Route 4, State Route 160, Wilbur Avenue, E. 18th Street, and Main Street are all identified as RRS in the East County Action Plan.

[1] *Final Technical Procedures*, Contra Costa Transportation Authority, Walnut Creek, CA, January 16, 2013.

As discussed previously, the project location and the surrounding roadway network are illustrated in **Figure 1**. The following is a more detailed description of some of the main roadways that could be affected by the project:

- **State Route 4 (SR 4)–** State Route (SR) 4 is the primary east-west corridor in Contra Costa County. It connects Interstate 80 in the city of Hercules to the west with the cities of Oakley and Brentwood to the east and terminates at SR 89 in South Lake Tahoe. SR 4 has been widened to eight lanes, four in each direction including High Occupancy Vehicle (HOV) lanes, from SR 242 to Contra Loma Boulevard.

- **State Route 160 (SR 160)–** State Route (SR) is connects State Route 4 and Contra Costa County with the Sacramento River Delta and the City of Rio Vista. It continues to follow the Sacramento River up to the City of Freeport area of Sacramento County.

- **Wilbur Avenue –** Wilbur Avenue is an east-west roadway that is designated by the Contra Costa Transportation Authority as a route of regional significance. It extends west from Bridgehead Road to terminate at A Street in the City of Antioch. Within the study area, Wilbur Avenue has two to four travel lanes with left turn pockets and a speed limits ranging from 40 to 45 mph.

- **Main Street –** Main Street is a primary east-west arterial in the City of Oakley. It extends east from Bridgehead Road to through downtown and then continues south into Brentwood until Delta Road where it changes names to Brentwood Boulevard.

- **E. 18th Street** - East 18th Street is an east-west two- to four-lane roadway in Antioch and that runs parallel to the SR 4 corridor. East of the Bridgehead Road the street name changes to Main Street. This corridor is designated a Route of Regional Significance in the 2008 East County Action Plan.

- **Laurel Road –** Laurel Road is an east-west two-lane residential collector street with residential and vacant land on both sides. The posted speed on Laurel Road is 45 mph. Please note that Laurel Road is eventually planned to be extended to Sellers Avenue.

- **Oakley Road -** Oakley Road is a two-lane east-west roadway that connects Oakley to Antioch. Oakley Road begins at Viera Avenue in Antioch, extending past SR 160 to terminate at Empire Avenue.

3.4 Analysis Methodology

Existing operational conditions at the twenty-six (26) study intersections have been evaluated according to the requirements set forth by the Contra Costa County Transportation Authority

(CCTA) using the methodology set forth in the Final Technical Procedures Update (dated July 19, 2006). Analysis of traffic operations was conducted using the 2010 *Highway Capacity Manual* (*HCM*) Level of Service (LOS) methodology with Synchro software.[2] Level of service is an expression, in the form of a scale, of the relationship between the capacity of an intersection (or roadway segment) to accommodate the volume of traffic moving through it at any given time. The level of service scale describes traffic flow with six ratings ranging from A to F, with "A" indicating relatively free flow of traffic and "F" indicating stop-and-go traffic characterized by traffic jams. As the amount of traffic moving through a given intersection or roadway segment increases, the traffic flow conditions that motorists experience rapidly deteriorate as the capacity of the intersection or roadway segment is reached. Under such conditions, there is general instability in the traffic flow, which means that relatively small incidents (e.g., momentary engine stall) can cause considerable fluctuations in speeds and delays that lead to traffic congestion. This near-capacity situation is labeled level of service (LOS) E. Beyond LOS E, the intersection or roadway segment capacity has been exceeded, and arriving traffic will exceed the ability of the intersection to accommodate it.

<u>For signalized intersections</u>, The *HCM* methodology determines the capacity of each lane group approaching the intersection. The LOS is then based on average control delay (in seconds per vehicle) for the various movements within the intersection. A combined weighted average control delay and LOS are presented for the intersection. A summary of the HCM results and copies of the detailed HCM LOS calculations are included in the appendix to this report. **Table 1** summarizes the relationship between LOS, average control delay, and the volume to capacity ratio at signalized intersections.

<u>For unsignalized intersections</u> (all-way stop controlled and two-way stop controlled) the average control delay and LOS operating conditions are calculated by approach (e.g., northbound) and by movement (e.g., northbound left-turn) for those movements that are subject to delay. In general, the operating conditions for unsignalized intersections are presented for the worst approach. **Table 2** summarizes the relationship between LOS and average control delay at <u>unsignalized</u> intersections.

<u>For roadway segments</u> the signal delay and travel time are calculated by direction (e.g., northbound and southbound). The level of service is then determined by direction for each segment from the resulting arterial speeds that are output from the Synchro model using the HCM urban street segment methodology. **Table 3** summarizes the relationship between LOS and arterial speeds for roadway segments.

3.5 Existing Intersection Capacity Conditions (Scenario 1)

The existing intersection geometry at each of the project study intersections can be seen in **Figure 3** and the existing traffic volumes at each are presented in **Figure 4.** Traffic counts at

[2] *2010 Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2011

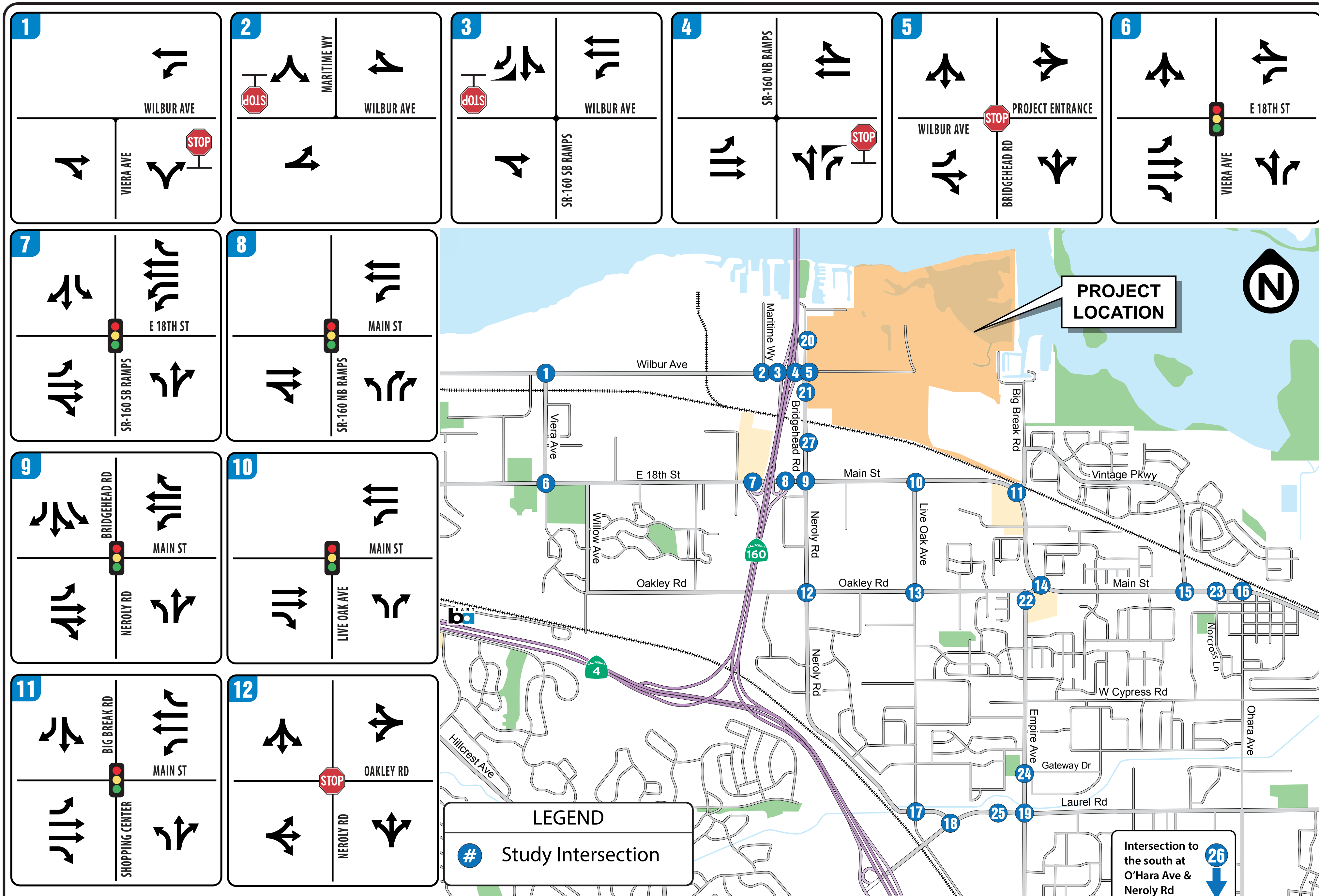


FIGURE 3 | EXISTING LANE CONFIGURATIONS - PAGE 1 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

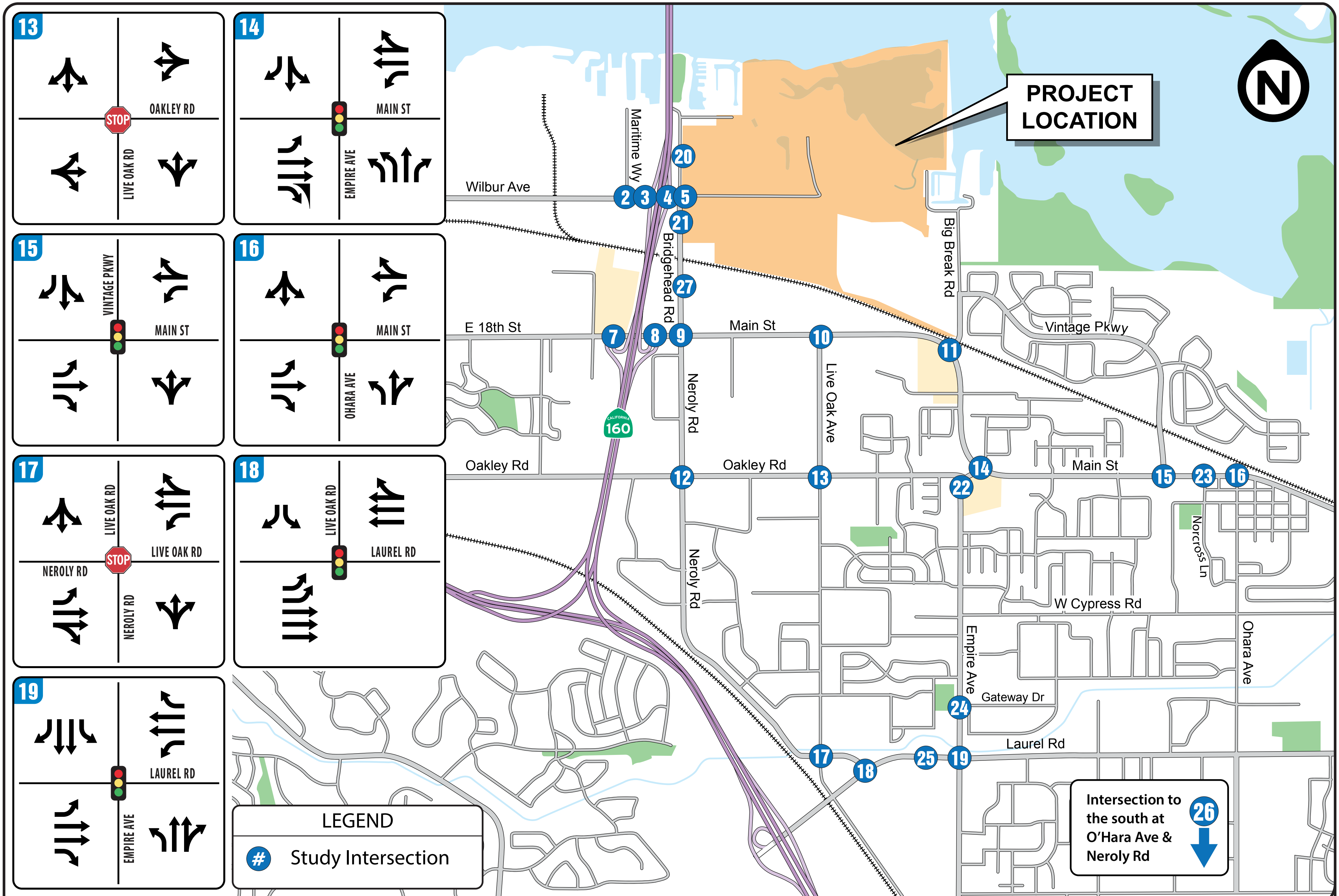


FIGURE 3 | EXISTING LANE CONFIGURATIONS - PAGE 2 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

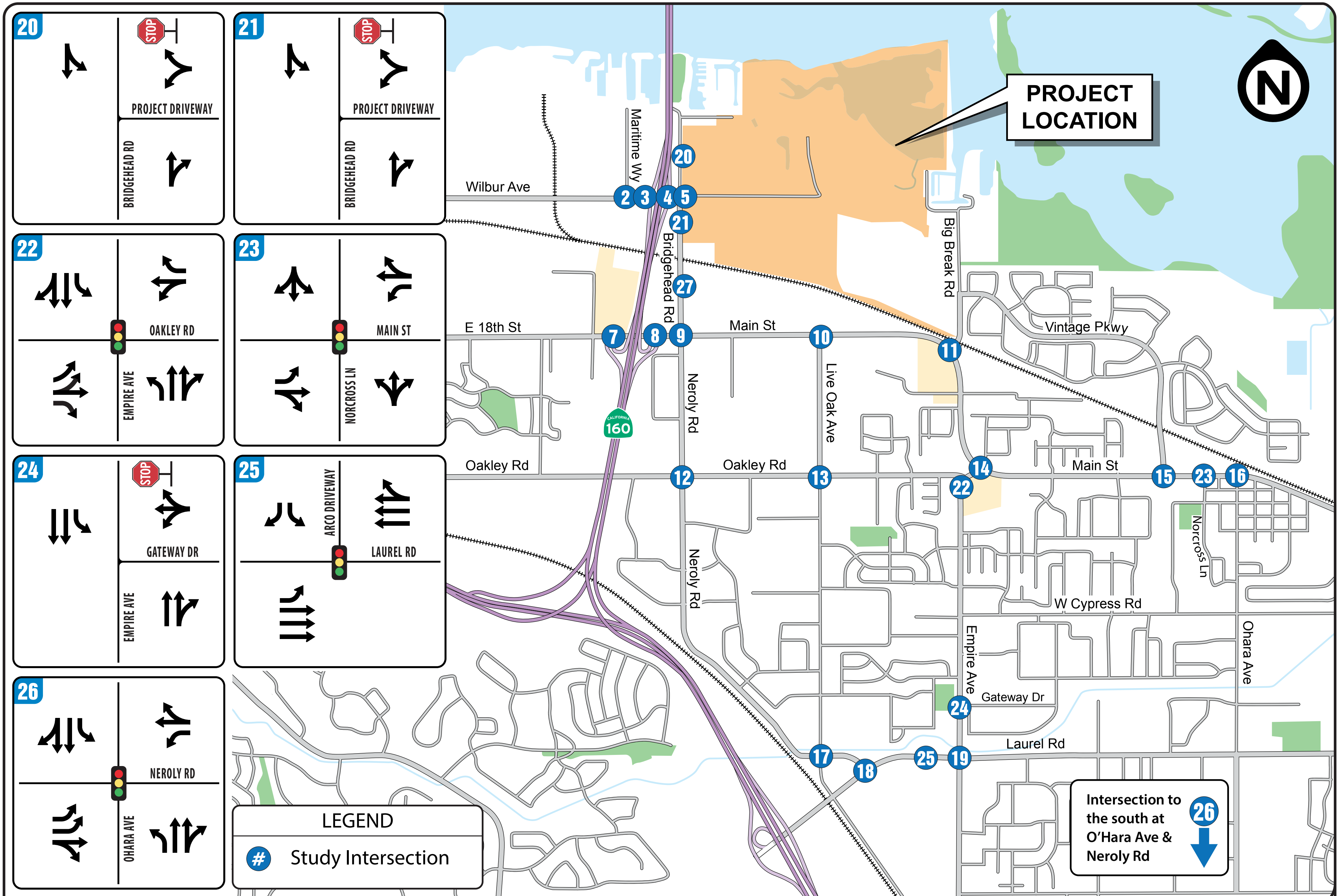


FIGURE 3 | EXISTING LANE CONFIGURATIONS - PAGE 3 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

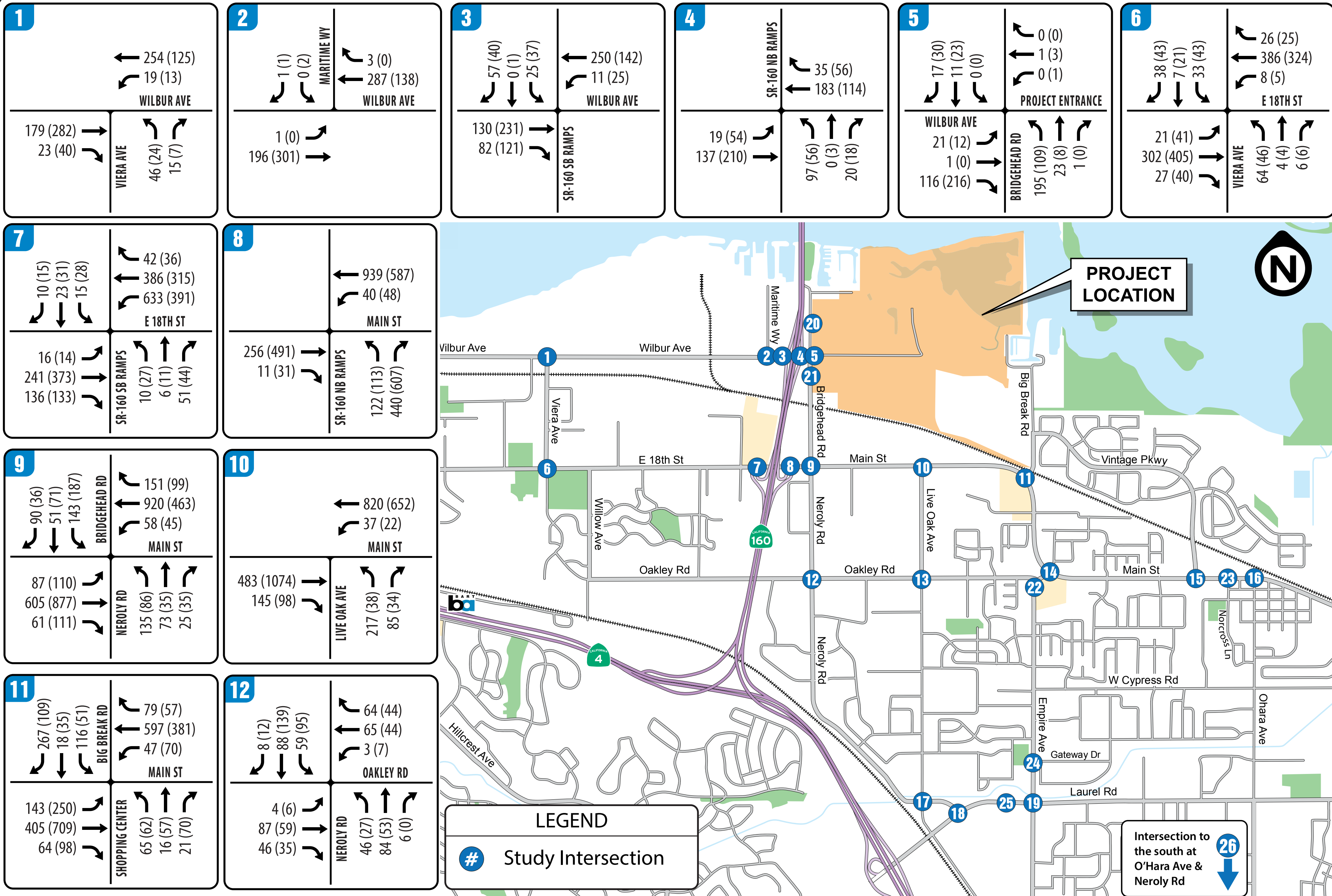


FIGURE 4 | EXISTING AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 1 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

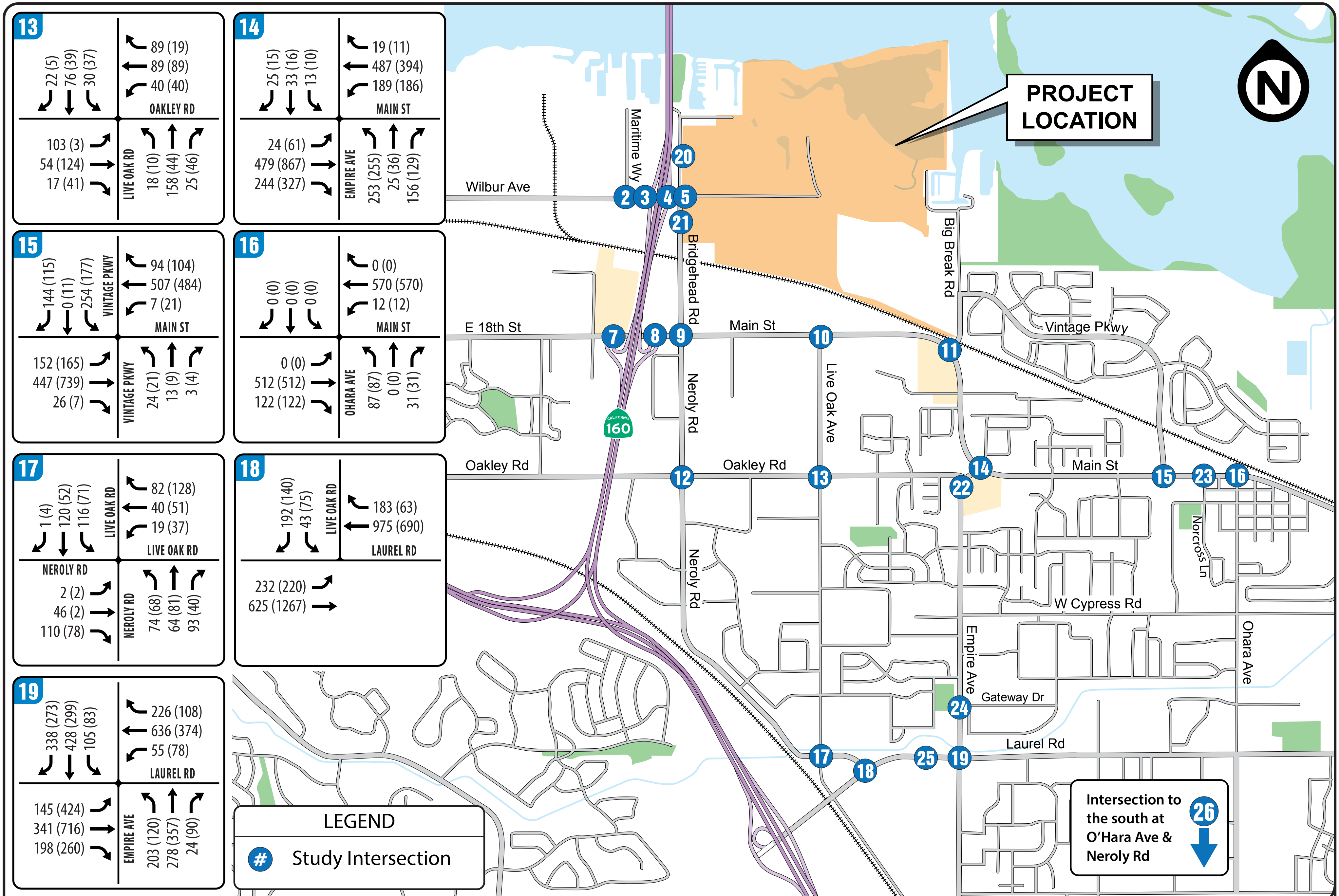


FIGURE 4 | EXISTING AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 2 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

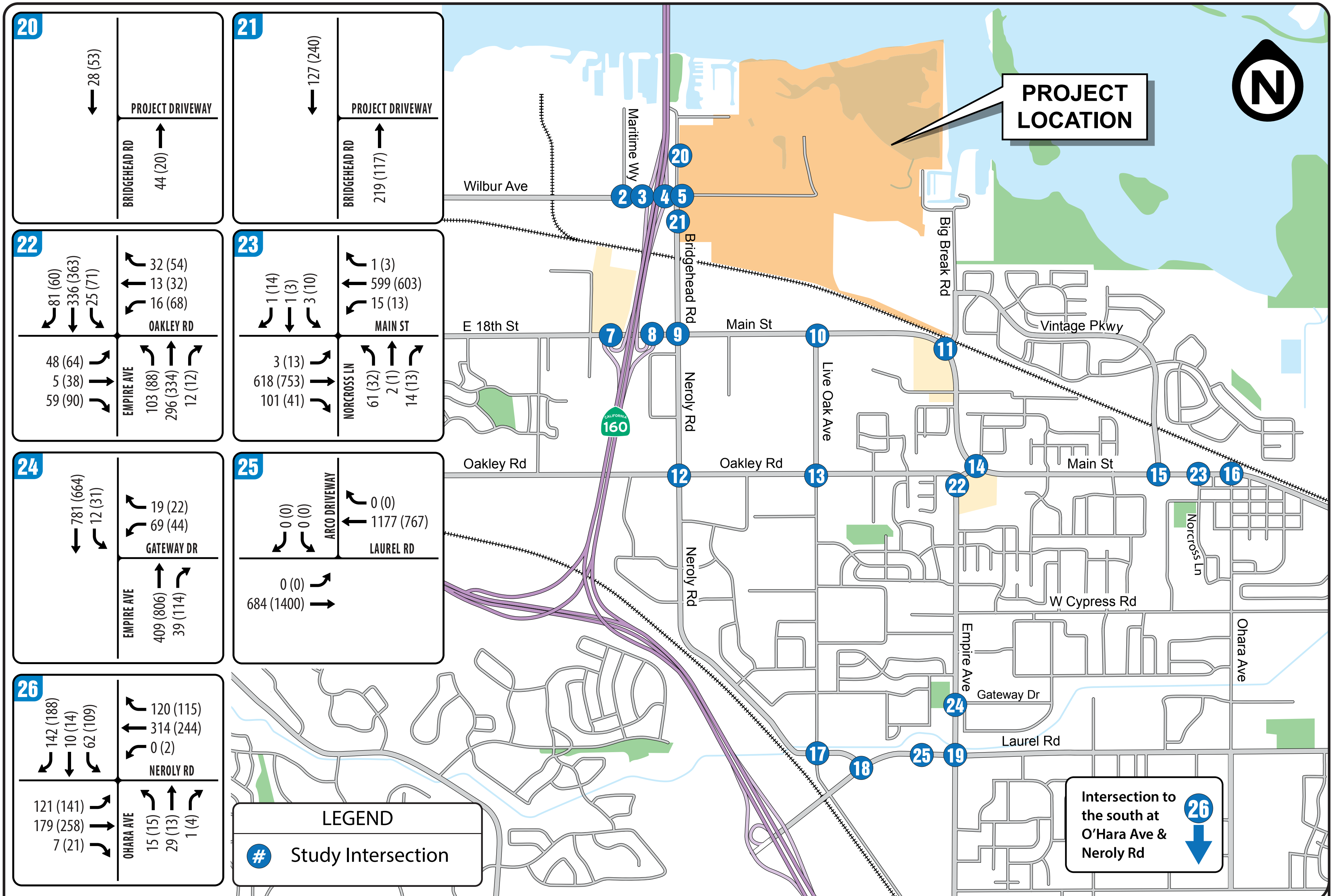


FIGURE 4 | EXISTING AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 3 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

TABLE 1
SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description of Operations	Average Delay (sec/veh)	Volume to Capacity Ratio
A	Insignificant Delays: No approach phase is fully used and no vehicle waits longer than one red indication.	$\leq$ 10	< 0.60
B	Minimal Delays: An occasional approach phase is fully used. Drivers begin to feel restricted.	> 10 to 20	> 0.61 to 0.70
C	Acceptable Delays: Major approach phase may become fully used. Most drivers feel somewhat restricted.	> 20 to 35	> 0.71 to 0.80
D	Tolerable Delays: Drivers may wait through no more than one red indication. Queues may develop but dissipate rapidly without excessive delays.	> 35 to 55	> 0.81 to 0.90
E	Significant Delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long vehicle queues from upstream.	> 55 to 80	> 0.91 to 1.00
F	Excessive Delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80	> 1.00

SOURCES: 6th Edition of the *Highway Capacity Manual*, Transportation Research Board, 2016. *Technical Procedures Update,* Contra Costa Transportation Authority, January 16, 2013.

TABLE 2
UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description of Operations	Average Delay (seconds/vehicle)
A	No delay for stop-controlled approaches.	0 to 10
B	Operations with minor delays.	> 10 to 15
C	Operations with moderate delays.	> 15 to 25
D	Operations with some delays.	> 25 to 35
E	Operations with high delays and long queues.	> 35 to 50
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50

SOURCE: 6th Edition of the *Highway Capacity Manual*, Transportation Research Board, 2016.

TABLE 3
ROADWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

Level of Service	Travel Speed (miles per hour)
A	>36 mph
B	> 23 to 36
C	> 18 to 23
D	> 14 to 18
E	> 14
F	≤ 14

SOURCE: 6th Edition of the *Highway Capacity Manual*, Transportation Research Board, 2016.
NOTE: The level of service and speed ranges presented are for a 45 mph roadway.

the study intersections were conducted in November of 2018 at times when local schools were in session. **Table 4** summarizes the associated LOS computation results for the existing weekday AM and PM peak hour conditions. Please note that the corresponding LOS analysis calculation sheets and information regarding the peak hour factors and signal timings are presented in the appendix to this report. As shown in **Table 4**, all of the project study intersections currently have acceptable conditions (LOS D or better) during the weekday AM and PM peak hours with the exception of Intersection #24 (Gateway Drive at Empire Avenue) which would exceed the LOS D threshold established in the City's General Plan. See Section 4.3 for a description of the applicable intersection thresholds.

3.6 Pedestrian and Bicycle Facilities

Bicycle and pedestrian facilities in the project study area are currently very limited with no marked crosswalks and only small segments of discontinuous sidewalks provided in the immediate vicinity of the project. **Figure 5** presents the existing and proposed bicycle facilities in the project area. Bicycle paths, lanes and routes are typical examples of bicycle transportation facilities, which are defined by Caltrans as being in one of the three classes:

Class I – Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.

Class II – Provides a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.

Class III – Provides a route designated by signs or permanent markings and shared with pedestrians and motorists.

TABLE 4
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS

INTERSECTION		CONTROL	PEAK HOUR	EXISTING	
				Delay	LOS
1	VIERA AVENUE & WILBUR AVENUE	Side Street Stop	AM	12.7	B
			PM	12.1	B
2	MARITIME WAY & WILBUR AVENUE	Side Street Stop	AM	10.0	B
			PM	11.0	B
3	STATE ROUTE 160 SB RAMPS & WILBUR AVENUE	Side Street Stop	AM	10.2	B
			PM	11.2	B
4	STATE ROUTE 160 NB RAMPS & WILBUR AVENUE	Side Street Stop	AM	11.5	B
			PM	12.1	B
5	BRIDGEHEAD ROAD & WILBUR AVENUE	All Way Stop	AM	9.6	A
			PM	8.9	A
6	VIERA AVENUE & EAST 18TH STREET	Signalized	AM	14.6	B
			PM	12.8	B
7	STATE ROUTE 160 SB RAMPS & EAST 18TH STREET	Signalized	AM	14.8	B
			PM	14.9	B
8	STATE ROUTE 160 NB RAMPS & MAIN STREET	Signalized	AM	11.4	B
			PM	14.0	B
9	NEROLY ROAD / BRIDGEHEAD ROAD & MAIN STREET	Signalized	AM	24.8	C
			PM	24.3	C
10	LIVE OAK AVENUE & MAIN STREET	Signalized	AM	10.8	B
			PM	7.9	A
11	BIG BREAK ROAD & MAIN STREET	Signalized	AM	22.0	C
			PM	20.4	C
12	OAKLEY ROAD & NEROLY ROAD	All Way Stop	AM	10.1	B
			PM	9.3	A
13	OAKLEY ROAD & LIVE OAK AVENUE	All Way Stop	AM	23.4	C
			PM	8.6	A
14	EMPIRE AVENUE & MAIN STREET	Signalized	AM	21.1	C
			PM	20.2	C
15	VINTAGE PARKWAY & MAIN STREET	Signalized	AM	34.2	C
			PM	21.6	C
16	O'HARA AVENUE & MAIN STREET	Signalized	AM	7.6	A
			PM	7.6	A
17	NEROLY ROAD & LIVE OAK AVENUE	All Way Stop	AM	12.5	B
			PM	10.1	B
18	LAUREL & LIVE OAK AVENUE	Signalized	AM	13.8	B
			PM	10.5	B
19	LAUREL & EMPIRE AVENUE	Signalized	AM	35.7	D
			PM	35.3	D
20	BRIDGEHEAD ROAD & NORTHERN PROJECT DRIVEWAY	Side Street Stop	AM	N/A	N/A
			PM	N/A	N/A
21	BRIDGEHEAD ROAD & SOUTHERN PROJECT DRIVEWAY	Side Street Stop	AM	N/A	N/A
			PM	N/A	N/A
22	OAKLEY ROAD & EMPIRE AVENUE	Signalized	AM	14.7	B
			PM	17.5	B
23	NORCROSS LANE & MAIN STREET	Signalized	AM	11.0	B
			PM	11.2	B
24	GATEWAY DRIVE & EMPIRE AVENUE	Side Street Stop	AM	21.3	C
			PM	**39.8**	**E**
25	APPROVED ARCO DRIVEWAY & LAUREL ROAD	Signalized	AM	N/A	N/A
			PM	N/A	N/A
26	O'HARA AVENUE & NEROLY ROAD	Signalized	AM	18.3	B
			PM	18.9	B

SOURCE: Abrams Associates, 2019 **NOTE:** Delay results are presented in terms of seconds per vehicle.

FIGURE 5 | BICYCLE FACILITIES IN THE PROJECT STUDY AREA

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

3.7 Transit Service

Figure 6 presents the transit service available in the project area. Two major public transit operators provide service within or adjacent to the study area. These include BART and the Eastern Contra Costa Transit Authority (or Tri Delta Transit). These operators are described below.

Bay Area Rapid Transit (BART) – BART is a rapid mass transit system which provides regional transportation connections to much of the Bay Area. It runs from the North Bay Area in Richmond to the South Bay Area in Fremont. In the east-west direction it runs from Oakley to the San Francisco Airport and Milbrae with several connections in Oakland. The Bay Point BART station, which is closest to the proposed project, serves Oakley and other surrounding cities and has trains that run from about 4:00 am to 12:00 am daily, with a weekday frequency of 15 minutes. An E-BART extension to Hillcrest Avenue in Antioch has been completed and connects with BART at the Bay Point BART station. Please note there is also an E-BART Station at Railroad Avenue.

Tri Delta Transit - Tri Delta Transit serves the East County including Brentwood, Oakley, Oakley, Oakley, Bay Point and unincorporated areas of East County. Tri Delta Transit operates fourteen local bus routes from Monday to Friday, including three express services, and four local bus routes during weekends and Holidays. The Tri Delta Transit routes that runs closest to the proposed project are Routes 300, 383, 391, and 393 which have stops at Bridgehead Road and Main Street, which is about 1,800 feet from the southern entrance to the project site.

FIGURE 6 | TRANSIT SERVICE IN THE PROJECT STUDY AREA

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

3.8 Standards and Objectives

Existing policies, laws and regulations that apply to the proposed project are summarized below.

Caltrans - The California Department of Transportation (Caltrans) has jurisdiction over State highways. Therefore, Caltrans controls all construction, modification, and maintenance of State highways, such as SR 4. Any improvements to these roadways would require Caltrans' approval. The Guide for the Preparation of Traffic Impact Studies provides consistent guidance for Caltrans staff who review local development and land use change proposals. The Guide also informs local agencies about the information needed for Caltrans to analyze the traffic impacts to state highway facilities which include freeway segments, on- or off-ramps, and signalized intersections.

Contra Costa Countywide Comprehensive Transportation Plan Update (2017) - The transportation policies that are applicable within Contra Costa County are based on the Contra Costa County Comprehensive Transportation Plan. This document identifies the criteria for analyzing transportation impacts and sets forth plans for future improvements in the county.

City of Oakley General Plan - The Transportation and Circulation Element included in the City of Oakley General Plan was prepared pursuant to Section 65302(b) of the California Government Code. The Transportation and Circulation Element addresses the location and extent of existing and planned transportation routes, terminals, and other local public utilities and facilities. The General Plan identifies roadway and transit goals and policies that have been adopted to ensure that the transportation system of the City will have adequate capacity to serve planned growth. These goals and policies are intended to provide a plan and implementation measures for an integrated, multi-modal transportation system that will safely and efficiently meet the transportation needs of all economic and social segments of the City.

Significance Criteria - According to CEQA guidelines, a project would have a significant impact if it would:

- Conflict with an applicable program, plan, ordinance or policy establishing measures of effectiveness for the performance of addressing the circulation system, including transit, roadways, bicycle lanes and pedestrian facilities/paths?

  The goal of the City of Oakley (City) is to maintain a Level of Service (LOS) D during the peak hours, according to the General Plan. The City does not have plans, ordinances, or policies establishing measures of effectiveness for the performance of other parts of its circulation system.

  This analysis also includes intersections under the jurisdiction of Contra Costa County and Caltrans. For the Caltrans freeway facilities, the operational standards and significance criteria are established by the Contra Costa Transportation Authority

(CCTA) acting as the designated Congestion Management Agency (CMA) representing the jurisdictions of Contra Costa County. As the acting CMA, the CCTA establishes the traffic LOS standards for all state highway facilities in Contra Costa County, which supersede the general Caltrans operational standard for all state highways.[3]
The City's and the CCTA's measures of effectiveness are summarized below:

Signalized Intersections - Project-related operational impacts on the signalized study intersections in the City of Oakley are considered significant if project-related traffic causes the Level of Service (LOS) rating to deteriorate from LOS D to LOS E or F, from LOS E to LOS F, or if the volume-to-capacity ratio at an intersection already operating at an unacceptable level were to increase by 0.01 or more.

Unsignalized Intersections - Project-related operational impacts on unsignalized intersections are considered significant if project generated traffic causes the worst-case movement (or average of all movements for all-way stop-controlled intersections and roundabouts) deteriorates from LOS D or better to LOS E or F.

Roadway Segments - Project-related operational impacts on roadway segments are considered significant if project generated traffic causes the LOS rating to deteriorate from LOS D to LOS E or F, from LOS E to LOS F, or if the volume-to-capacity ratio at an intersection operating at an unacceptable level were to increase by 0.01 or more.

SR 4 Freeway - For the State Route 4 freeway the East County Action Plan specifies a maximum MTSO delay index of 2.5.[4] The MTSO delay index and average speed is measured over the length of SR 4 from Willow Pass Grade to SR 160. For the Caltrans freeway facilities being studied, the operational standards and significance criteria are established by the CCTA acting as the designated Congestion Management Agency (CMA) representing the jurisdictions of Contra Costa County.

- Would the project conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)? This section states that vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should also be presumed to have a less than significant transportation impact.
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections).
- Result in inadequate emergency vehicle access.

[3] *2013 Contra Costa Congestion Management Plan*, Contra Costa Transportation Authority, Walnut Creek, CA, 94598, December 19, 2013.
[4] *Draft East County Action Plan for Routes of Regional Significance*, Fehr & Peers Associates, Walnut Creek, CA, November 2013.

4) TRANSPORTATION IMPACT ANALYSIS

4.1 Project Trip Generation

The proposed project would consist of construction of five warehouse buildings with a total of 1,985,304 square feet of space. The resulting trip generation calculations are shown in **Table 5**. They are based on the trip generation rates for a High-Cube Fulfillment Center Warehouse (ITE Land Use Code 155) and Warehousing (ITE Land Use Code 150) from the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 10th Edition. The total trip generation reflects all vehicle trips that would be counted at the project driveways, both inbound and outbound. Since the project has no retail or mixed use components there were no adjustments applied to account for pass-by or internal trips. For the purposes of determining the reasonable worst-case impacts of traffic on the surrounding street network from a proposed project, the trips generated by this proposed development are estimated for the peak commute hours of 7:30 a.m. and 8:30 a.m. and 4:30 p.m. and 5:30 p.m., which represent the peak of "*adjacent street traffic*". This is the time period when the project traffic would generally contribute to the greatest amount of congestion.

TABLE 5
PROJECT TRIP GENERATION CALCULATIONS

Land Use	***Size***	***ADT***	***AM Peak Hour***			***PM Peak Hour***		
			In	***Out***	***Total***	***In***	***Out***	***Total***
High Cube Fulfillment Center Trip Rates		8.18	0.45	0.14	0.59	0.38	0.99	1.37
E-Commerce Fulfillment Center Trip Generation	*150,000* square feet*	*1,100*	*60*	*19*	*79*	*51*	*133*	*184*
Warehousing Trip Rates		1.74	0.13	0.04	0.17	0.05	0.14	0.19
Warehousing Trip Generation	*1,835,304 square feet*	*3,193*	*239*	*73*	*312*	*92*	*257*	*349*
Total Project Trip Generation	*1,985,304 square feet*	***4,292***	***299***	***92***	***391***	***143***	***390***	***533***

SOURCE: ITE Trip Generation Manual, 10th Edition
NOTE: * Total includes the 134,474 sq. ft. facility plus a 15,526 sq. ft. storage area not included in the trip generation.

4.2 Project Trip Distribution

The trip distribution assumptions have been based on the project's proximity to freeway interchanges, the existing directional split at nearby intersections, and the overall land use patterns in the area as determined from the Countywide Travel Demand Model. The project plans to direct employees and trucks to use the Wilbur Avenue interchange in an effort to avoid/minimize congestion on E. 18th Street at its interchange with SR 160 and also on surface street in surrounding cities. **Table 6** shows the percentage of project traffic assigned to various study roadways. **Figure 7** shows the project traffic that would be added at each of the study intersections. Please note that a figure presenting the detailed trip distribution paths used in the analysis is provided in the technical appendix.

TABLE 6
PROJECT TRIP DISTRIBUTION ASSUMPTIONS

Origin / Destination	*Peak Hour Trip Distribution Percentages*
To the west on State Route 4	27%
To the west on E. 18th Street	4%
To the west on Wilbur Avenue	5%
To the north on State Route 160	7%
To the north on Big Break Road	2%
To the north on Vintage Parkway	1%
To the east on Main Street	6%
To the south on O'Hara Avenue	3%
To the east on the Laurel Road	5%
To the south on Empire Road	1%
To the south on Live Oak Avenue	6%
To the south on State Route 4	17%
To the west on Oakley Road	1%
Local Retail/Restaurant/Service Station Trips	15%

4.3 Existing Plus Project Traffic Capacity Conditions (Scenario 2)

This scenario evaluates the existing conditions with the addition of traffic from the proposed project. The traffic volumes for each of the study intersections for the Existing Plus Project scenario are shown in **Figure 8**. The capacity calculations for the Existing Plus Project scenario are shown in **Table 7**. The corresponding LOS analysis calculation sheets are presented in the appendix to this report. As shown in **Table 7**, all of the signalized study intersections would have acceptable conditions (LOS D or better) during the weekday AM and PM peak hours with the exception of Intersection #24 (Gateway Drive at Empire Avenue) which would exceed the LOS D threshold established in the City's General Plan. However, the proposed project would not add any traffic to the critical side street movements and would not increase the volume to capacity ratio by more than 0.01. Therefore, the project's contribution to traffic at this intersection would not be considered a significant impact. Please note this intersection is

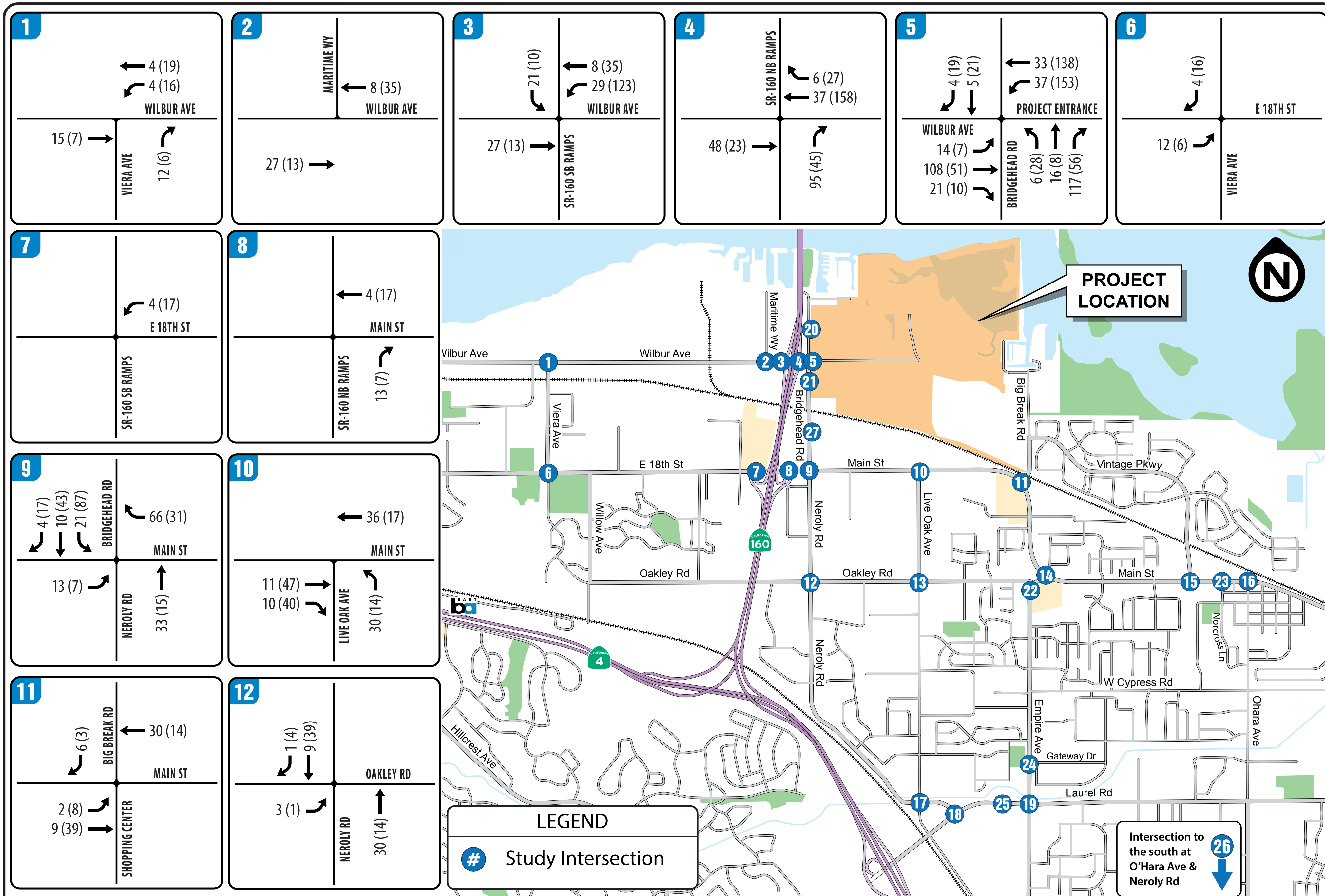


FIGURE 7 | PROJECT AM(PM) PEAK HOUR TRIPS - PAGE 1 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

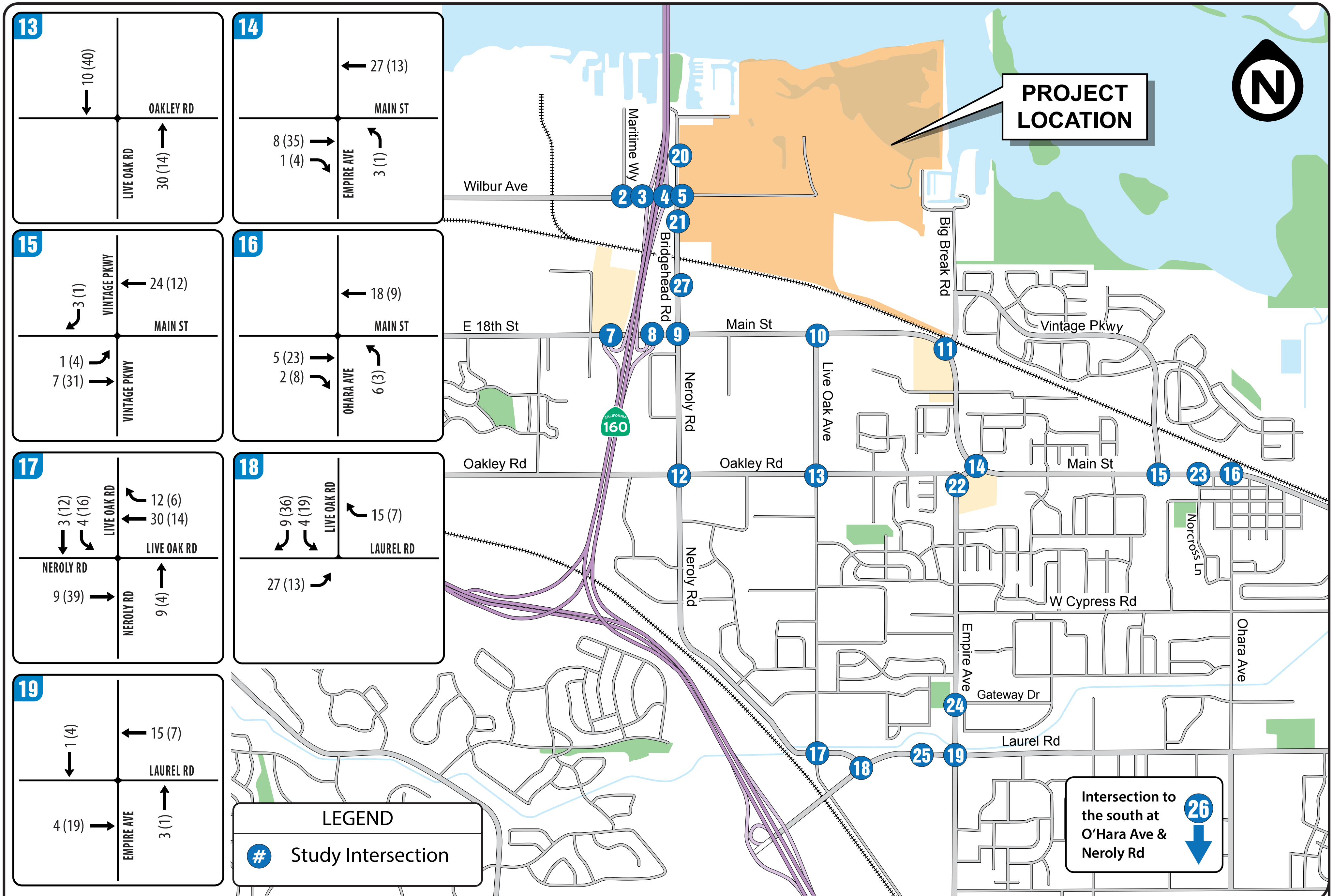


FIGURE 7 | PROJECT AM(PM) PEAK HOUR TRIPS - PAGE 2 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates TRAFFIC ENGINEERING, INC.

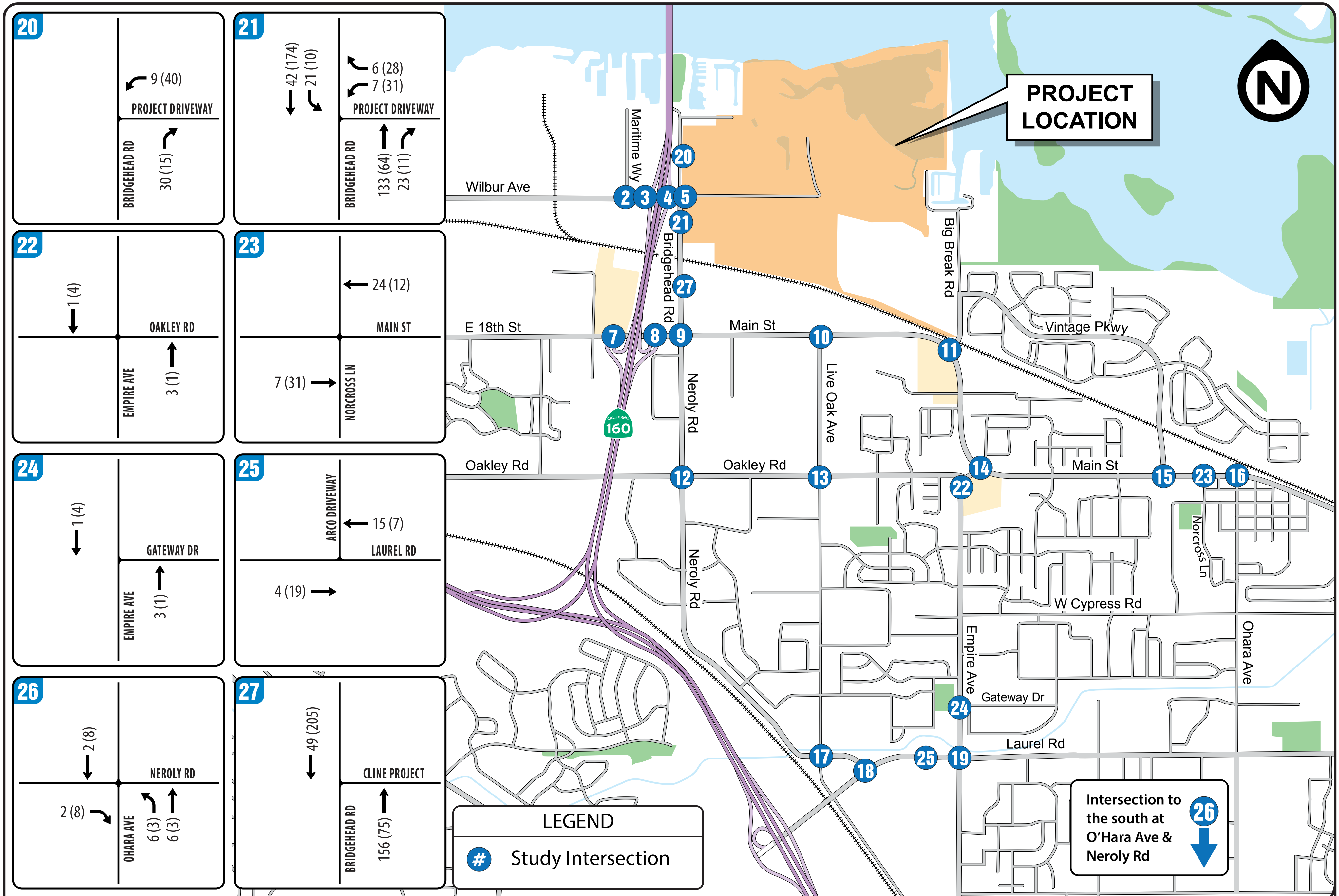


FIGURE 7 | PROJECT AM(PM) PEAK HOUR TRIPS - PAGE 3 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

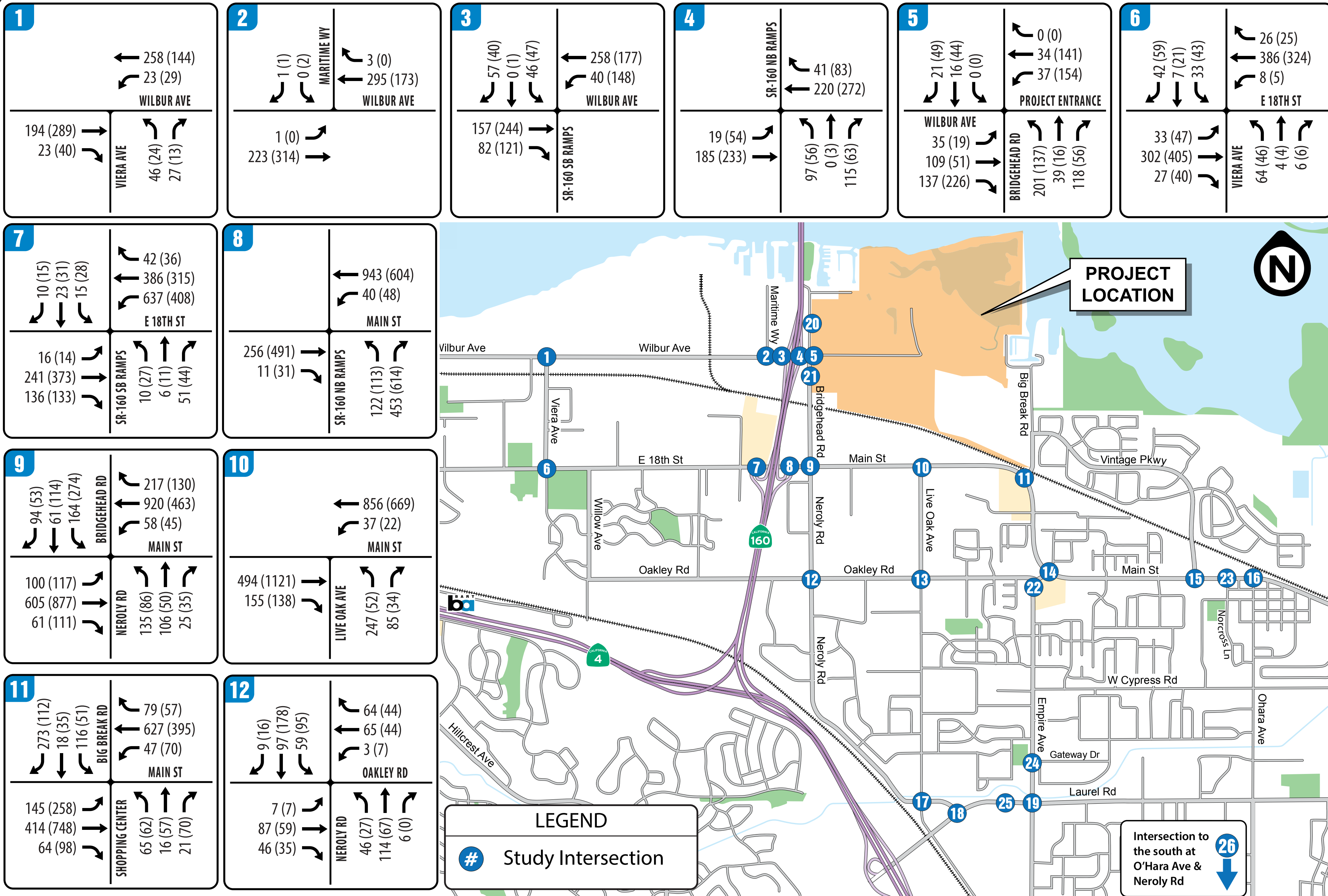


FIGURE 8 | EXISTING PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 1 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

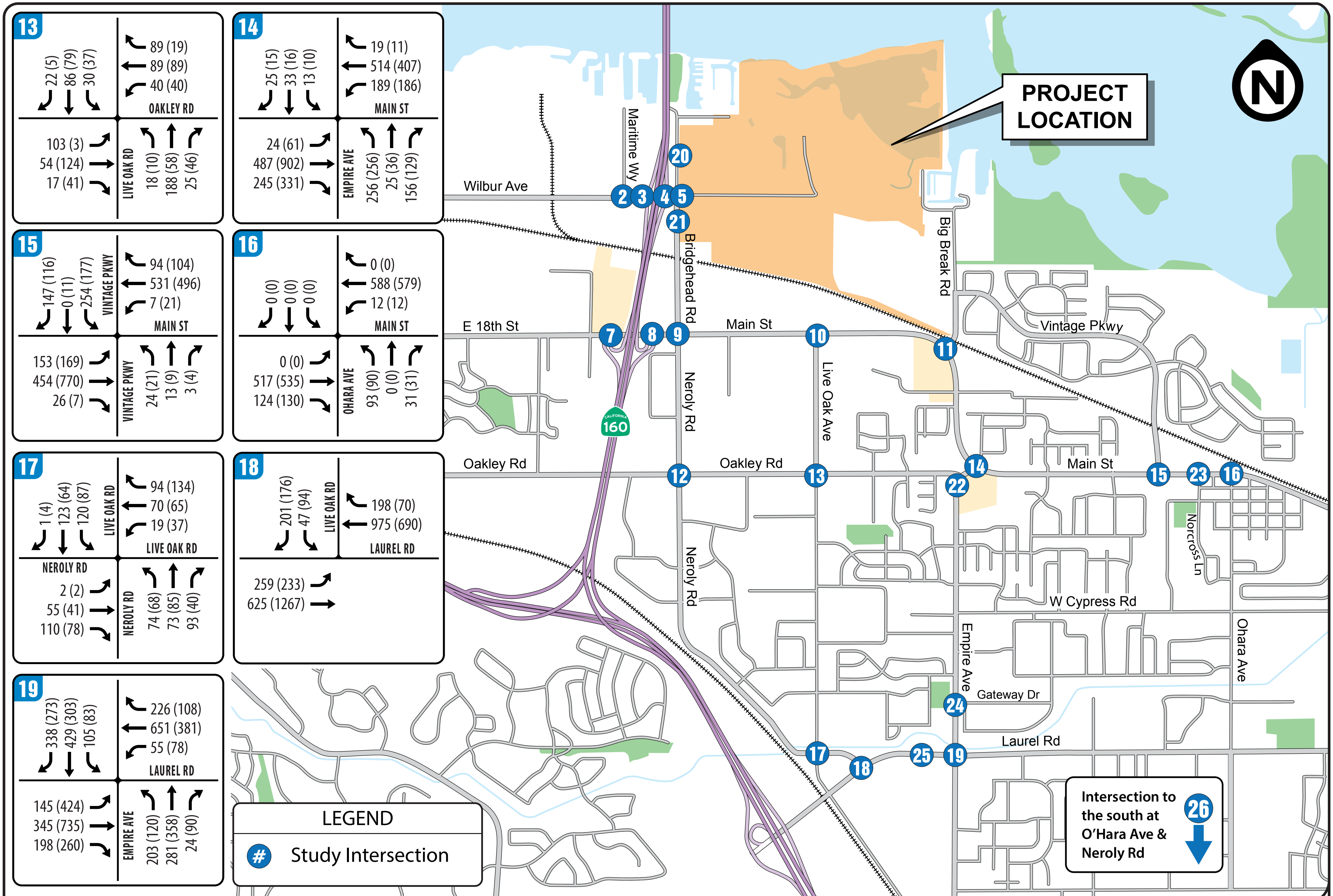


FIGURE 8 | EXISTING PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 2 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

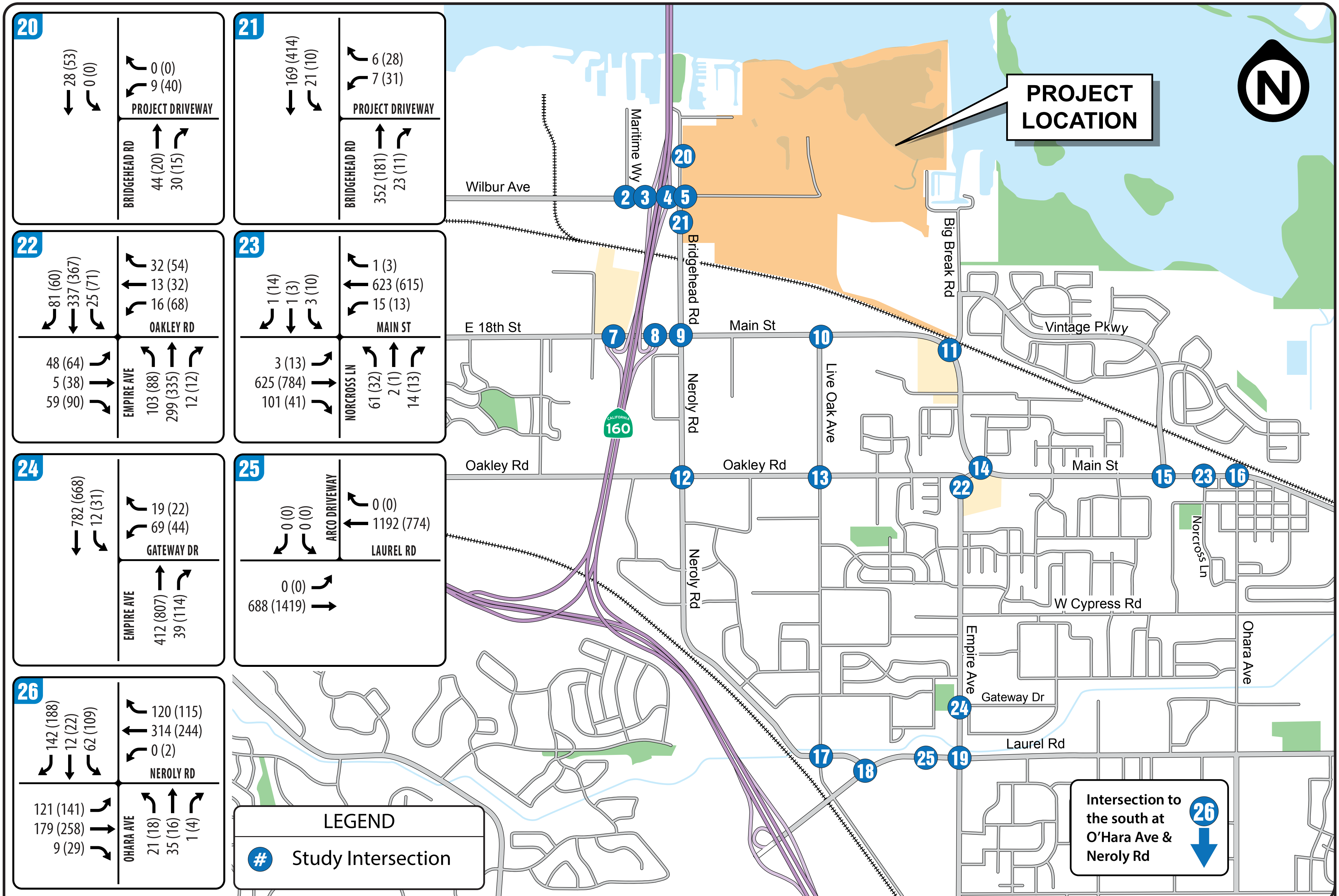


FIGURE 8 | EXISTING PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 3 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates TRAFFIC ENGINEERING, INC.

TABLE 7
EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS

	INTERSECTION	CONTROL	PEAK HOUR	EXISTING		EXISTING PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	VIERA AVENUE & WILBUR AVENUE	Side Street Stop	AM	12.7	B	12.8	B
			PM	12.1	B	12.5	B
2	MARITIME WAY & WILBUR AVENUE	Side Street Stop	AM	10.0	B	10.1	B
			PM	11.0	B	11.4	B
3	STATE ROUTE 160 SB RAMPS & WILBUR AVENUE	Side Street Stop	AM	10.2	B	11.4	B
			PM	11.2	B	16.5	C
4	STATE ROUTE 160 NB RAMPS & WILBUR AVENUE	Side Street Stop	AM	11.5	B	11.2	B
			PM	12.1	B	12.1	B
5	BRIDGEHEAD ROAD & WILBUR AVENUE	All Way Stop	AM	9.6	A	15.0	B
			PM	8.9	A	13.9	B
6	VIERA AVENUE & EAST 18TH STREET	Signalized	AM	14.6	B	15.3	B
			PM	12.8	B	13.3	B
7	STATE ROUTE 160 SB RAMPS & EAST 18TH STREET	Signalized	AM	14.8	B	14.8	B
			PM	14.9	B	15.0	B
8	STATE ROUTE 160 NB RAMPS & MAIN STREET	Signalized	AM	11.4	B	11.6	B
			PM	14.0	B	14.1	B
9	NEROLY ROAD / BRIDGEHEAD ROAD & MAIN STREET	Signalized	AM	24.8	C	27.5	C
			PM	24.3	C	28.3	C
10	LIVE OAK AVENUE & MAIN STREET	Signalized	AM	10.8	B	11.4	B
			PM	7.9	A	8.2	A
11	BIG BREAK ROAD & MAIN STREET	Signalized	AM	22.0	C	22.5	C
			PM	20.4	C	21.0	C
12	OAKLEY ROAD & NEROLY ROAD	All Way Stop	AM	10.1	B	10.6	B
			PM	9.3	A	9.9	A
13	OAKLEY ROAD & LIVE OAK AVENUE	All Way Stop	AM	23.4	C	32.0	D
			PM	8.6	A	8.9	A
14	EMPIRE AVENUE & MAIN STREET	Signalized	AM	21.1	C	20.2	C
			PM	20.2	C	20.4	C
15	VINTAGE PARKWAY & MAIN STREET	Signalized	AM	34.2	C	36.5	D
			PM	21.6	C	22.4	C
16	O'HARA AVENUE & MAIN STREET	Signalized	AM	7.6	A	7.8	A
			PM	7.6	A	7.7	A
17	NEROLY ROAD & LIVE OAK AVENUE	All Way Stop	AM	12.5	B	13.4	B
			PM	10.1	B	10.8	B
18	LAUREL & LIVE OAK AVENUE	Signalized	AM	13.8	B	14.6	B
			PM	10.5	B	11.1	B
19	LAUREL & EMPIRE AVENUE	Signalized	AM	35.7	D	36.1	D
			PM	35.3	D	35.5	D
20	BRIDGEHEAD ROAD & NORTHERN PROJECT DRIVEWAY	Side Street Stop	AM	N/A	N/A	9.1	A
			PM	N/A	N/A	9.2	A
21	BRIDGEHEAD ROAD & SOUTHERN PROJECT DRIVEWAY	Side Street Stop	AM	N/A	N/A	12.3	B
			PM	N/A	N/A	12.6	B
22	OAKLEY ROAD & EMPIRE AVENUE	Signalized	AM	14.7	B	14.7	B
			PM	17.5	B	17.5	B
23	NORCROSS LANE & MAIN STREET	Signalized	AM	11.0	B	11.0	B
			PM	11.2	B	11.2	B
24	GATEWAY DRIVE & EMPIRE AVENUE	Side Street Stop	AM	21.3	C	21.5	C
			PM	**39.8**	**E**	**40.1**	**E**
25	APPROVED ARCO DRIVEWAY & LAUREL ROAD	Signalized	AM	N/A	N/A	N/A	N/A
			PM	N/A	N/A	N/A	N/A
26	O'HARA AVENUE & NEROLY ROAD	Signalized	AM	18.3	B	18.5	B
			PM	18.9	B	18.9	B

SOURCE: Abrams Associates, 2019 **NOTE:** Delay results are presented in terms of seconds per vehicle.

forecast to continue exceeding the City's LOS standards regardless of whether or not the proposed project is implemented.

As traffic volumes increase vehicle queues typically will also increase at most intersections. In the Existing plus Project condition, the project traffic would contribute to the average vehicle queues (based on the 95th percentile vehicle queue) potentially extending beyond the available storage for certain movements. Please note these movements are forecast to continue exceeding the available storage regardless of whether or not the proposed project is implemented. Mitigations to improve the operations at these intersections are discussed in Section 5. These locations include:

Main Street at Bridgehead Road
Eastbound Main Street Left Turn
Southbound Bridgehead Road Left Turn

Main Street at Empire Avenue
Westbound Main Street Left Turn
Northbound Empire Avenue Left Turn

Oakley Road at Empire Avenue
Westbound Oakley Town Center Left Turn

4.4 Baseline Traffic Capacity Conditions (Scenario 3)

The Baseline scenario evaluates the existing conditions with the addition of traffic from reasonably foreseeable projects in the area and general baseline growth in traffic. For this analysis the baseline volumes were developed based on the assumption that the project completion date would be 2021 with an average traffic growth of 1% per year. The trips added by near-term development during this time was based on the forecast trip generation for a list of 25 approved projects identified by the City. These are projects anticipated to be completed in the next five years that could potentially effect the traffic volumes at the project study intersections. The traffic volumes for each of the study intersections for the Baseline scenario are shown in **Figure 9**. **Table 8** summarizes the associated LOS computation results for the Baseline weekday AM and PM peak hour conditions. As shown in **Table 8**, all of the signalized study intersections would continue to have acceptable conditions (LOS D or better) under the Baseline Plus Project scenario during the weekday AM and PM peak hours with the exception of Intersections #19 (Laurel Avenue and Empire Avenue) and #24 (Gateway Drive at Empire Avenue) which would both exceed the LOS D threshold established in the City's General Plan.

4.5 Baseline *Plus Project* Traffic Capacity Conditions (Scenario 4)

The Baseline plus proposed project traffic forecasts were developed by adding traffic from Phases 1+2 to the baseline traffic volumes. The traffic volumes for each of the study intersections for the Baseline Plus Project scenario are shown in **Figure 10**. **Table 8**

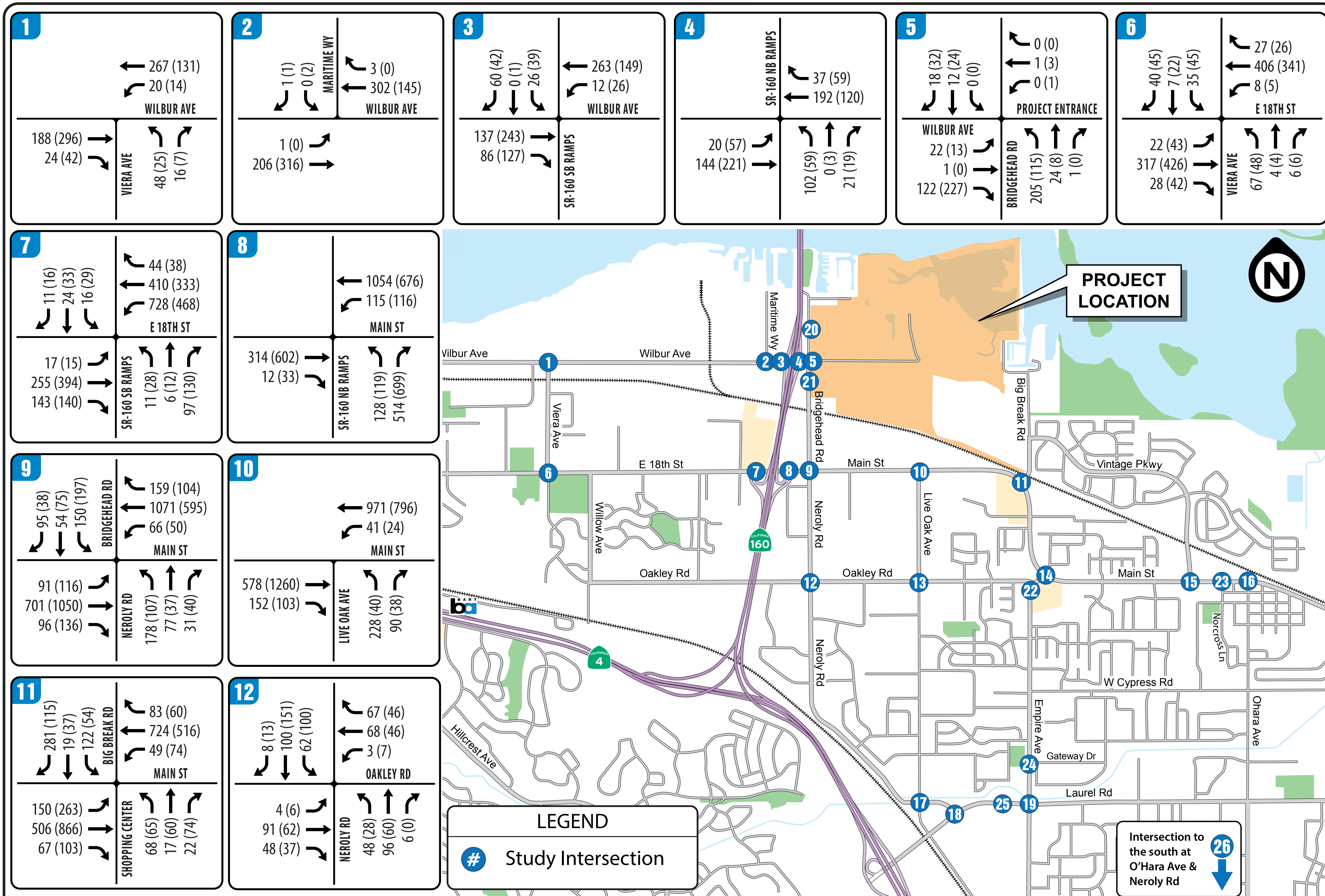


FIGURE 9 | BASELINE AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 1 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

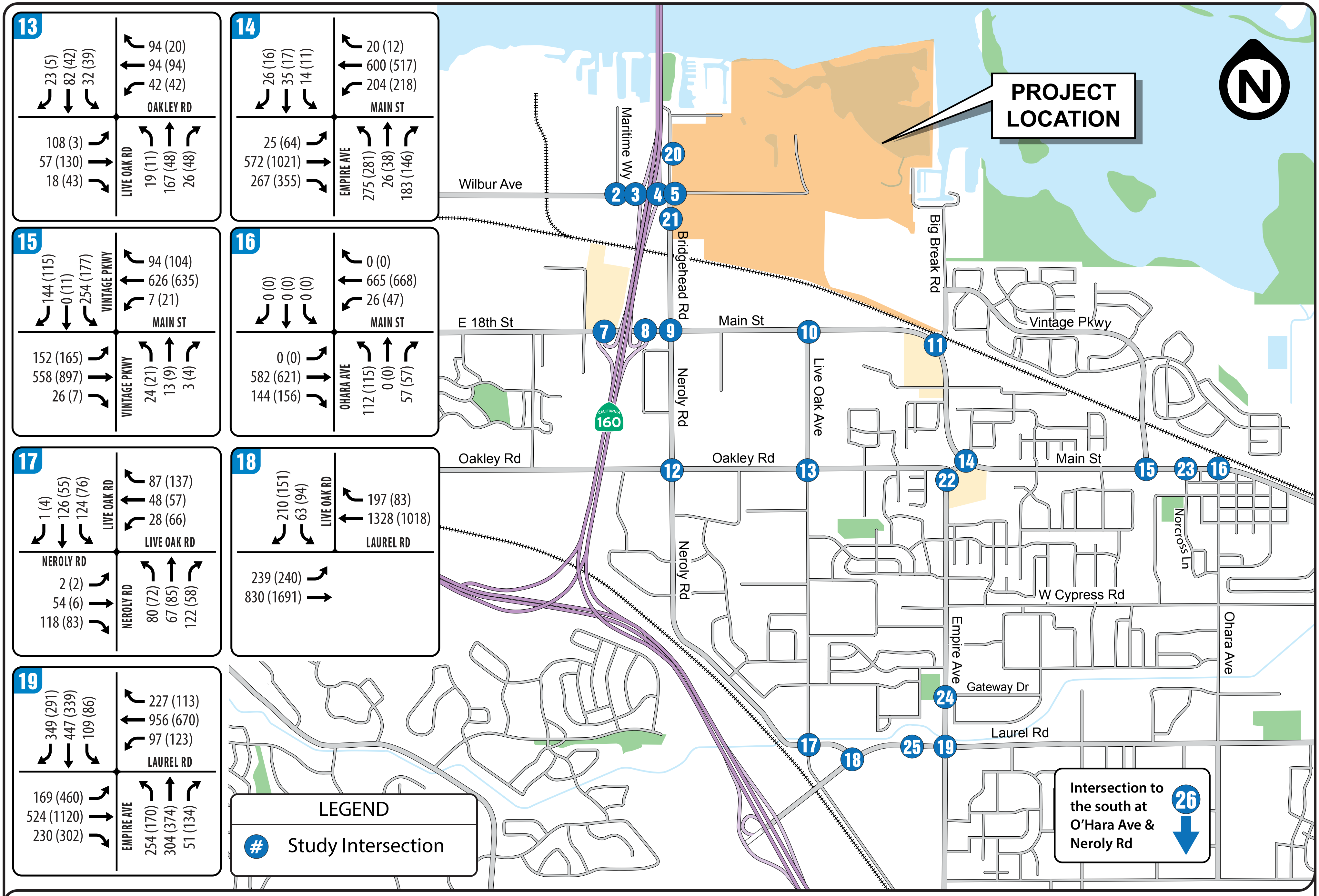


FIGURE 9 | BASELINE AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 2 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

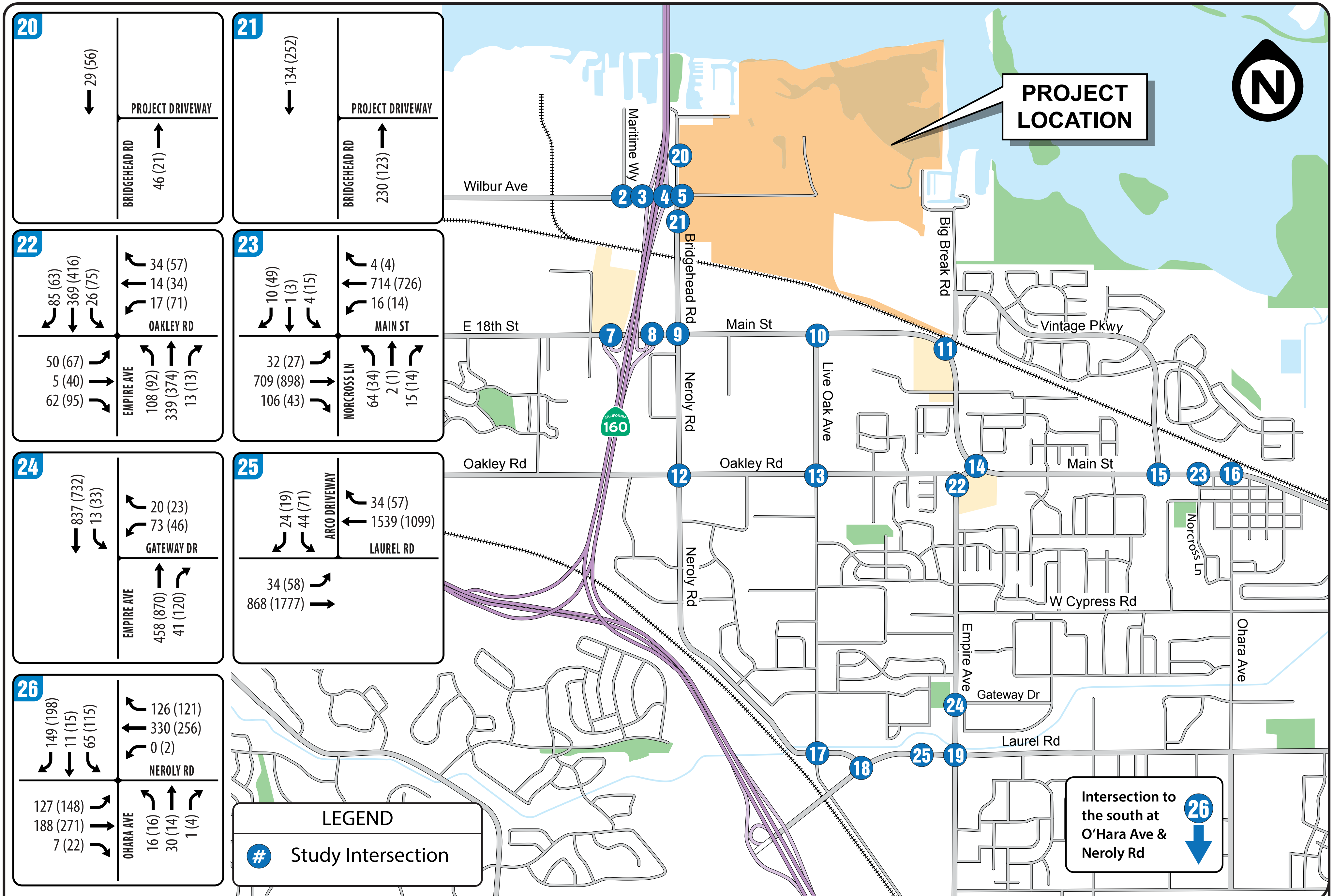


FIGURE 9 | BASELINE AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 3 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates TRAFFIC ENGINEERING, INC.

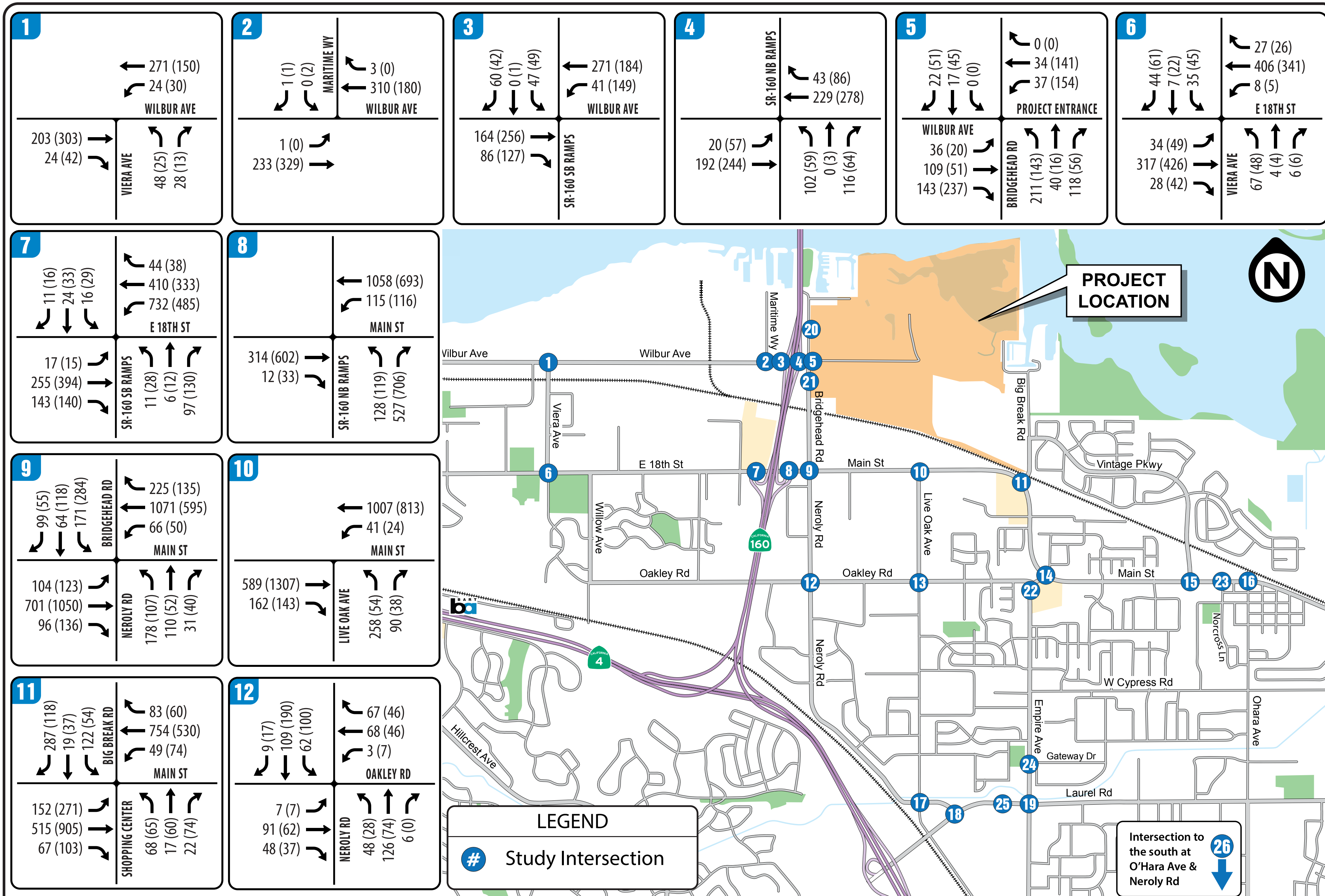


FIGURE 10 | BASELINE PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 1 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

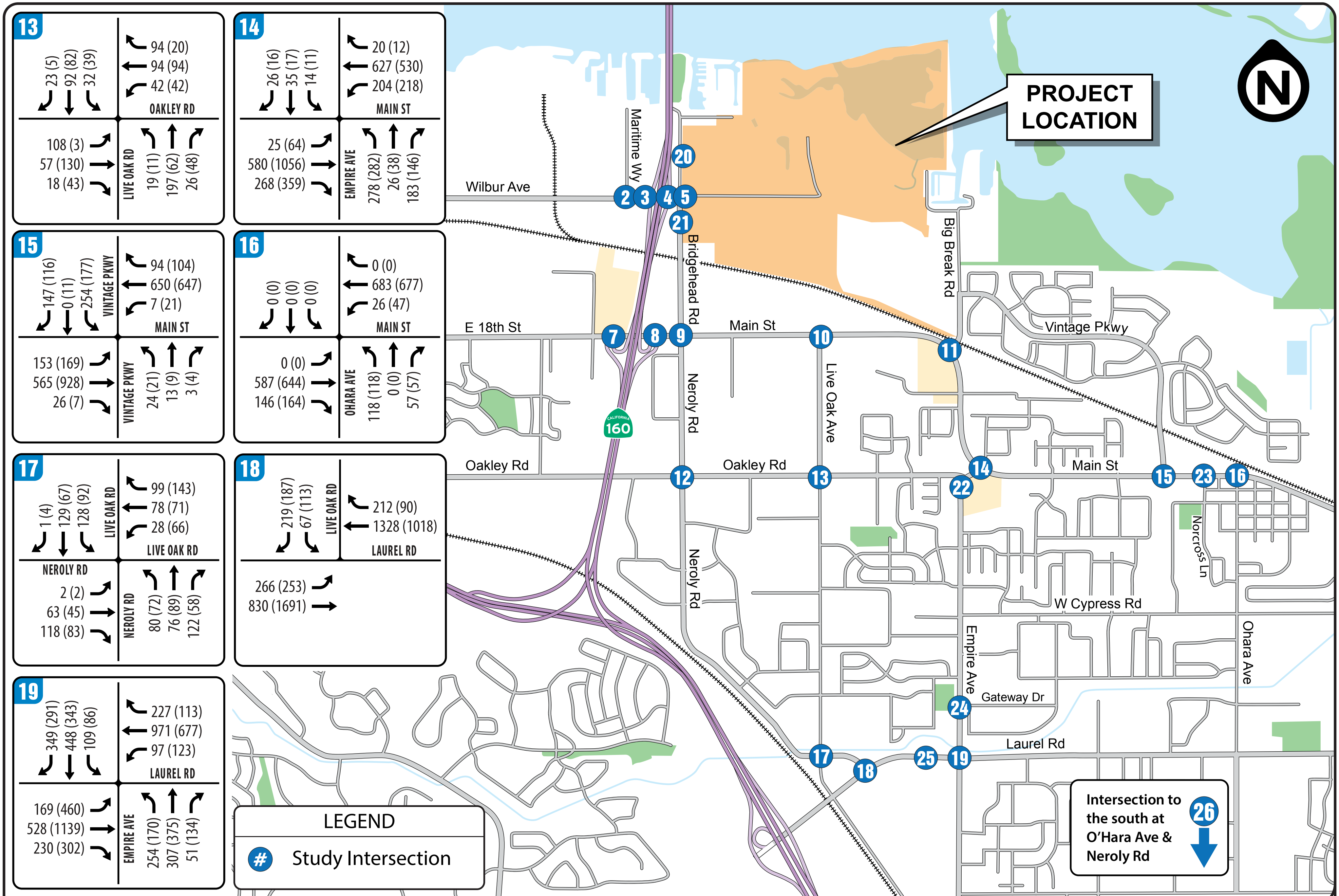


FIGURE 10 | BASELINE PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 2 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

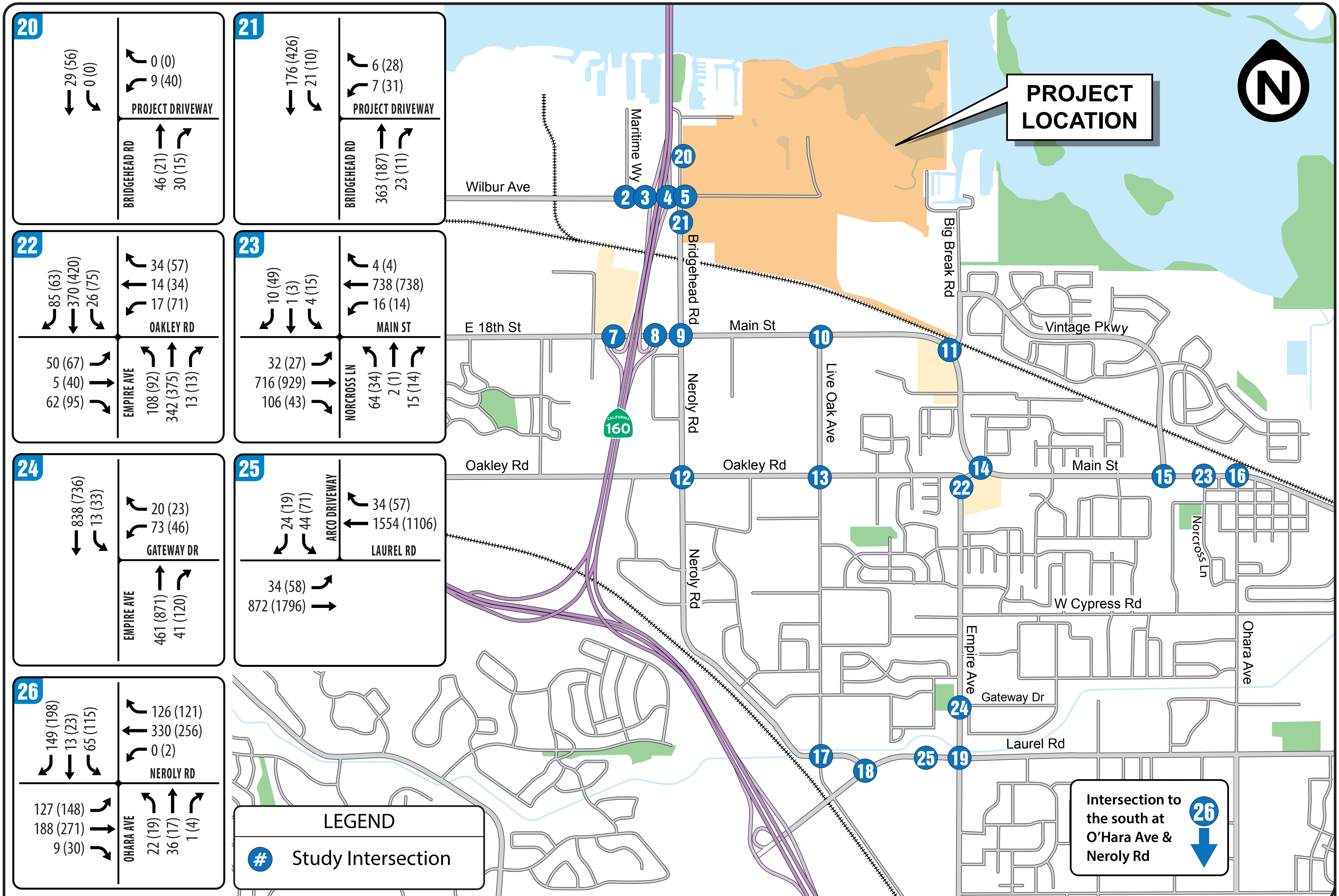


FIGURE 10 | BASELINE PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 3 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

TABLE 8
BASELINE PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS

	INTERSECTION	CONTROL	PEAK HOUR	BASELINE		BASELINE PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	VIERA AVENUE & WILBUR AVENUE	Side Street Stop	AM	13.1	B	13.2	B
			PM	12.4	B	12.8	B
2	MARITIME WAY & WILBUR AVENUE	Side Street Stop	AM	10.2	B	10.2	B
			PM	11.1	B	11.6	B
3	STATE ROUTE 160 SB RAMPS & WILBUR AVENUE	Side Street Stop	AM	10.3	B	11.6	B
			PM	11.4	B	17.1	C
4	STATE ROUTE 160 NB RAMPS & WILBUR AVENUE	Side Street Stop	AM	11.8	B	11.5	B
			PM	12.4	B	12.4	B
5	BRIDGEHEAD ROAD & WILBUR AVENUE	All Way Stop	AM	9.9	A	15.8	C
			PM	9.1	A	14.5	B
6	VIERA AVENUE & EAST 18TH STREET	Signalized	AM	15.1	B	15.9	B
			PM	13.0	B	13.5	B
7	STATE ROUTE 160 SB RAMPS & EAST 18TH STREET	Signalized	AM	17.1	B	17.1	B
			PM	17.9	B	18.0	B
8	STATE ROUTE 160 NB RAMPS & MAIN STREET	Signalized	AM	14.8	B	15.1	B
			PM	20.7	C	21.0	C
9	NEROLY ROAD / BRIDGEHEAD ROAD & MAIN STREET	Signalized	AM	34.4	C	37.8	D
			PM	32.5	C	40.3	D
10	LIVE OAK AVENUE & MAIN STREET	Signalized	AM	11.4	B	12.1	B
			PM	8.1	A	8.4	A
11	BIG BREAK ROAD & MAIN STREET	Signalized	AM	23.8	C	24.6	C
			PM	22.6	C	23.2	C
12	OAKLEY ROAD & NEROLY ROAD	All Way Stop	AM	10.6	B	11.1	B
			PM	9.6	A	10.3	B
13	OAKLEY ROAD & LIVE OAK AVENUE	All Way Stop	AM	31.4	D	**48.8**	**E**
			PM	8.8	A	9.0	A
14	EMPIRE AVENUE & MAIN STREET	Signalized	AM	22.5	C	22.6	C
			PM	23.5	C	24.0	C
15	VINTAGE PARKWAY & MAIN STREET	Signalized	AM	45.3	D	48.8	D
			PM	29.5	C	31.4	C
16	O'HARA AVENUE & MAIN STREET	Signalized	AM	8.9	A	9.0	A
			PM	9.7	A	9.9	A
17	NEROLY ROAD & LIVE OAK AVENUE	All Way Stop	AM	14.1	B	15.5	C
			PM	10.8	B	11.6	B
18	LAUREL & LIVE OAK AVENUE	Signalized	AM	15.6	B	16.6	B
			PM	11.3	B	12.5	B
19	LAUREL & EMPIRE AVENUE	Signalized	AM	50.7	D	51.4	D
			PM	**59.7**	**E**	**60.7**	**E**
20	BRIDGEHEAD ROAD & NORTHERN PROJECT DRIVEWAY	Side Street Stop	AM	N/A	N/A	9.1	A
			PM	N/A	N/A	9.2	A
21	BRIDGEHEAD ROAD & SOUTHERN PROJECT DRIVEWAY	Side Street Stop	AM	N/A	N/A	12.5	B
			PM	N/A	N/A	12.8	B
22	OAKLEY ROAD & EMPIRE AVENUE	Signalized	AM	14.8	B	14.8	B
			PM	18.0	B	18.0	B
23	NORCROSS LANE & MAIN STREET	Signalized	AM	13.8	B	14.1	B
			PM	16.3	B	17.3	B
24	GATEWAY DRIVE & EMPIRE AVENUE	Side Street Stop	AM	25.1	D	25.3	D
			PM	**> 50.0**	**F**	**> 50.0**	**F**
25	APPROVED ARCO DRIVEWAY & LAUREL ROAD	Signalized	AM	5.1	A	5.1	A
			PM	5.0	A	5.0	A
26	O'HARA AVENUE & NEROLY ROAD	Signalized	AM	18.7	B	18.9	B
			PM	19.3	B	19.4	B

SOURCE: Abrams Associates, 2019 **NOTE:** Delay results are presented in terms of seconds per vehicle.

summarizes the LOS results for the Baseline and Baseline Plus Project weekday AM and PM peak hour conditions. The corresponding LOS analysis calculation sheets are presented in the appendix to this report. As shown in **Table 8**, all of the signalized study intersections would continue to have acceptable conditions (LOS D or better) under the Baseline Plus Project scenario during the weekday AM and PM peak hours with the exception of Intersections #13, (Oakley Road at Live Oak Avenue), #19 (Laurel Avenue at Empire Avenue), and #24 (Gateway Drive at Empire Avenue) which would all exceed the LOS D threshold established in the City's General Plan. However, at intersections #19 and #24 the project would not increase the V/C ratio by more than 0.01 and therefore this would not be considered a significant impact. With the future planned improvements at Intersections #19 and #24 (a westbound dual left turn lane and installation of a traffic signal, respectively) the level of service at these intersections is forecast to operate at acceptable levels (LOS D or better). It should be noted that these intersections are forecast to exceed the City's LOS standards regardless of whether or not the proposed project is implemented. Please note that at the other intersection exceeding the thresholds (Intersection #13) the project would increase volume to capacity ratio by more than 0.01. Therefore, the project's contribution to traffic at this intersection would be considered a significant impact.

As traffic volumes increase vehicle queues typically will also increase at most intersections. In the Baseline plus Project condition, the project traffic would contribute to the average vehicle queues (based on the 95th percentile vehicle queue) potentially extending beyond the available storage for certain movements. Please note these movements are forecast to continue exceeding the available storage regardless of whether or not the proposed project is implemented. Mitigations to improve the operations at these intersections are discussed in Section 5. These locations include:

Main Street at Bridgehead Road
Eastbound Main Street Left Turn
Southbound Bridgehead Road Left Turn

Main Street at Empire Avenue
Westbound Main Street Left Turn
Northbound Empire Avenue Left Turn

Oakley Road at Empire Avenue
Westbound Oakley Town Center Left Turn

4.6 Cumulative Traffic Capacity Conditions (Scenario 5)

For the cumulative conditions, the intersection traffic volumes were based on the existing turning movements plus incremental growth in background traffic (1% per year) based on the County's traffic model. **Figure 11** presents the cumulative build-out traffic volumes for the project study intersections. **Table 9** summarizes the LOS results for the Cumulative (Year

2040) traffic conditions at each of the project study intersections. As shown on this table, the project study intersections would continue to have acceptable conditions during the weekday AM and PM peak commute hours with the exception of Intersections #11 (Big Break Road and Main Street), Intersection #13 (Oakley Road and Live Oak Avenue), and #24 (Gateway Drive at Empire Avenue) which would all exceed the LOS D threshold established in the City's General Plan.

4.7 Cumulative Plus Project Traffic Capacity Conditions (Scenario 6)

Table 9 summarizes the LOS results for the Cumulative Plus Project (Year 2040) traffic conditions at each of the project study intersection. **Figure 12** presents the cumulative build-out traffic volumes including the traffic from the proposed project. As shown on this table, all of the signalized study intersections would continue to have acceptable conditions during the weekday AM and PM peak commute hours with exception of Intersections #5 (Wilbur Avenue at Bridgehead Road), #11 (Big Break Road and Main Street), Intersection #13 (Oakley Road and Live Oak Avenue), and #24 (Gateway Drive at Empire Avenue) which would all exceed the LOS D threshold established in the City's General Plan. However, at intersection #24 the project would not increase the V/C ratio by more than 0.01 and therefore this would not be considered a significant impact. With the future planned improvements at intersection #24 (installation of a traffic signal) the level of service at this intersection is forecast to operate at acceptable levels (LOS D or better). It should be noted that with the exception of the poor LOS at Intersection #5 (which is triggered by the project) all of the above mentioned intersections are forecast to exceed the City's LOS standards regardless of whether or not the proposed project is implemented. Please note that at the other intersections exceeding the thresholds (Intersections #5, #11, and #13) the project would increase volume to capacity ratio by more than 0.01. Therefore, the project's contribution to traffic at these intersections would be considered a significant impact.

As traffic volumes increase vehicle queues typically will also increase at most intersections. In the Cumulative plus Project condition, the project traffic would contribute to the average vehicle queues (based on the 95th percentile vehicle queue) potentially extending beyond the available storage for certain movements. Please note these movements are forecast to continue exceeding the available storage regardless of whether or not the proposed project is implemented. Mitigations to improve the operations at these intersections are discussed in Section 5. These locations include:

Wilbur Avenue at Bridgehead Road
Northbound Bridgehead Road Left Turn

Main Street at Bridgehead Road
Eastbound Main Street Left Turn
Southbound Bridgehead Road Left Turn
Northbound Bridgehead Road Left Turn

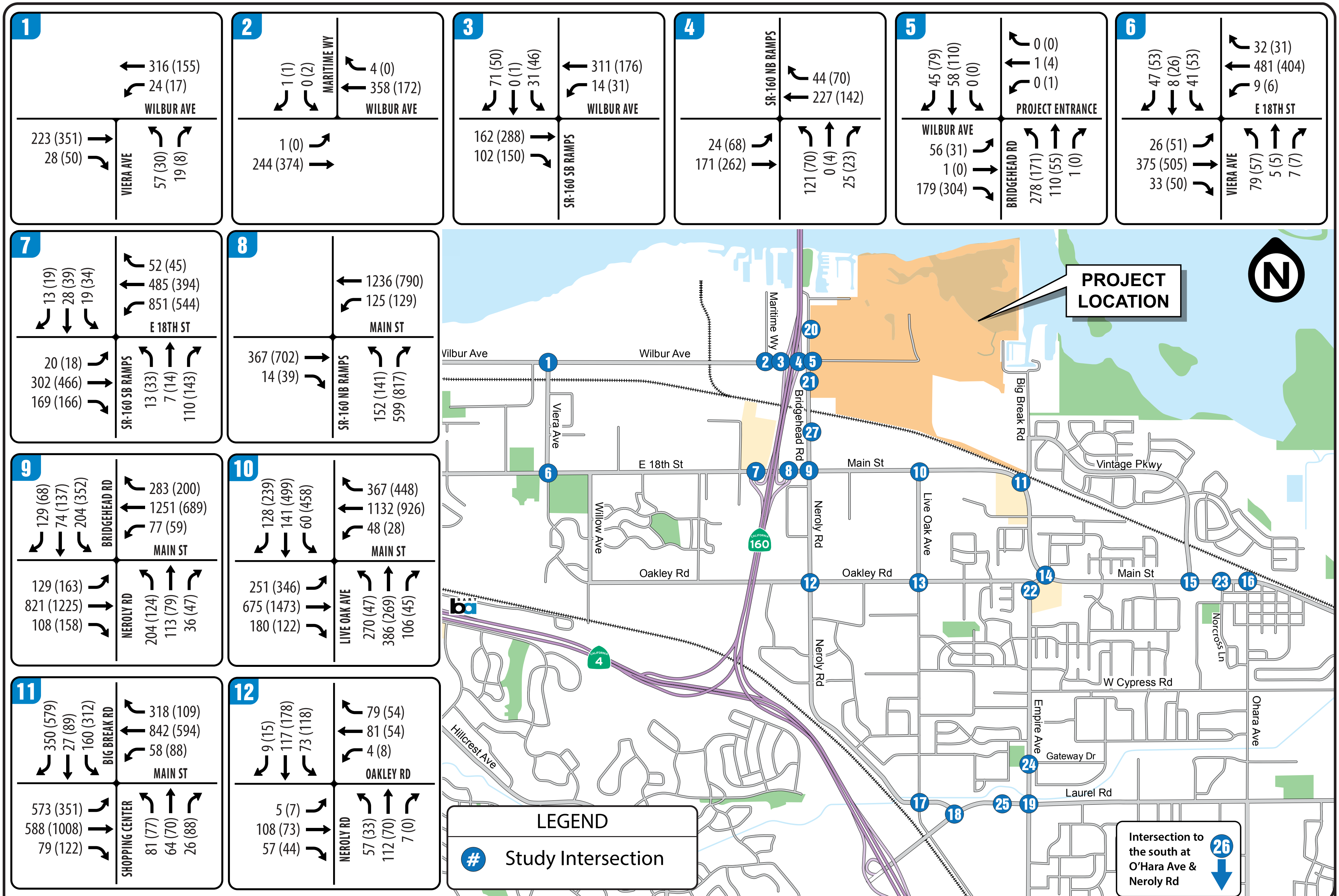


FIGURE 11 | CUMULATIVE AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 1 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

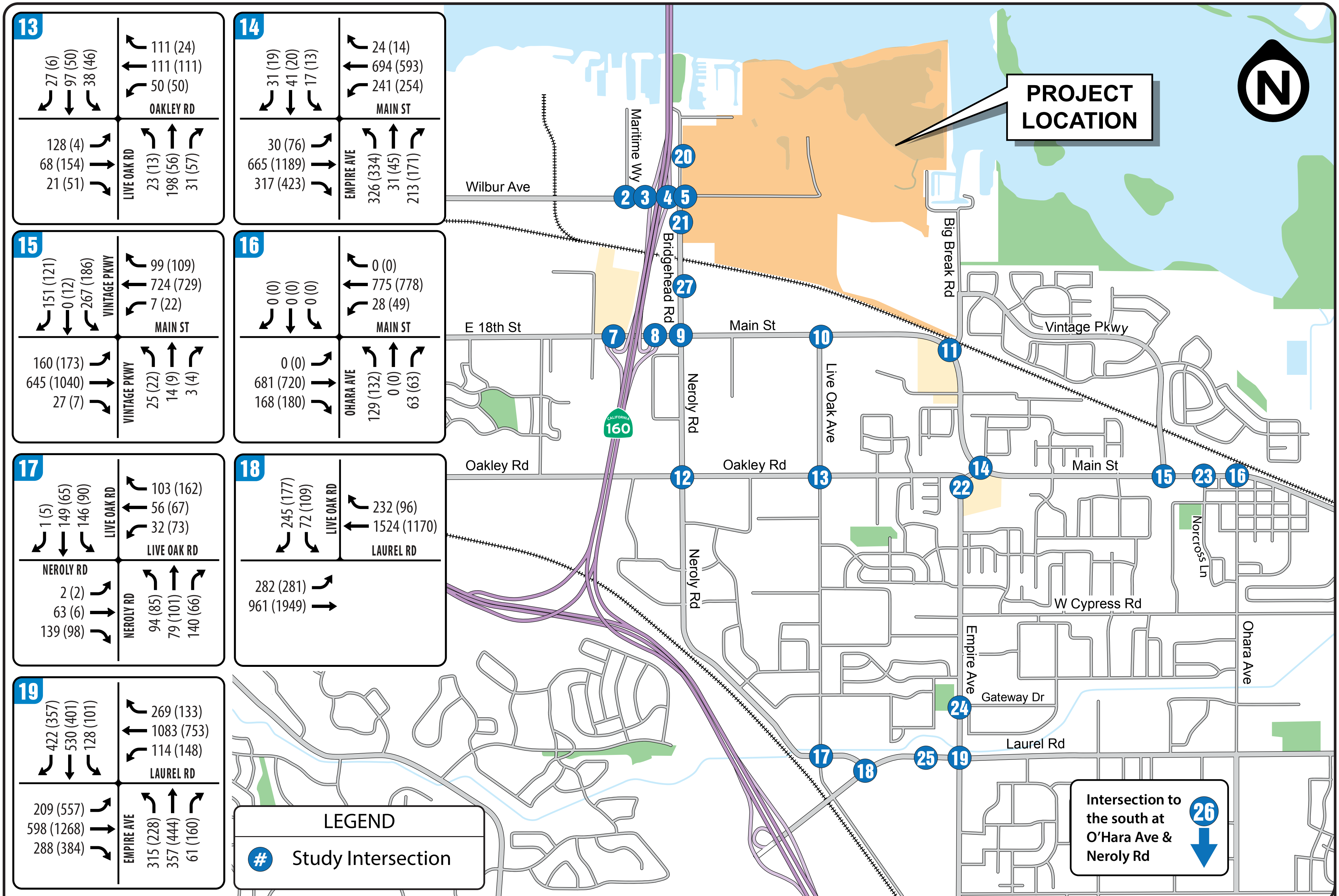


FIGURE 11 | CUMULATIVE AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 2 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

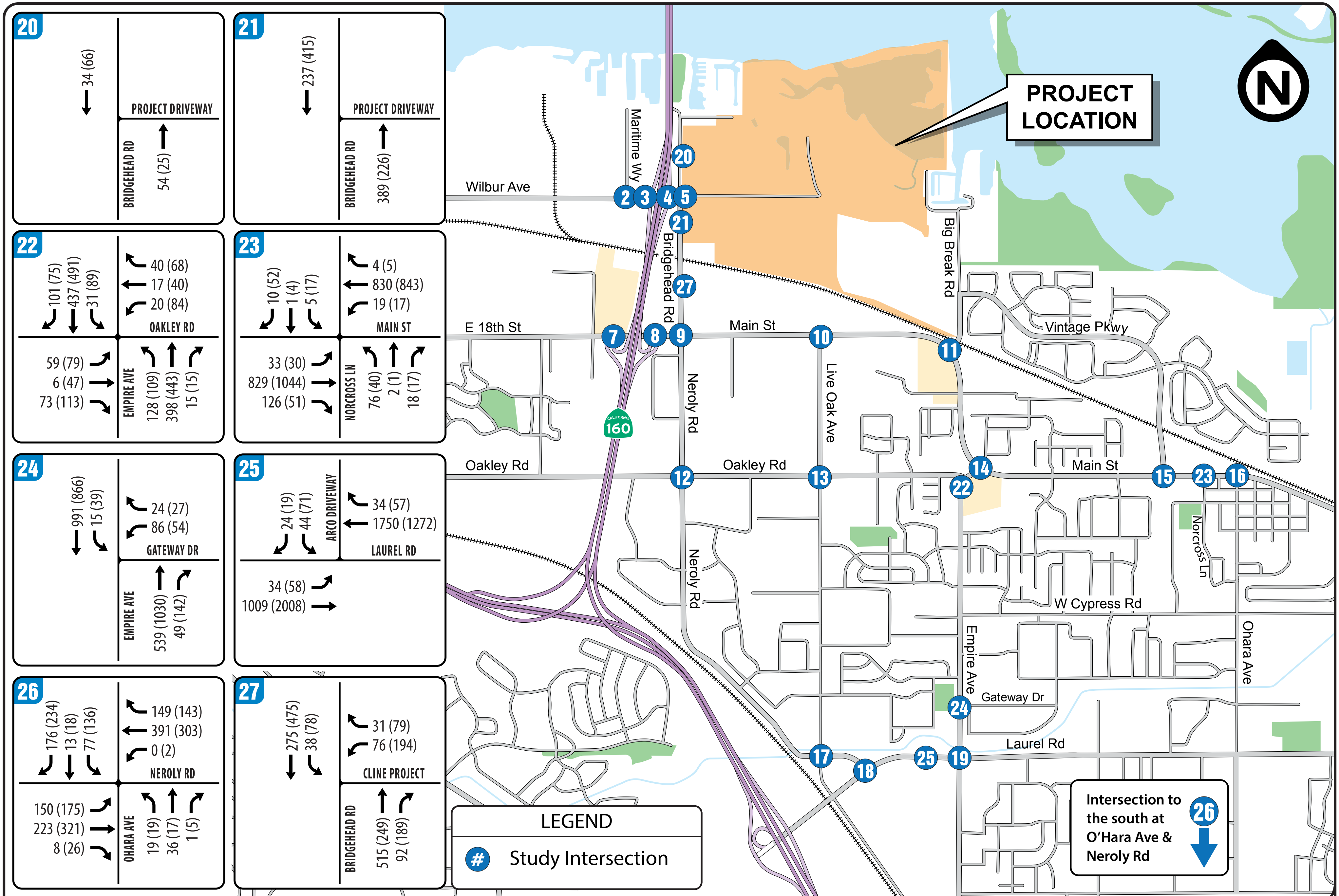


FIGURE 11 | CUMULATIVE AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 3 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

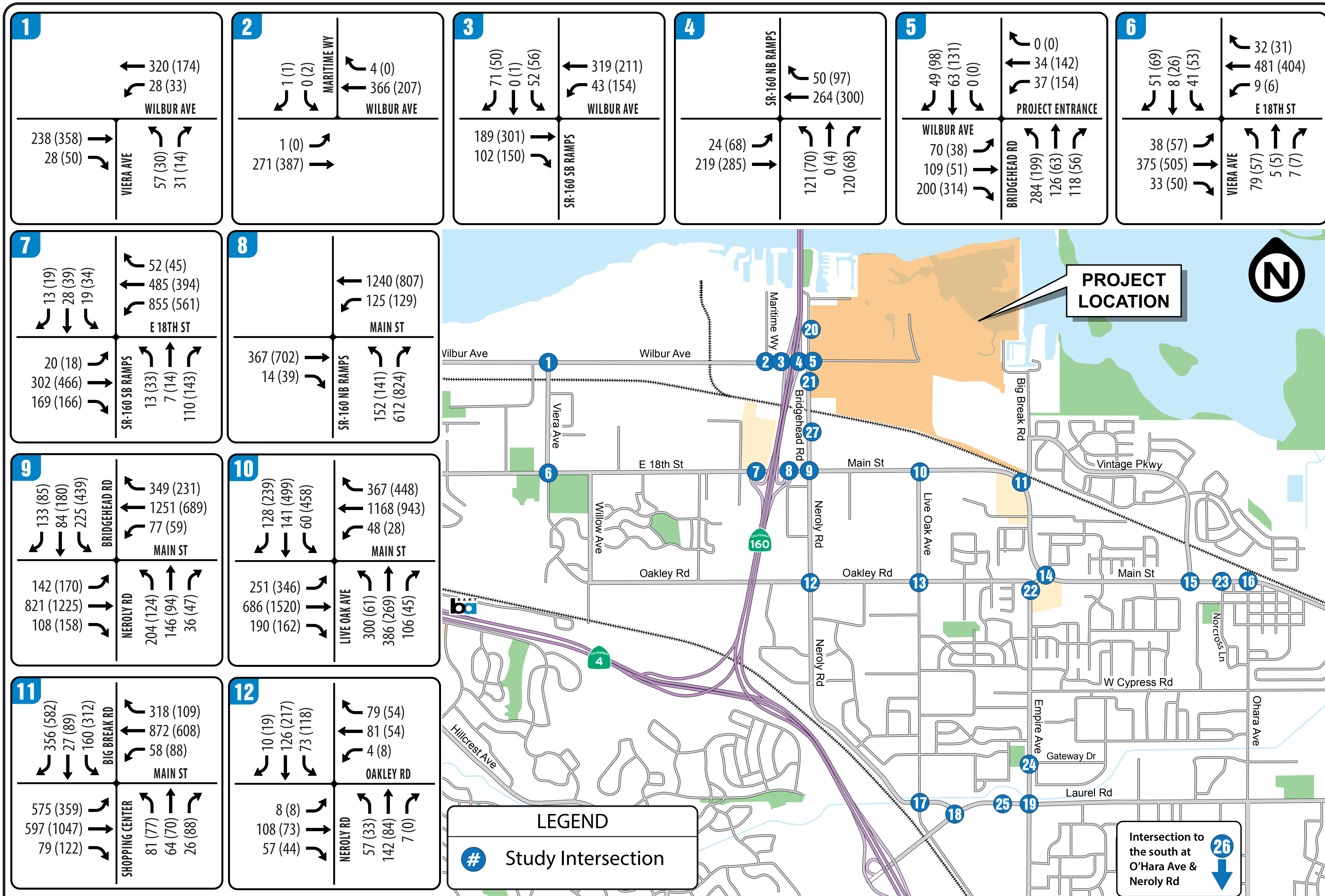


FIGURE 12 | CUMULATIVE PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 1 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

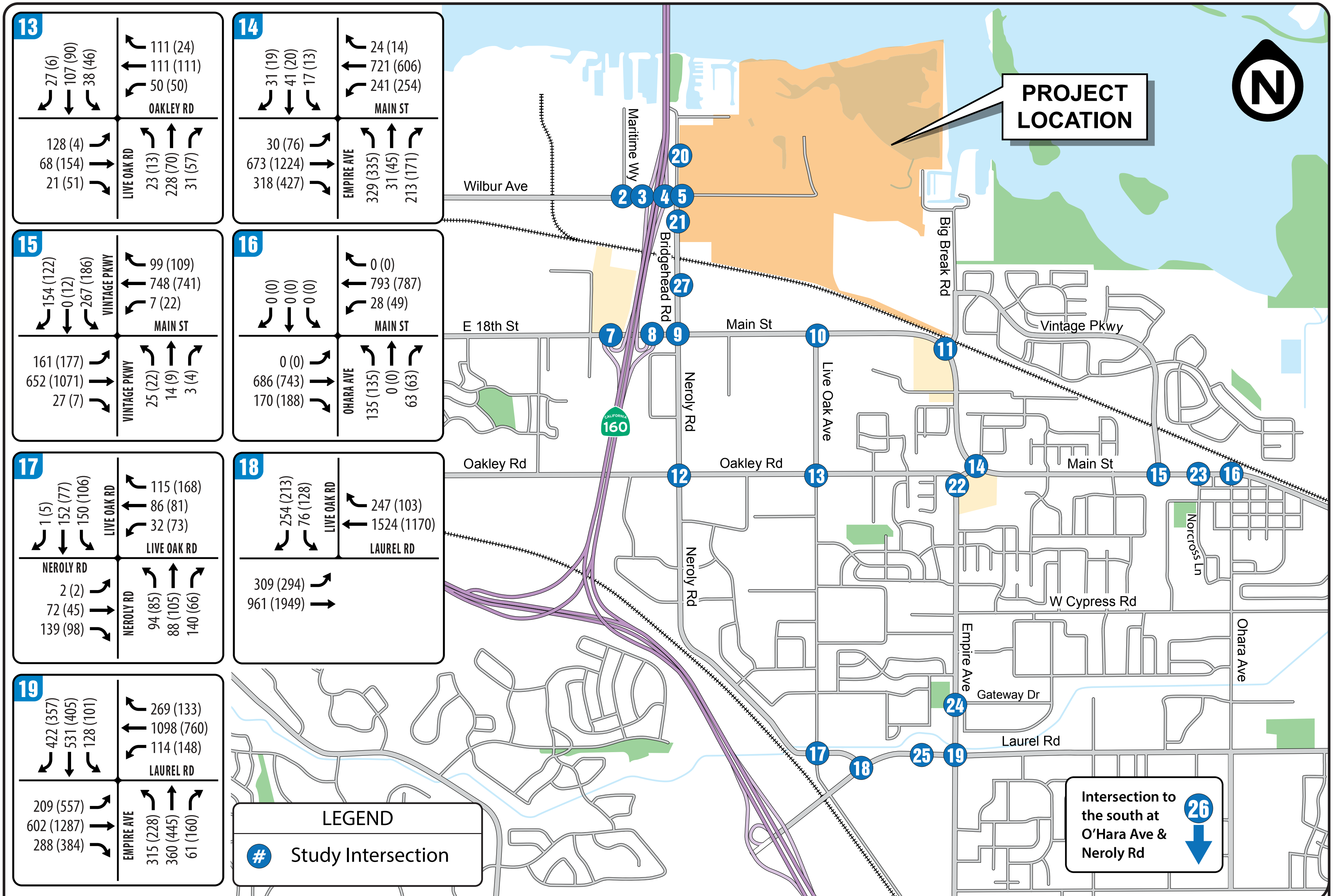


FIGURE 12 | CUMULATIVE PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 2 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

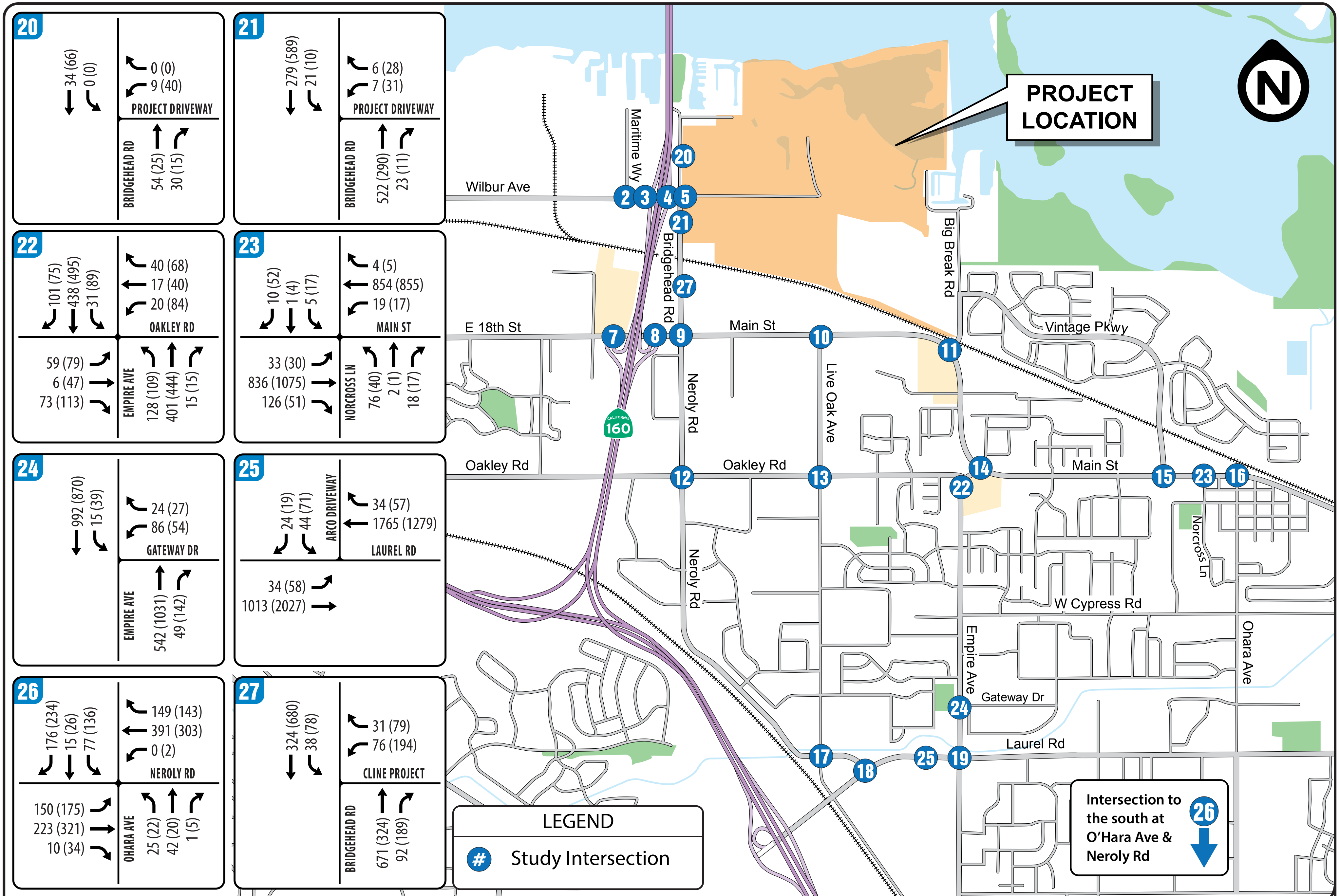


FIGURE 12 | CUMULATIVE PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES - PAGE 3 of 3

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

TABLE 9
CUMULATIVE PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS

INTERSECTION		CONTROL	PEAK HOUR	CUMULATIVE		CUMULATIVE PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	VIERA AVENUE & WILBUR AVENUE	Side Street Stop	AM	14.8	B	15.0	C
			PM	13.6	B	14.2	B
2	MARITIME WAY & WILBUR AVENUE	Side Street Stop	AM	10.6	B	10.6	B
			PM	11.9	B	12.4	B
3	STATE ROUTE 160 SB RAMPS & WILBUR AVENUE	Side Street Stop	AM	10.7	B	12.3	B
			PM	12.2	B	20.2	C
4	STATE ROUTE 160 NB RAMPS & WILBUR AVENUE	Side Street Stop	AM	12.6	B	12.6	B
			PM	13.5	B	13.9	B
5	BRIDGEHEAD ROAD & WILBUR AVENUE	All Way Stop	AM	12.8	B	32.8	D
			PM	11.9	B	**40.1**	**E**
6	VIERA AVENUE & EAST 18TH STREET	Signalized	AM	17.6	B	18.5	B
			PM	14.0	B	14.5	B
7	STATE ROUTE 160 SB RAMPS & EAST 18TH STREET	Signalized	AM	19.9	B	19.9	B
			PM	20.2	C	20.4	C
8	STATE ROUTE 160 NB RAMPS & MAIN STREET	Signalized	AM	15.4	B	15.7	B
			PM	23.2	C	23.4	C
9	NEROLY ROAD / BRIDGEHEAD ROAD & MAIN STREET	Signalized	AM	27.6	C	32.0	C
			PM	30.5	C	35.8	D
10	LIVE OAK AVENUE & MAIN STREET	Signalized	AM	48.4	D	52.1	D
			PM	54.2	D	54.4	D
11	BIG BREAK ROAD & MAIN STREET	Signalized	AM	**> 80.0**	**F**	**> 80.0**	**F**
			PM	**60.9**	**E**	**62.9**	**E**
12	OAKLEY ROAD & NEROLY ROAD	All Way Stop	AM	12.2	B	13.0	B
			PM	10.6	B	11.7	B
13	OAKLEY ROAD & LIVE OAK AVENUE	All Way Stop	AM	**35.9**	**E**	**> 50.0**	**F**
			PM	9.4	A	9.7	A
14	EMPIRE AVENUE & MAIN STREET	Signalized	AM	29.1	C	29.2	C
			PM	30.8	C	31.6	C
15	VINTAGE PARKWAY & MAIN STREET	Signalized	AM	48.7	D	52.0	D
			PM	45.9	D	50.2	D
16	O'HARA AVENUE & MAIN STREET	Signalized	AM	10.3	B	10.7	B
			PM	11.8	B	12.5	B
17	NEROLY ROAD & LIVE OAK AVENUE	All Way Stop	AM	19.3	C	21.9	C
			PM	12.2	B	13.2	B
18	LAUREL ROAD & LIVE OAK AVENUE	Signalized	AM	20.0	B	21.4	C
			PM	13.1	B	14.7	B
19	LAUREL ROAD & EMPIRE AVENUE	Signalized	AM	52.2	D	52.8	D
			PM	47.6	D	48.3	D
20	BRIDGEHEAD ROAD & NORTHERN PROJECT DRIVEWAY	Side Street Stop	AM	N/A	N/A	9.2	A
			PM	N/A	N/A	9.3	A
21	BRIDGEHEAD ROAD & SOUTHERN PROJECT DRIVEWAY	Side Street Stop	AM	N/A	N/A	15.7	C
			PM	N/A	N/A	16.4	C
22	OAKLEY ROAD & EMPIRE AVENUE	Signalized	AM	15.8	B	15.8	B
			PM	19.8	B	19.8	B
23	NORCROSS LANE & MAIN STREET	Signalized	AM	20.7	C	21.4	C
			PM	27.3	C	31.0	C
24	GATEWAY DRIVE & EMPIRE AVENUE	Side Street Stop	AM	**40.5**	**E**	**40.8**	**E**
			PM	**> 50.0**	**F**	**> 50.0**	**F**
25	APPROVED ARCO DRIVEWAY & LAUREL ROAD	Signalized	AM	5.1	A	5.1	A
			PM	5.0	A	5.1	A
26	O'HARA AVENUE & NEROLY ROAD	Signalized	AM	20.5	C	20.8	C
			PM	21.0	C	21.1	C
27	BRIDGEHEAD ROAD & CLINE PROJECT ENTRANCE	Signalized	AM	7.9	A	8.2	A
			PM	9.3	A	9.7	A

Main Street at Empire Avenue

Westbound Main Street Left Turn

Northbound Empire Avenue Left Turn

Southbound Charles Way Left Turn

Oakley Road at Empire Avenue

Westbound Oakley Town Center Left Turn

For study intersections that are projected to operate at LOS D or better during the peak commute hours, monitoring and adjusting traffic signal timings in response to actual traffic volumes to minimize the potential for vehicle queue spillback is recommended.

4.8 Roadway Segment Analysis

Analysis of Traffic Operations on Bridgehead Road and Wilbur Avenue - As part of this study a detailed analysis of the roadway segment traffic operations was conducted for Wilbur Avenue and Bridgehead Road adjacent to the proposed project. The analysis indicated both of these roadways would continue to have acceptable conditions with the current lane configuration (one lane in each direction) during the weekday AM and PM peak commute hours (LOS D or better) under all scenarios with the exception of one segment of Bridgehead Road. Under cumulative conditions the segment of Bridgehead Road south of the planned entrance to the River Oaks Crossing Specific Plan Area (i.e. the segment south of the railroad over-crossing) would exceed LOS D under both the AM and PM peak hours. This two lane roadway segment is forecast to operate at LOS F during the PM peak hour with the removal of the Live Oak Avenue extension and the addition of forecast traffic from the proposed project and the River Oaks Specific Plan. Please note it is possible that planned improvements on the southbound approach to the Main Street intersection in combination with improvements to the planned River Oaks Crossing entrance intersection could potentially improve operations on this segment, depending on the final design for those improvements. However, the proposed project would increase the volume to capacity ratio on this segment by more than 0.01. Therefore, the project's contribution to traffic at these intersections would be considered a significant impact. Mitigation to improve the operations on this roadway segment is discussed in Section 5. Complete roadway segment analysis tables and calculations for all study scenarios are included in the appendix to this report. In addition, a detailed analysis of the cumulative plus project pavement traffic index for Bridgehead Road was prepared. The traffic index (TI) is used to determine the required pavement thickness needed to accommodate truck traffic and is calculated based on Equivalent Single Axle Loads (ESALs) for various vehicle types. These factors used in combination with the future traffic volume forecasts to compute the 20 year ESAL, which is then used to determine the Traffic Index, as per Caltrans Standards. The TI calculations resulted in a forecast cumulative plus project TI of 10.6.

4.9 Freeways

Analysis of the Delay Index on the State Route 4 Freeway - The delay index measures travel congestion and is expressed as the ratio of the time required to travel between two points during the peak hour (the congested travel time) and the time required during un-congested off-peak times. A delay index of 2.0 means that congested travel time is twice as long as during an off-peak travel time. The following shows the formula for calculating delay indices:

Delay Index = Measured Peak Hour Travel Time / Free Flow Travel Time

The numerator of the delay index formula, the measured peak hour travel time, was determined from speed runs conducted along I-580 during the AM and PM peak hours in the spring of 2019 as part of the Contra Costa Transportation Authority's Congestion Management Program Monitoring. The denominator of the delay index formula, the free flow travel time is defined as "*the time it takes to traverse a roadway segment at the speed limit including the average uncongested delay experienced at traffic signals*."

It is important to note that achievement of the MTSO delay index and average speed is measured over the length of SR 4 from Willow Pass Grade to Balfour Road. For SR 4 the East County Action Plan specifies a maximum delay index of 2.5.[5] As shown in **Table 10** the proposed project would not significantly increase the delay index under existing or cumulative conditions. However, the delay index on westbound SR 4 during the AM peak hour is forecast to exceed the MTSO of 2.5 under cumulative plus project conditions and therefore the addition of project traffic would be considered a significant impact.

Freeway Ramp Analysis - As part of this study a detailed analysis of the merge and diverge movements for all ramps was prepared for the interchanges of SR 160 at Main Street and at Wilbur Avenue. The analysis indicated all ramp merges and diverges at the two intersections would continue to have acceptable conditions during the weekday AM and PM peak commute hours (LOS C or better) under all scenarios. Complete freeway ramp analysis tables for all study scenarios are included in the appendix to this report.

4.10 Safety

The proposed project was not found to cause (or substantially increase) any safety hazards due to any design features or incompatible uses. Although the project would increase vehicle and pedestrian traffic in the project vicinity it is not expected to significantly impact or change the design of any existing transportation facilities or create any new safety problems in the area. Five years of California Highway Patrol accident records were evaluated for Wilbur Avenue to verify there were no existing safety problem. This data is included in the technical appendix to this report. The project is proposing to provide sufficient pedestrian pathways and signage

[5] *Draft East County Action Plan for Routes of Regional Significance*, Fehr & Peers Associates, Walnut Creek, CA, November 2013.

TABLE 10
STATE ROUTE 4 FREEWAY DELAY INDEX CALCULATION RESULTS
WITH AND WITHOUT THE PROPOSED PROJECT

Scenario	*Direction*	*MTSO*	*No Project*	*With Project*
Existing AM Peak Hour (2019)	Eastbound	2.5	1.1	1.2
	Westbound	2.5	2.5	2.5
Existing PM Peak Hour (2019)	Eastbound	2.5	1.4	1.4
	Westbound	2.5	1.3	1.3
Cumulative AM Peak Hour (2040)	Eastbound	2.5	1.3	1.3
	Westbound	2.5	3.1	3.1
Cumulative PM Peak Hour (2040)	Eastbound	2.5	1.8	1.8
	Westbound	2.5	1.5	1.5

SOURCE: Abrams Associates, 2019

within the project to ensure the current level of pedestrian safety is maintained. Therefore, based on the City's significance criteria the project's impacts on transportation safety would be less than significant and no mitigation would be required.

4.11 Transit Impacts

The project would not result in degradation of the level of service (or a significant increase in delay) on any roadway segments currently being utilized by bus transit in the area and, as such, no significant impacts to bus transit are expected. The proposed project not be expected to significantly impact the operating capacity of E-BART or any existing bus routes. The proposed project could potentially help support existing bus services with additional transit ridership and would not conflict with any transit plans or goals of the BART, the County, or Tri Delta Transit. Although the proposed project does have the potential to increase patronage on BART and bus lines in the area, no significant effects on transit capacity are anticipated given the additional ridership would be added primarily in the non-peak directions. As a result, the project would not be expected to result in any significant impacts to bus transit service in the area.

4.12 Pedestrians, Bicycles and Non-Motorized Vehicular Travel

The City does not have level of service standards for pedestrian or bicycle facilities. Nevertheless, use of existing facilities by the users of the project would not be expected to overcrowd those facilities or decrease their performance or safety. The proposed project would not generate a significant increase in pedestrian traffic in the area when compared to the existing volumes. In addition to the relatively low trip generation, the proposed project would not significantly impact or change the design of any existing pedestrian facilities and should not create any new safety problems for pedestrians in the area.

The project will add some pedestrians and bicyclists in the area but the volumes added would not be expected to significantly impact any existing bicycle facilities. In relation to the existing conditions, the proposed project would not cause substantial changes to the pedestrian or bicycle traffic in the area and would not significantly impact or require changes to the design of any existing bicycle or pedestrian facilities. However, consistent with the City and County General Plans, the project could be asked to contribute to additional pedestrian and bicycle improvement measures in the vicinity of the project. The project would also be required to provide adequate internal pedestrian facilities that connect it to the surrounding pedestrian network.

4.13 Site Access and Circulation

No site circulation or access issues have been identified that would cause a traffic safety problem or any unusual traffic congestion or delay. The proposed intersections that would provide access to the project are forecast to have acceptable operations, with the exception of the main entrance intersection at Wilbur Avenue. The addition of project traffic at this intersection is forecast to degrade it from LOS D to LOS E in the cumulative plus project scenario (scenario 6). As discussed below in Section 5, the proposed mitigation for the project's impacts to this intersection is the installation of a traffic signal. Please note that a detailed truck turning analysis was conducted for the project based on STAA standard six-axle truck.

4.14 Parking

Parking analysis is provided for planning and informational purposes only. Based on the information provided below the parking provided would be sufficient to meet the estimated demand of the project based on ITE data and trip generation surveys of over 40 different warehouses.

City of Oakley Parking Requirements - This section discusses the City of Oakley's zoning and estimated parking demand for the project. Section 9.1.1402 of the Oakley Municipal Code specifies that for industrial uses such as warehousing one space per every 1,000 feet of gross floor area is required. **Table 11** presents a summary of the unadjusted parking requirements for the project.

Table 11
Off-Street Parking Calculations Based on the Oakley Municipal Code

Land Use	Size		Parking Requirement	Required Spaces
Warehousing	1,985,304	sq. ft.	1 space per 1,000 sq. ft.	1,985 spaces

Parking Demand Based on ITE Parking Generation Rates - To provide additional information on parking demand, **Table 12** provides a summary of the peak parking demand results using the ITE parking generation rates for the project taken from the 5th Edition of the ITE Parking Generation Manual. As shown in **Table 12**, the proposed project would be forecast to have a peak parking demand for approximately 774 parking spaces based on the ITE data.

Table 12
Off-Street Parking Calculations Using Parking Data from the Institute of Transportation Engineers

Component	Data Source	ITE Land Use Code	Size		Parking Ratio	Peak Demand
Warehousing	ITE Parking Demand Rates	150	1,985,304	sq. ft.	0.39	774 vehicles

Based on this analysis the proposed project would provide an adequate supply of off-street parking based on the forecast parking demand. Therefore, subject to final City approval of the proposed parking plan, there should be no significant parking impacts to the surrounding properties.

4.15 Transportation Demand Management Program

In September 2010, the California Air Resources Board (ARB or Board) set passenger vehicle greenhouse gas (GHG) emission reduction targets for 2020 and 2035 for each of the 18 Metropolitan Planning Organization (MPO) regions in California under the Sustainable Communities and Climate Protection Act of 2008 (SB 375). Oakley supports these goals by implementing policies that require new projects achieve a reduction in the number of peak hour drive-alone commute vehicle trips. The project transportation demand management (TDM) program requested by the City is intended to reduce the total vehicle miles traveled (VMT) by motorists in the project area. Please note that reductions in VMT are generally considered to translate directly into reduced GHG's. The project is also required to prepare a Transportation Demand Management (TDM) Plan based on direction provided by the City of Oakley, because it is proposing to provide less than the amount of parking required by the City's Municipal Code.

Proposed TDM Strategies - The Project could potentially address the requested reduction in off-street parking by implementing the following strategies. These strategies would be incorporated into the project and could be considered as part of the City's parking demand review because they are not accounted for in the base parking demand of 761 vehicles estimated for the project. The following is a summary of strategies that are recommend to be incorporated into the project:

Increased Bus Service or Private Shuttle Service to BART – There are currently no plans for Tri-Delta Transit to run buses up to Wilbur Avenue near the project site and the nearest bus stops are currently about 1,800 feet from the southern entrance to the project site and there are no sidewalks on the route to the bus stops. However, Tri-Delta Transit staff indicated the agency would certainly consider adding a stop in the future, but there was no funding available for it at this time. Alternatively, the project could potentially provide a frequent (30 – 40 minute headways) direct weekday shuttle service between the project site and the Antioch E-BART station for three hours during both the peak morning and evening commute periods. This service could be operated by a private contractor or by Tri-Delta Transit. Shuttles shall be fully accessible to passengers using wheelchairs and other mobility services and have the capacity to transport bicycles. In addition, explore providing a real-time smart-phone app that tracks real-time arrivals to make shuttle use more reliable and convenient.

Installation of Bicycle Lanes on Bridgehead Road – The potential for construction of bicycle lanes on Bridgehead Road between Main Street and the future extension of the Big Break Trail (along the north side of the project site) should be investigated. In addition to providing for safe bicycle access to the project site to help reduce auto use, the bicycle lanes would also provide an important connection from Main Street to the planned future bicycle lanes on the SR 160 bridge and the Big Break Regional Trail. The bicycle lanes would also improve safety for pedestrians in any areas where sidewalks are not provided by providing a paved shoulder to walk on in the vicinity of the railroad overcrossing. In some areas there is currently less than two feet of pavement from the edge of the travel lanes to where the steep embankments begin on either side of the roadway. It should be noted that constructing sidewalks in addition to the bike lanes is not proposed due to the constrained width at the existing railroad overcrossing.

Carpool and Ride-Matching Assistance Program – The building management shall offer personalized ride-matching assistance to pair residents and employees interested in forming commute carpools. As an enhancement, building management may consider using specific services such as ZimRide, TwoGo by SAP, Enterprise RideShare, or 511.org RideShare.

Preferential Parking for Carpoolers – The management shall offer preferential carpool parking for eligible commuters. To be eligible for carpool parking, the carpool shall consist of three or more people. The management shall monitor and provide adequate carpool spaces to meet or exceed potential demand.

Dedicated Parking Spaces for Car Share Services – Setting aside parking spaces to be dedicated for use by car share services to serve employees. This could reduce parking demand and GHG emissions associated with the project by providing more flexibility for employees who otherwise utilize alternate modes. The availability of car share services within a project can potentially reduce the demand for employees to own their own cars. A review of over 25 studies from Europe and the U.S. where car sharing services are available, found that in North America, on average, 20% of respondents gave up a privately owned vehicle and 40% avoided purchasing one, which results in an average of five privately owned vehicles replaced per every car sharing vehicle.[6] However, it should be noted that this data is for residential projects and the effects, while still significant, would most likely be less for a commercial project.

On Site Sales of Transit Passes – The building management shall offer direct on-site sales of transit passes purchased and sold at a bulk group rate (through monthly pass programs such as the Clipper Card, which is accepted by BART and Tri-Delta Transit).

TDM Coordinator – Management shall designate a "*TDM coordinator*" to coordinate, monitor and publicize TDM activities. The effectiveness of providing a TDM Coordinator on automobile ownership is not known at this time. It is assumed the applicant may instruct the management company to designate their on-site manager as the TDM coordinator.

Transportation and Commute Information Kiosks - An information board or kiosk will be located in the building in a common gathering area (e.g., lobby, employee entrance, break, or lunch room). The kiosk will contain transportation information, such as Emergency Ride Home (ERH), transit schedules, bike maps, and 511 ride-matching. Information will be updated periodically by the designated Transportation Coordinator (TC).

Bicycle Parking – Long-Term (Class I) - Free Class I (long-term) covered and secure bicycle parking facilities could be provided on-site for bicycle commuters. This may also be provided as individual bike lockers or a secured and covered bike cage located indoors.

Bicycle Parking – Short-Term (Class II) - Free Class II (short-term) secure bicycle parking facilities could be provided on-site for bicycle commuters and visitors.

Tenant Performance and Lease Language – TDM Requirements - For all tenants, the applicant will draft lease language or side agreements that require the identification of a designated contact responsible for compliance and implementation of the TDM program.

Tenant/Employer Commute Program Training - As needed and applicable, the applicant or property management will provide individual tenants of the project with initial TDM (and commute) program training, commute program start-up assistance.

Employee Transportation Brochure - At the time of occupancy, all tenants and employees will be provided with an Employee Transportation Brochure regarding the Commute Program. This brochure will include (but not be limited to) information about carpool parking, transit opportunities, ride-matching services, bicycle routes, and emergency rides home.

---

[6] *Car Sharing: Where and How it Succeeds, TCRP Report 108*, Transportation Cooperative Research Program, Washington D.C., 2005.

5) MITIGATION

The following is a list of project impacts and proposed mitigation measures to address the transportation impacts of the project. Based on a detailed analysis of traffic operations with and without each of the proposed mitigations, implementation of the following mitigation measures could reduce some project impacts to a *less-than-significant* level. The remaining impacts would be *significant and unavoidable*.

Impact #1 Impacts to intersection operations - The project would contribute to LOS operations exceeding the established standards at the following seven intersections:

Wilbur Avenue at Bridgehead Road (Intersection #5)
Main Street at Bridgehead Road (Intersection #9)
Big Break Road at Main Street (Intersection #11)
Oakley Road at Live Oak Avenue (Intersection #13)
Main Street at Empire Avenue (Intersection #14)
Laurel Road at Empire Avenue (Intersection #19)
Gateway Drive at Empire Avenue (Intersection #24)

The addition of traffic from the proposed project would contribute to these seven intersections exceeding the established LOS standards or resulting in queuing impacts. With future planned improvements at Intersections #19 and #24 (a westbound dual left turn lane and installation of a traffic signal, respectively) the project's impacts would be reduced to less than significant. However, without implementation of the recommended mitigations below, the development of the proposed project would result in a potentially significant impact to the LOS and queuing at the intersections of Wilbur Avenue at Bridgehead Road, Main Street at Bridgehead Road, Big Break at Main Street, Oakley Road at Live Oak Avenue, and Main Street and Empire Avenue. Implementation of the following mitigation measures would reduce the impacts at these intersections to a less-than-significant level in all of the plus project scenarios.

<u>Mitigation Measures</u>

Prior to construction the project would mitigate the above-identified impacts by paying a proportionate share of the construction costs of the following improvement, subject to City approval. The intersection mitigations required for the project to meet the established LOS standards are:

MM 1 (a) <u>Wilbur Avenue at Bridgehead Road</u> – Installation of a four-way traffic signal with crosswalks.

MM 1 (b) *Main Street at Bridgehead Road/Neroly Road – 1) Installation of a dual eastbound left turn lane and a dual northbound left turn lane and 2) Implementation of signal coordination with the adjacent traffic signal at the SR 160 Eastbound Ramps.*

MM 1 (c) *Big Break Road at Main Street – 1) Widening of the southbound Big Break Road approach to the intersection to allow for an additional southbound right turn lane 2) Construction of a dual left turn lane on the eastbound Main Street approach to the intersection, and 3) Widening of the eastbound and westbound Main Street approaches to allow for three through lanes in each direction.*

MM 1 (d) *Oakley Road at Live Oak Avenue – Widening of the westbound Oakley Road approach to the intersection to allow for a separate right turn lane.*

MM 1 (e) *Main Street at Empire Avenue – Installation of a dual westbound left turn lane.*

Impact #2 **Impacts to roadway segment operations - The project would contribute to LOS operations exceeding the established standards on the following roadway segment:**

Bridgehead Road between the Planned River Oaks Crossing Entrance and the Main Street/Neroly Road Intersection

The addition of traffic from the proposed project would contribute to this roadway segment exceeding the established LOS standards. Without implementation of the recommended mitigation below, the development of the proposed project would result in a potentially significant impact to the LOS on Bridgehead Road. Implementation of the following mitigation measures would reduce the impact to a less-than-significant level in all of the plus project scenarios.

Mitigation Measures

Prior to construction the project would mitigate the above-identified impacts by paying a proportionate share of the construction costs of the following improvement, subject to City approval. The mitigation required for the project to meet the established LOS standards is:

MM 2 *Bridgehead Road between the Planned River Oaks Crossing Entrance and the Main Street/Neroly Road Intersection – Widening of this segment of Bridgehead Road from a two lane to a four lane cross-section.*

Impact #3 Impacts to freeway operations – The project would contribute to State Route 4 exceeding the established delay index standards during the AM peak hour.

The development of the proposed project would increase the total traffic during both AM and PM peak hours. For SR 4 the East County Action Plan specifies a maximum delay index of 2.5. As shown in Table 9 in Section 4.8 the proposed project would not significantly increase the delay index under existing or cumulative conditions. However, the proposed project would add traffic to State Route 4 in the westbound direction during the AM peak hour under cumulative conditions, which is forecast to exceed the County's established delay index standard of 2.5. Therefore, the proposed project would have a ***significant impact*** to freeway operations.

Mitigation Measure

Prior to construction the project would mitigate the above-identified impacts by paying the required traffic impact fees described below in Mitigation Measure 2, subject to City approval.

MM 3 *Payment of the Regional Transportation Development Impact Mitigation Fee – The project will pay the Regional Transportation Development Impact Mitigation Fee (the "RTDIM") to fund regional freeway system improvements including State Route 4 improvements. Because the project applicant and the City of Oakley do not control the funding, prioritization and/or construction of improvement projects, this impact would remain* ***significant and unavoidable.***

Impact #3 Impacts related to conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or potential decreases to the performance or safety of such facilities.

The project would not result in degradation of the level of service (or a significant increase in delay) on any roadway segments currently being utilized by bus transit in the area and would not increase ridership beyond existing capacity. As such, no significant impacts to bus transit are expected. In addition, the project would not significantly impact or change the design of any existing transportation facility or create any new safety problems in the area. This analysis is based on the fact that the project, as proposed, will have adequate pedestrian facilities that connect it to the surrounding pedestrian network. Therefore, based on the City's significance criteria the project's impacts on alternative transportation would be considered less than significant and no mitigations would be required.

Mitigation Measure(s)
None required.

Impact #4 Demolition and construction activities associated with the proposed project would result in an increase in traffic to and from the site and could lead to unsafe conditions near the project site.

The increase in traffic as a result of demolition and construction activities associated with the proposed project has been quantified assuming a worst-case single phase construction period of 24 months.

Heavy Equipment

Approximately ten pieces of heavy equipment are estimated to be transported on and off the site each month throughout the demolition and construction of the proposed project. Heavy equipment transport to and from the site could cause traffic impacts in the vicinity of the project site during construction. However, each load would be required to obtain all necessary permits, which would include conditions. Prior to issuance of grading and building permits, the project applicant would be required to submit a Traffic Control Plan.

The requirements within the Traffic Control Plan include, but are not limited to, the following: truck drivers would be notified of and required to use the most direct route between the site and SR 4, as determined by the City Engineering Department; all site ingress and egress would occur only at the main driveways to the project site and construction activities may require installation of temporary (or ultimate) traffic signals as determined by the City Engineer; specifically designated travel routes for large vehicles would be monitored and controlled by flaggers for large construction vehicle ingress and egress; warning signs indicating frequent truck entry and exit would be posted on Wilbur Avenue; and any debris and mud on nearby streets caused by trucks would be monitored daily and may require instituting a street cleaning program. In addition, the ten loads of heavy equipment being hauled to and from the site each month would be short-term and temporary.

Employees

The weekday work is expected to begin around 7:00 AM and end around 4:00 PM. The construction worker arrival peak would occur between 6:30 AM and 7:30 AM, and the departure peak would occur between 4:00 PM and 5:00 PM. These peak hours are slightly before the citywide commute peaks. It should be noted that the number of trips generated during construction would not only be temporary, but would also be substantially less than the proposed project at buildout. Based on past construction of similar projects, construction workers could require parking for up to 200 vehicles during the peak construction period. Additionally, deliveries, visits, and other activities may generate peak non-worker parking demand of 20 to 25 trucks and automobiles per day. Therefore, up to 225 vehicle parking spaces may be required during the peak construction period for the construction employees. Furthermore, the Traffic Control Plan requires construction employee parking be provided on the project site to eliminate conflicts with nearby residential areas. Because the construction of the project can be staggered so that employee parking demand is met by using on-site parking, the impacts of construction-related employee traffic and parking are considered less-than-significant.

Construction Material Import/Export

The project would also require removal of existing debris as well as the importation of construction material, including raw materials for the building pads, the buildings, the parking area, and landscaping. During the maximum peak construction period, the project could generate approximately 150 truck trips per day. Furthermore, under the provisions of the Traffic Control Plan, if importation and exportation of material becomes a traffic nuisance, then the City Engineer may limit the hours the activities can take place.

Traffic Control Plan

The Traffic Control Plan would indicate how parking for construction workers would be provided during construction and ensure a safe flow of traffic in the project area during construction. This analysis assumed construction of the entire project in one phase to identify the potential worst-case traffic effects. If the project is built in phases over time, the effects of each phase will be the same or less. Each phase will be subject to a Traffic Control Plan and oversight by the City Engineer. The last phase may require added worker parking measures, depending on the circumstances, as there will not be any remaining vacant land for parking. Therefore, the demolition and construction activities associated with the proposed project or its individual phases would not lead to noticeable congestion in the vicinity of the site or the perception of decreased traffic safety resulting in a ***less-than-significant*** impact.

<u>Mitigation Measure(s)</u>
None required.

Impact #5 Impacts related to site access and circulation.

The proposed project would have its main entrance on the eastern side of the intersection of Wilbur Avenue and Bridgehead Road. Two secondary access points will also be provided on Bridgehead Road. One access would be located to the north of the Wilbur Avenue entrance and another would be located to the south. As discussed above, the proposed mitigation for the project's impacts at the main access intersection is the installation of a traffic signal. Based on a review of the proposed site plan it was determined that the site circulation should function well and would not cause any safety or operational problems. The project site design has been required to conform to City design standards and is not expected to create any significant impacts to pedestrians, bicyclists or traffic operations. Therefore, impacts related to site access and circulation to the proposed project would be ***less-than-significant*** with implementation of the following mitigation measure.

<u>Mitigation Measure</u>

MM 1 (a) <u>Wilbur Avenue at Bridgehead Road</u> – Installation of a four-way traffic signal with crosswalks.

Impact #6 Impacts regarding emergency vehicle access on and surrounding the proposed project site.

Sufficient emergency access is determined by factors such as number of access points, roadway width, and proximity to fire stations. The land use plan for the proposed project would include three entrances on Bridgehead Road. All lane widths within the project would meet the minimum width that can accommodate an emergency vehicle; therefore, the width of the internal roadways would be adequate. In addition, with the proposed mitigations the addition of traffic from project traffic would not result in any significant changes to emergency vehicle response times in the area. Therefore, development of the project is expected to have ***less-than-significant*** impacts regarding emergency vehicle access.

<u>Mitigation Measure(s)</u>
None required.

Transportation Impact Analysis Technical Appendix

Oakley Logistics Center

City of Oakley

Prepared by:
Abrams Associates
1875 Olympic Boulevard, Suite 210
Walnut Creek CA 94596

Abrams Associates
TRAFFIC ENGINEERING, INC.

October 9, 2019

Appendix
Table of Contents

TABLE A1
Oakley Logistics Center
EXISTING PEAK HOUR QUEUING ANALYSIS

ID	Intersection	Turn Lane	Available Storage (ft)	Period	95th % Queue (ft)	
					No Project	With Project
3	SR-160 SB Ramps at Wilbur Avenue	WBL	50 ft	AM	< 25	< 25
				PM	< 25	< 25
		SBL	525 ft	AM	< 25	< 25
				PM	< 25	< 25
4	SR-160 NB Ramps at Wilbur Avenue	EBL	75 ft	AM	< 25	< 25
				PM	< 25	< 25
		NBL	425 ft	AM	< 25	< 25
				PM	< 25	< 25
5	Bridgehead Road at Wilbur Avenue	EBL	100 ft	AM	< 25	< 25
				PM	< 25	< 25
		WBL	N/A	AM	< 25	< 25
				PM	< 25	40
		NBL	N/A	AM	43	93
				PM	< 25	43
7	SR-160 SB Ramps at E. 18th Street	EBL	215 ft	AM	29	29
				PM	25	25
		WBL	450 ft	AM	207	209
				PM	137	143
		NBL	550 ft	AM	21	21
				PM	38	38
		SBL	75 ft	AM	26	26
				PM	39	39
8	SR-160 NB Ramps at Main Street	WBL	210 ft	AM	39	39
				PM	47	48
		NBL	125 ft	AM	81	81
				PM	80	80
9	Bridgehead Road Ramps at Main Street	EBL	100 ft	AM	**136**	**177**
				PM	**175**	**186**
		EBT	400 ft	AM	234	269
				PM	**430**	**430**
		WBL	235 ft	AM	79	94
				PM	62	62
		NBL	250 ft	AM	140	140
				PM	93	93
		SBL	125 ft	AM	**152**	**128**
				PM	**131**	**205**

TABLE A1 (Continued)
Oakley Logistics Center
EXISTING PEAK HOUR QUEUING ANALYSIS

ID	Intersection	Turn Lane	Available Storage (ft)	Period	95th % Queue (ft)	
					No Project	With Project
13	Live Oak Avenue at Oakley Road	EBL	N/A	AM	105	125
				PM	< 25	< 25
		WBL	N/A	AM	153	185
				PM	< 25	< 25
		NBL	N/A	AM	138	220
				PM	< 25	< 25
		SBL	N/A	AM	63	83
				PM	< 25	< 25
14	Empire Avenue at Main Street	EBL	200 ft	AM	40	42
				PM	77	77
		WBL	200 ft	AM	**253**	**188**
				PM	**206**	**206**
		NBL	125 ft	AM	105	119
				PM	111	111
		SBL	80 ft	AM	59	63
				PM	42	42
17	Neroly Road at Live Oak Avenue	EBL	150 ft	AM	< 25	< 25
				PM	< 25	< 25
		WBL	150 ft	AM	< 25	< 25
				PM	< 25	< 25
		NBL	N/A	AM	58	65
				PM	38	43
		SBL	N/A	AM	65	75
				PM	< 25	33
22	Oakley Road at Empire Avenue	EBL	315ft	AM	35	35
				PM	58	58
		WBL	75 ft	AM	36	36
				PM	**91**	**91**
		NBL	115 ft	AM	86	86
				PM	83	83
		SBL	145 ft	AM	34	34
				PM	73	73

TABLE A2
Oakley Logistics Center
BASELINE PEAK HOUR QUEUING ANALYSIS

ID	Intersection	Turn Lane	Available Storage (ft)	Period	95th % Queue (ft)	
					No Project	With Project
3	SR-160 SB Ramps at Wilbur Avenue	WBL	50 ft	AM	< 25	< 25
				PM	< 25	< 25
		SBL	525 ft	AM	< 25	< 25
				PM	< 25	< 25
4	SR-160 NB Ramps at Wilbur Avenue	EBL	75 ft	AM	< 25	< 25
				PM	< 25	< 25
		NBL	425 ft	AM	< 25	< 25
				PM	< 25	< 25
5	Bridgehead Road at Wilbur Avenue	EBL	100 ft	AM	< 25	< 25
				PM	< 25	< 25
		WBL	N/A	AM	< 25	< 25
				PM	< 25	40
		NBL	N/A	AM	48	103
				PM	< 25	45
7	SR-160 SB Ramps at E. 18th Street	EBL	215 ft	AM	33	33
				PM	28	28
		WBL	450 ft	AM	257	258
				PM	175	181
		NBL	550 ft	AM	25	25
				PM	42	42
		SBL	75 ft	AM	31	31
				PM	44	44
8	SR-160 NB Ramps at Main Street	WBL	210 ft	AM	94	95
				PM	121	123
		NBL	125 ft	AM	98	99
				PM	111	111
9	Bridgehead Road Ramps at Main Street	EBL	100 ft	AM	**167**	**192**
				PM	**188**	**201**
		EBT	400 ft	AM	386	386
				PM	**588**	**588**
		WBL	235 ft	AM	116	116
				PM	68	68
		NBL	250 ft	AM	179	179
				PM	112	112
		SBL	125 ft	AM	**123**	**141**
				PM	**141**	**224**

TABLE A2 (Continued)
Oakley Logistics Center
BASELINE PEAK HOUR QUEUING ANALYSIS

ID	Intersection	Turn Lane	Available Storage (ft)	Period	95th % Queue (ft)	
					No Project	With Project
13	Live Oak Avenue at Oakley Road	EBL	N/A	AM	138	170
				PM	< 25	< 25
		WBL	N/A	AM	208	260
				PM	< 25	< 25
		NBL	N/A	AM	183	300
				PM	< 25	< 25
		SBL	N/A	AM	80	110
				PM	< 25	< 25
14	Empire Avenue at Main Street	EBL	200 ft	AM	43	43
				PM	79	79
		WBL	200 ft	AM	**204**	**204**
				PM	**260**	**268**
		NBL	125 ft	AM	**127**	**128**
				PM	123	123
		SBL	80 ft	AM	65	65
				PM	44	44
17	Neroly Road at Live Oak Avenue	EBL	150 ft	AM	< 25	< 25
				PM	< 25	< 25
		WBL	150 ft	AM	< 25	< 25
				PM	< 25	< 25
		NBL	N/A	AM	80	95
				PM	48	53
		SBL	N/A	AM	80	93
				PM	28	35
22	Oakley Road at Empire Avenue	EBL	315ft	AM	37	37
				PM	63	64
		WBL	75 ft	AM	39	39
				PM	**99**	**99**
		NBL	115 ft	AM	92	92
				PM	91	91
		SBL	145 ft	AM	36	36
				PM	79	79

TABLE A3
Oakley Logistics Center
CUMULATIVE PEAK HOUR QUEUING ANALYSIS

ID	Intersection	Turn Lane	Available Storage (ft)	Period	95th % Queue (ft)	
					No Project	With Project
3	SR-160 SB Ramps at Wilbur Avenue	WBL	50 ft	AM	< 25	< 25
				PM	< 25	< 25
		SBL	525 ft	AM	< 25	< 25
				PM	< 25	30
4	SR-160 NB Ramps at Wilbur Avenue	EBL	75 ft	AM	< 25	< 25
				PM	< 25	< 25
		NBL	425 ft	AM	25	30
				PM	< 25	< 25
5	Bridgehead Road at Wilbur Avenue	EBL	100 ft	AM	< 25	< 25
				PM	< 25	< 25
		WBL	N/A	AM	< 25	< 25
				PM	< 25	63
		NBL	N/A	AM	103	295
				PM	48	175
7	SR-160 SB Ramps at E. 18th Street	EBL	215 ft	AM	41	41
				PM	37	37
		WBL	450 ft	AM	342	343
				PM	224	232
		NBL	550 ft	AM	31	31
				PM	55	55
		SBL	75 ft	AM	40	40
				PM	55	56
8	SR-160 NB Ramps at Main Street	WBL	210 ft	AM	100	100
				PM	142	143
		NBL	125 ft	AM	110	110
				PM	**125**	**126**
9	Bridgehead Road Ramps at Main Street	EBL	100 ft	AM	**222**	**257**
				PM	**262**	**278**
		EBT	400 ft	AM	231	249
				PM	394	**406**
		WBL	235 ft	AM	128	136
				PM	88	90
		NBL	250 ft	AM	97	102
				PM	64	65
		SBL	125 ft	AM	98	111
				PM	**151**	**205**

TABLE A3 (Continued)
Oakley Logistics Center
CUMULATIVE PEAK HOUR QUEUING ANALYSIS

ID	Intersection	Turn Lane	Available Storage (ft)	Period	95th % Queue (ft)	
					No Project	With Project
13	Live Oak Avenue at Oakley Road	EBL	N/A	AM	153	188
				PM	30	30
		WBL	N/A	AM	233	285
				PM	25	28
		NBL	N/A	AM	205	320
				PM	< 25	< 25
		SBL	N/A	AM	88	118
				PM	< 25	< 25
14	Empire Avenue at Main Street	EBL	200 ft	AM	49	49
				PM	91	91
		WBL	200 ft	AM	**274**	**274**
				PM	**338**	**338**
		NBL	125 ft	AM	**151**	**153**
				PM	**145**	**146**
		SBL	80 ft	AM	75	75
				PM	50	50
17	Neroly Road at Live Oak Avenue	EBL	150 ft	AM	< 25	< 25
				PM	< 25	< 25
		WBL	150 ft	AM	< 25	< 25
				PM	< 25	< 25
		NBL	N/A	AM	133	155
				PM	68	75
		SBL	N/A	AM	133	153
				PM	38	48
22	Oakley Road at Empire Avenue	EBL	315 ft	AM	45	45
				PM	80	80
		WBL	75 ft	AM	47	47
				PM	**126**	**126**
		NBL	115 ft	AM	114	114
				PM	115	115
		SBL	145 ft	AM	43	43
				PM	100	100

Segment LOS Results

TABLE A4
EXISTING SEGMENT LEVEL OF SERVICE CONDITIONS

SEGMENT	DIRECTION	PEAK HOUR	EXISTING		EXISTING PLUS PROJECT	
			Speed	**LOS**	**Speed**	**LOS**
BRIDGEHEAD ROAD BETWEEN MAIN STREET & WILBUR AVENUE	Northbound	AM	25.4	B	23.2	C
		PM	25.4	B	23.1	C
	Southbound	AM	16.1	D	16.5	D
		PM	17.4	D	17.0	D

SOURCE: Abrams Associates, 2019
NOTES: Intersection LOS is based on delay which is presented in terms of miles per hour.

TABLE A5
BASELINE SEGMENT LEVEL OF SERVICE CONDITIONS

SEGMENT	DIRECTION	PEAK HOUR	BASELINE		BASELINE PLUS PROJECT	
			Speed	**LOS**	**Speed**	**LOS**
BRIDGEHEAD ROAD BETWEEN MAIN STREET & WILBUR AVENUE	Northbound	AM	25.4	B	23.1	C
		PM	25.3	B	23.0	C
	Southbound	AM	16.3	D	16.2	D
		PM	16.8	D	16.4	D

SOURCE: Abrams Associates, 2019
NOTES: Intersection LOS is based on delay which is presented in terms of miles per hour.

TABLE A6
CUMULATIVE SEGMENT LEVEL OF SERVICE CONDITIONS

SEGMENT	DIRECTION	PEAK HOUR	CUMULATIVE		CUMULATIVE PLUS PROJECT	
			Speed	**LOS**	**Speed**	**LOS**
BRIDGEHEAD ROAD BETWEEN WILBUR AVENUE & CLINE	Northbound	AM	25.1	C	21.0	D
		PM	24.6	C	17.0	E
	Southbound	AM	33.5	B	33.9	B
		PM	29.7	B	27.9	C
BRIDGEHEAD ROAD BETWEEN CLINE & MAIN STREET	Northbound	AM	18.4	D	17.0	D
		PM	14.2	E	14.4	E
	Southbound	AM	9.3	F	9.6	F
		PM	9.5	F	9.6	F

SOURCE: Abrams Associates, 2019
NOTES: Intersection LOS is based on delay which is presented in terms of miles per hour.

Ramp Merge & Diverge LOS Results

TABLE A7
EXISTING MERGE/DIVERGE JUNCTION LEVEL OF SERVICE CONDITIONS

INTERSECTION	DIRECTION	JUNCTION	PEAK HOUR	EXISTING		EXISTING PLUS PROJECT	
				Delay	LOS	**Delay**	LOS
SR-160 RAMPS AT WILBUR AVENUE	Northbound	Diverge	AM	4.6	A	5.5	A
			PM	8.5	A	9.0	A
		Merge	AM	8.0	A	8.1	A
			PM	12.5	B	12.7	B
	Southbound	Diverge	AM	11.3	B	11.6	B
			PM	6.5	A	6.6	A
		Merge	AM	12.0	B	12.3	B
			PM	8.1	A	9.1	A
SR-160 RAMPS AT MAIN STREET	Northbound	Diverge	AM	9.7	A	10.7	B
			PM	14.9	B	15.4	B
		Merge	AM	6.7	A	7.6	A
			PM	10.3	B	10.7	B
	Southbound	Diverge	AM	10.5	B	10.8	B
			PM	6.3	A	7.5	A
		Merge	AM	16.6	B	16.9	B
			PM	10.6	B	11.8	B

SOURCE: Abrams Associates, 2019
NOTES: Ramp junction LOS is based on delay which is presented in terms of density (pc/mi/ln).

TABLE A8
BASELINE MERGE/DIVERGE JUNCTION LEVEL OF SERVICE CONDITIONS

INTERSECTION	DIRECTION	JUNCTION	PEAK HOUR	BASELINE		BASELINE PLUS PROJECT	
				Delay	LOS	**Delay**	LOS
SR-160 RAMPS AT WILBUR AVENUE	Northbound	Diverge	AM	4.8	A	5.8	A
			PM	9.0	A	9.4	A
		Merge	AM	8.2	A	8.3	A
			PM	12.9	B	13.1	B
	Southbound	Diverge	AM	11.8	B	12.0	B
			PM	6.7	A	6.8	A
		Merge	AM	12.4	B	12.7	B
			PM	8.3	A	9.3	A
SR-160 RAMPS AT MAIN STREET	Northbound	Diverge	AM	9.9	A	11.0	B
			PM	15.6	B	16.1	B
		Merge	AM	6.9	A	7.8	A
			PM	10.6	B	11.0	B
	Southbound	Diverge	AM	11.0	B	11.3	B
			PM	6.5	A	7.7	A
		Merge	AM	17.1	B	17.7	B
			PM	10.7	B	11.9	B

SOURCE: Abrams Associates, 2019
NOTES: Ramp junction LOS is based on delay which is presented in terms of density (pc/mi/ln).

Ramp Merge & Diverge LOS Results (Continued)

TABLE A9
CUMULATIVE MERGE/DIVERGE JUNCTION LEVEL OF SERVICE CONDITIONS

INTERSECTION	DIRECTION	JUNCTION	PEAK HOUR	CUMULATIVE		CUMULATIVE PLUS PROJECT	
				Delay	LOS	**Delay**	LOS
SR-160 RAMPS AT WILBUR AVENUE	Northbound	Diverge	AM	5.6	A	6.5	A
			PM	10.1	A	10.6	B
		Merge	AM	8.8	A	8.8	A
			PM	13.6	B	14.2	B
	Southbound	Diverge	AM	13.1	B	13.3	B
			PM	7.2	A	7.3	A
		Merge	AM	13.7	B	13.9	B
			PM	8.9	A	9.9	A
SR-160 RAMPS AT MAIN STREET	Northbound	Diverge	AM	11.6	B	12.7	B
			PM	18.0	B	18.5	B
		Merge	AM	7.6	A	8.4	A
			PM	11.7	B	12.1	B
	Southbound	Diverge	AM	12.4	B	12.7	B
			PM	7.2	A	8.3	A
		Merge	AM	19.8	B	20.1	C
			PM	12.0	B	13.2	B

SOURCE: Abrams Associates, 2019
NOTES: Ramp junction LOS is based on delay which is presented in terms of density (pc/mi/ln).

TRAFFIC INDEX (TI) CALCULATION
Bridgehead Road

South of Cline (Int #27)

ADT (vpd) =	**13970**	**(2040 Volumes)**
Truck % =	**9%**	
AADTT =	**1257**	
One Way AADTT =	**629**	

Vehicle Type	Truck Mix	ESAL Constants	Average Daily Trucks	20 Year ESAL
2-axle	33%	1380	207	286,287
3-axle	25%	3680	157	578,358
4-axle	8%	5880	50	295,717
5-axle	34%	13780	214	2,945,351
				4,105,713

TI = 10.6

Notes:
1) The mix of trucks was based on data from the High Cube Warehouse Vehicle Trip Generation Analysis from the Institute of Transportation Engineers, dated October, 2016.
2) The 2040 volumes were based on the cumulative plus project volumes in the Oakley Logistics Center TIA for the segment of Bridgehead Road between Main Street and the planned River Oaks Crossing Specific Plan (i.e. Cline Property) Entrance.

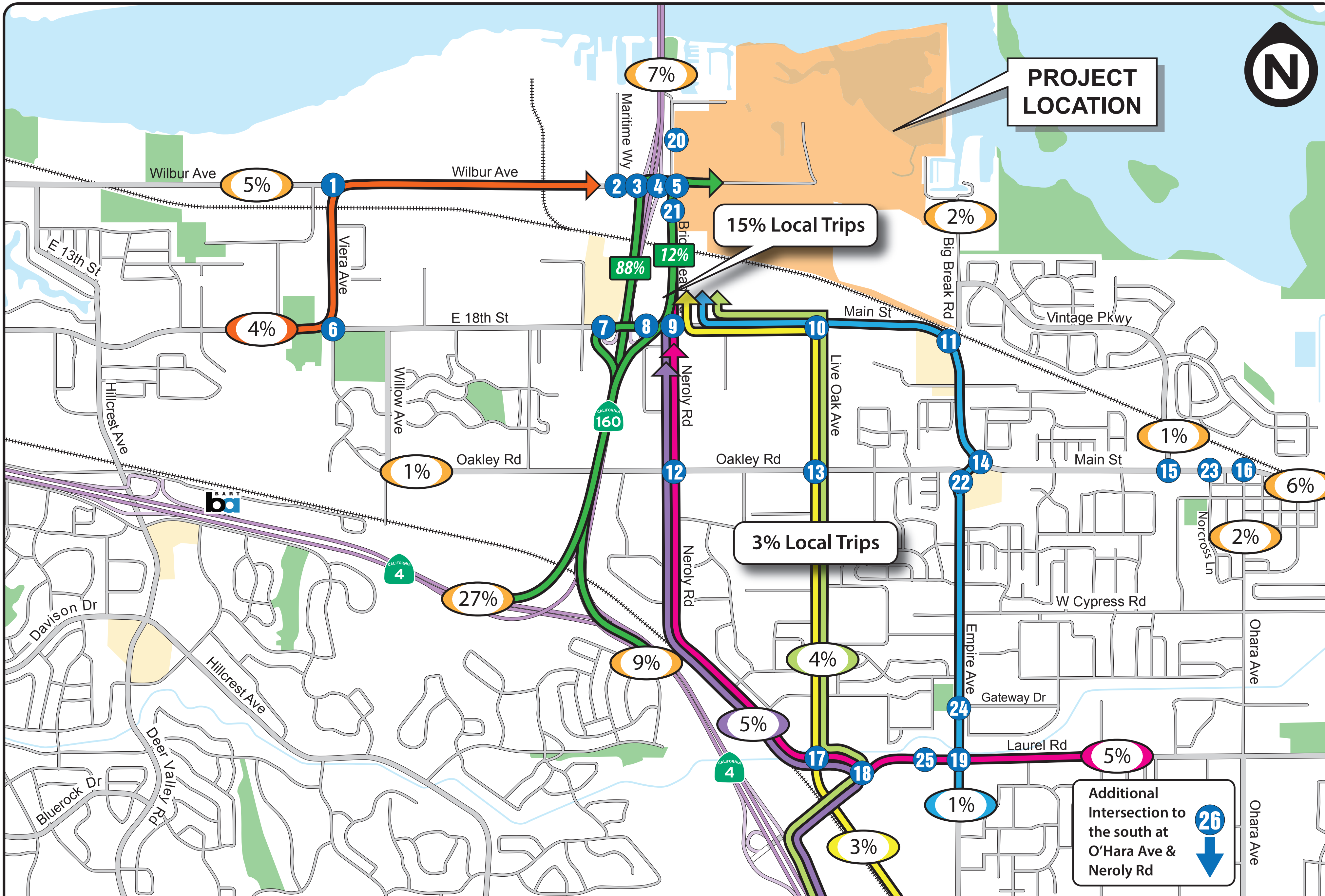


FIGURE A1 | PROJECT DISTRIBUTION & PATHS

TRANSPORTATION IMPACT ANALYSIS

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

August 16, 2019

Billilee Saengchalern, P.E., T.E.
Associate Civil Engineer
City of Oakley
3231 Main Street
Oakley, CA 94561

Re: Trip Generation Summary for the Revised Project Description for the Oakley Logistics Center

This letter summarizes the results of the latest trip generation forecasts for the Oakley Logistics Center. Based on the latest site plan we were provided (dated August 16, 2019) the project would now include an e-commerce fulfillment center with 117,217 square feet of building space.

Project Trip Generation

The proposed project would consist of construction of four warehouse buildings and one fulfillment center building with a total of 1,952,521 square feet of building space. The resulting trip generation calculations are shown in **Table 1**. They are based on the trip generation rates for a High-Cube Fulfillment Center Warehouse (ITE Land Use Code 155) and Warehousing (ITE Land Use Code 150) from the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 10th Edition. Please note the directional distribution was not provided for the High-Cube Fulfillment Center Warehouse data so it was based on the distribution from the standard warehouse category. Extensive research was conducted to verify that the use of the ITE High-Cube Fulfillment Center Warehouse trip rates would provide a conservative assumption for the trip generation for the project. Attached is an article on fulfillment center trip generation from the July 2019 ITE Journal for your review. Please note the trip generation rates were generally found to be lower than the ITE trip generation rates, presumably due to the extensive automation with newer fulfillment centers and also fleet scheduling to avoid adjacent street peak hour congestion. The total trip generation in **Table 1** reflects all vehicle trips that would be counted at the project driveways, both inbound and outbound.

Please review these assumptions and let me know if you determine any adjustments or changes are appropriate. Don't hesitate to contact me if you need addional information.

Sincerely,

Stephen C. Abrams
President, Abrams Associates
T.E. License No. 1852

Abrams Associates
TRAFFIC ENGINEERING, INC.

TABLE 1
PROJECT TRIP GENERATION CALCULATIONS

Land Use	***Size***	***ADT***	***AM Peak Hour***			***PM Peak Hour***		
			In	***Out***	***Total***	***In***	***Out***	***Total***
High Cube Fulfillment Center Trip Rates		8.18	0.45	0.14	0.59	0.38	0.99	1.37
Amazon Trip Generation	*117,217 square feet*	*959*	*53*	*16*	*69*	*45*	*116*	*161*
Warehousing Trip Rates		1.74	0.13	0.04	0.17	0.05	0.14	0.19
Warehousing Trip Generation	*1,835,304 square feet*	*3,193*	*239*	*73*	*312*	*92*	*257*	*349*
Total Project Trip Generation	*1,952,521 square feet*	***4,152***	***292***	***89***	***381***	***137***	***373***	***510***

SOURCE: ITE Trip Generation Manual, 10^{th} Edition

Fulfillment Center Trip Generation

By Bala Rajappan, P.E., T.E., ENV SP (F), Lee Taubeneck, P.E., and Sushil Patil

A large commercial development, spanning 700 acres, within a city in western San Joaquin County, CA, USA was approved after completion of the Environmental Impact Report in 2013. The development adjoins a number of collector distributor roads, and is in close proximity to two Interstate freeways 580 and 205, both running east to west at this location. International Parkway, a major collector road—slated to be improved to a major arterial—runs north to south between the two interstate freeways. An environmental document proposed several improvements to International Parkway interchanges at I-205 and I-580. Two scoping documents were completed in 2016 by R&M Consulting Engineers Inc., and were approved by the California Department of Transportation (Caltrans) District 10 within four months to assist in the planning and funding of these improvements.

Consistent with Caltrans project development procedures, the city has embarked on preparation of the next level of approval documents for the interchanges. These documents require updated traffic forecasts for up to 20-years post-construction completion. Current scheduling calls for construction to begin in 2020 and end by the conclusion of 2022 for both interchange improvements. Consequently, traffic forecasts are necessary for the year 2042.

The business uses planned for this development at the time of approval of the environmental document included light industrial, general office, retail commercial, and a small percentage of high cube warehouses. However, over the lengthy period of environmental document preparation, review, and approval, the demand for high cube warehouses such as fulfillment centers had increased significantly. Consequently, after the approval of the environmental document and the specific plan, the very first set of buildings constructed and opened for use were fulfillment centers. The infrastructure construction to support this development such as roadways, water, sewer, electrical, etc. was rapidly completed based on business uses considered in the environmental document.

Initial Field Observations

As the first four buildings opened for business and were fully operational, driveway and intersection traffic observed were significantly lower traffic than anticipated. Three of these buildings were fulfillment centers, and the other was a parcel hub. Given the extraordinary demand for fulfillment centers, the next set of buildings designed and permitted were also all fulfillment centers. Consequently, there was an urgent need to reanalyze the trip generation characteristics of this entire development. An attempt was made to use trip rates from the *ITE Trip Generation Manual*, 10th Edition. The ITE edition, however, has only two points in the data set, 155—High Cube Warehouse, with big differences in rates between the two points. It seemed the authors had more data with the three that are already in operation, and a few more within the city in close proximity. The authors therefore decided to collect driveway and intersection traffic volume data to forecast trips for the remaining fulfillment centers.

The purpose of this paper is to present the results of trip generation characteristics of fulfillment centers that are in operation within this commercial development and some of those in close proximity to this area.

Fulfillment Center Development Phases

This development was divided into 17 Traffic Analysis Zones (TAZs). Each TAZ was assigned a unique three-digit number. Given the projected duration of subdivision buildout, it was appropriate to forecast traffic numbers for three separate time periods: existing, 2022, and 2042. The first period coincides with fulfillment centers which are in operation, about 2.8 million square feet (ft.) (260,128 square meters [m]). The second period, corresponds to completion of Interim Phase 2 construction with about 6 million square ft. (557,418 square m) of fulfillment centers. The third period corresponds to full build out of the development, with an additional 11.8 million square ft. (1,096,255 square m) of fulfillment centers. Figure 1 shows a collage of existing fulfillment centers layouts and their driveway movements.

The fulfillment centers were fully operational as of April 2018 and are shown in Figure 2. In addition, there is also one parcel hub in full operation.

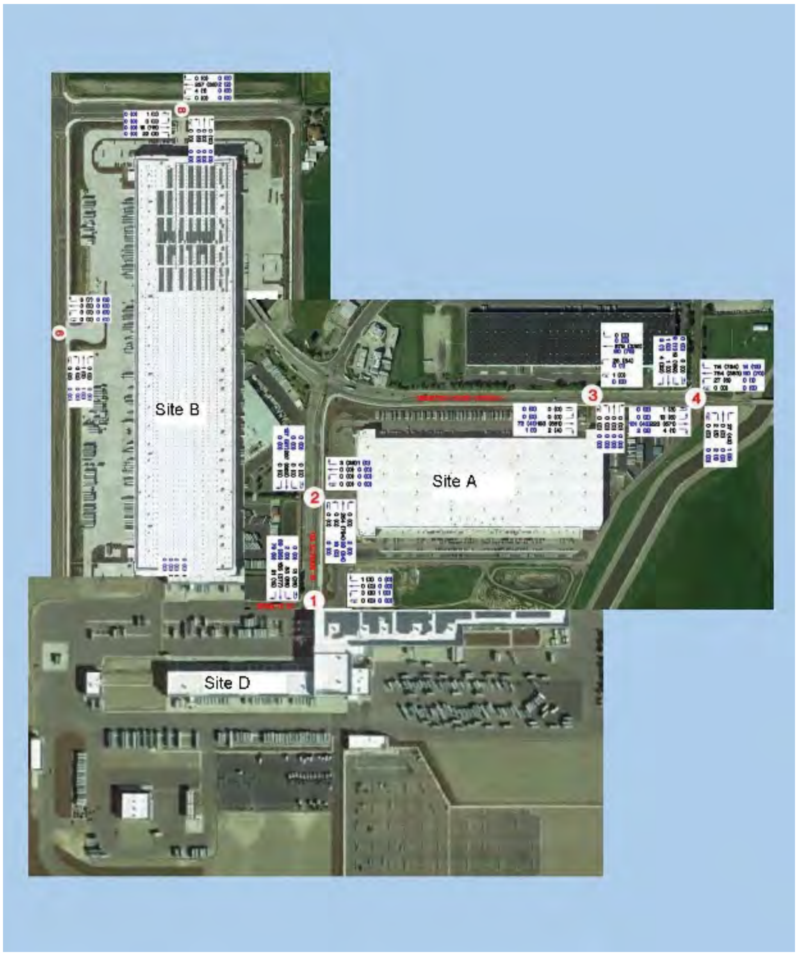


Figure 1. A collage of existing fulfillment centers layouts and their driveway movements.

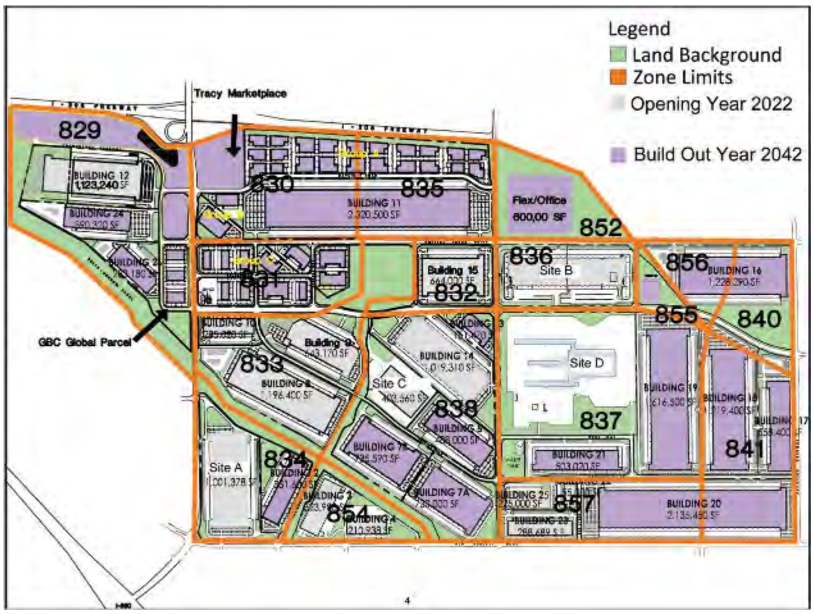


Figure 2. Build Out Year (2042) Building and Zone Map.

Traffic Count Data

Traffic volumes at operational intersections and driveways across the development were counted in June and December 2017, and April 2018. All counts included trucks. Counts were taken for morning and afternoon/evening 3-hour peak periods in 15-minute intervals. The AM peak period was between 5:00–8:00 a.m. and PM period was between 3:00–6:00 p.m.

Raw data were summarized in tabular form and intersection movements were then broken down by direction (through, left, and right) and peak hours (AM and PM). Peak of adjacent street intersections was determined by selecting four peak 15-minute intervals. The adjacent street intersection peak hours were between 7:00–8:00 a.m. in the morning, and 5:00–6:00 p.m. in the evening. Traffic volumes for all driveways for each building were summed for time period corresponding to adjacent street peak hour to arrive at total facility trips. Total trips for each building were then divided by facility area to arrive at trip generation rates per 1,000 square ft. (93 square m). The building area was obtained from the development construction plans.

Updated Fulfillment Center Trip Generation Rates

As of February 2017, two fulfillment centers and the parcel hub had been in operation for more than two years. The most recent tenant began operations as a third fulfillment center in February 2017, and has been in full capacity since the opening. Current peak-hour traffic volumes generated by buildings in operation are shown in Table 1.

Traffic counts at the three operational fulfillment centers were supplemented with two rounds of additional counts, and counts at similar facilities nearby. These additional data are shown in Table 2. It includes count data from two separate Amazon facilities.

In Table 2, the authors used the highest trip data for each peak from June and December 2017 and April 2018 counts for each location as the final selected data points to calculate the average trip rate and were able to estimate the generation rates for fulfillment centers corresponding to peak hour of adjacent street. The AM average is estimated at 0.13 trips per 1,000 square ft. (93 square m) and PM average of 0.09 trips per 1,000 square ft. (93 square m). These rates could represent a majority of newer fulfillment centers. The Table 2 averages exclude the Site I data.

Site I, an older facility located within the city but outside of this development, clearly seemed to be an outlier with much higher rates of 1.45 during the AM peak hour and 0.89 during the PM peak hour. The other sites were generating between 0.03 and 0.51 during the AM peak hour and between 0.01 and 0.24 during the PM peak hour. Upon further investigation, the authors determined that Site I is a sort facility (i.e., a fulfillment center that ships out smaller items and that requires extensive sorting, potentially manual). The rest of the Sites in Table 2 are in the non-sort category (i.e., fulfillment center that ships large box items with a higher automation level).

Although more research and data are needed to verify sort vs. non-sort category of fulfillment center trip generation characteristics, we could say that fulfillment centers in this development in general are generating much lower trips.

Comparison to ITE Rates

The lower end of rate range presented in the *ITE Trip Generation Manual,* 10th Edition, for land use 155 (High-Cube Fulfillment Center Warehouse) with 0.15 for AM and 0.27 for PM peak hour trip generation rates seem to represent fulfillment centers with characteristics closer to rates in Table 2 with average of 0.13 for AM and 0.09 for PM peak hours. The higher data point in the ITE data set of 0.84 for AM and 1.98 for PM peak hours seem closer to the sort Site 5 facility with rates of 1.45 and 0.89 for AM and PM peak hour, respectively.

The trip generation rates presented here require further research with data from fulfillment centers from various parts of the state and country. There are a few observations that can be made about the centers studied here.

The newer fulfillment centers utilize a significant amount of automation for efficiency and cost reduction. The automation reduces the number of workers and therefore trips during the peak hours.

The centers operate trucks and other commercial vehicles outside the AM and PM peak hours/periods. Fleet operations of this kind avoid delays due to local street as well as freeway/interchange traffic congestion.

Conclusion. Results from the study of fulfillment centers in the western portion of San Joaquin County closely support the significantly lower traffic volumes observed after completion of the first three. These trip generation rates were documented at 0.13 and 0.09 trips per 1,000 square ft. (93 square m) for AM and PM peak hours, respectively. These averages matched closer to

Table 1 – Traffic Volumes from Buildings in Operation (April 2018).

Zone Number	Development	Gross Square Feet (GSF)	April 2018 Counts	
			AM	PM
			Total Trips (Truck Trips)	Total Trips (Truck Trips)
834	Site A (Fulfillment Center)	1,001,378	188 (13)	180 (12)
836	Site B (Fulfillment Center)	1,005,500	101 (22)	69 (11)
838	Site C (Fulfillment Center)	403,560	41 (20)	20 (7)
837	Site D (Parcel Hub)	385,000	169 (55)	286 (46)
Total		2,795,438	499 (110)	555 (86)

Table 2 - Trip Generation Rate for Study Fulfillment Centers (June and December 2017 and April 2018 Counts).

Development	GSF	AM		PM	
Fulfillment Centers		Total Trips (Truck)	Trip Rates	Total Trips (Truck)	Trip Rates
Site B, Tracy (June 2017)	1,005,500	49 (14)	0.05	28 (7)	0.03
Site B, Tracy (December 2017)		56 (16)	0.06	36 (9)	0.04
Site B, Tracy (April 2018)		**101 (22)**	**0.10**	**69 (11)**	**0.07**
Site C, Tracy (June 2017)	403,560	25 (6)	0.06	17 (5)	0.04
Site C, Tracy (December 2017)		24 (6)	0.06	12 (4)	0.03
Site C, Tracy (April 2018)		**41 (20)**	**0.10**	**20 (7)**	**0.05**
Site E, Lathrop (April 2018)	440,000	**11 (5)**	**0.03**	**4 (4)**	**0.01**
Site F (December 2017)	390,280	40 (29)	0.10	13 (9)	0.03
Site F (April 2018)		**42 (17)**	**0.11**	**35 (21)**	**0.09**
Site G (December 2017)	1,225,680	**67 (6)**	**0.05**	16 (3)	0.01
Site G (April 2018)		59 (9)	0.05	**29 (12)**	**0.02**
Site H (December 2017)	283,603	**144 (35)**	**0.51**	**69 (11)**	**0.24**
Site A, Project Site (June 2017)	1,001,378	182 (11)	0.18	**206 (11)**	**0.21**
Site A, Project Site (May 2018)		**188 (13)**	**0.19**	180 (12)	0.18
Site I, Nearby Project Site (December 2017)	1,111,029	1,611 (39)	1.45	992 (58)	0.89
Avg. Trip rate	5,861,030	2640 (249)	0.36	1726 (199)	0.23
Average Trip Rate	4,750,001	**594 (118)**	**0.13**	**432 (77)**	**0.09**

Note: Average Trip Rate is calculated from highest trip data for each peak from June and December 2017 and April/May 2018 counts (shown in bold).

the low point of the two-point data set used in the (155 – High Cube Fulfillment Center Warehouse) *ITE Trip Generation Manual*, 10th Edition trip rates, at 0.15 and 0.27 for AM and PM peak hours, respectively.

The sort facility was clearly an outlier with generation of 1.45 and 0.89 trips per 1,000 square ft. (93 square m) for AM and PM peak hours, respectively. This data point is closer to the higher point of the two-point data set used in the (155 – High Cube Fulfillment Center Warehouse) *ITE Trip Generation Manual*, 10th Edition trip rates, at 0.84 for AM and 1.98 for PM peak hours.

Other observations made include extensive automation with newer fulfillment centers and fleet scheduling to avoid adjacent street peak hour congestion. With time, additional automation including autonomous fleets and flexible employee work shifts could continue to reduce trips during adjacent street peak hour congestion. **itej**

Bala Rajappan, P.E., T.E., ENV SP (F) *is the principal and project manager of R&M Consulting Engineers Inc. He has managed numerous freeway widening and interchange projects, and local street improvement projects for cities, counties, and Caltrans. Mr. Rajappan is also a co-owner of MSPhitect Inc., a big data platform solution provider, which specializes in the application of Urban Observatory (Mi-Flash) big data analytics in transportation planning.*

Lee Taubeneck, P.E. *is a project manager and civil engineer with more than 30 years of professional experience in the development of highways and freeways in the State of California. Currently, he acts as principal project manager for R&M Consulting Engineers Inc. He was formerly deputy district director for Caltrans through eight annual budget cycles for the nine-county San Francisco, CA, USA, Bay Area.*

Sushil Patil *has more than five years of experience in civil and traffic engineering projects. His responsibilities include preparation of project plans, cost estimates, schedule and freeway traffic analysis, and simulation. He currently works as assistant transportation engineer with R&M Consulting Engineers Inc.*

INDUSTRY NEWS

NACTO Releases Best Practices for Next-Generation Street Intersection Design

The National Association of City Transportation Officials (NACTO) has released best practices for next-generation intersection designs that save lives and make walking and biking more comfortable for people of all ages and abilities. Intersections are the place where the most vehicle-bike conflicts occur. In 2017, 43 percent of urban bicyclist fatalities occurred at intersections. On many streets, large turn radii and wide lanes encourage drivers to make sweeping, fast turns. These design decisions increase exposure and risk for people walking and biking, reduce the safety and comfort of the bike network, and discourage cycling. As cities work to make streets safer and more welcoming for bicyclists of all ages and abilities, intersection design is key. The new guidance, *Don't Give Up at the Intersection*, expands the groundbreaking NACTO *Urban Bikeway Design Guide* with new diagrams detailing intersection design treatments and signal strategies that reduce vehicle-bike and vehicle-pedestrian conflicts. *Don't Give Up at the Intersection* is available for free online at www.nacto.org/saferintersections. **itej**

WHERE IN THE WORLD?

Can you guess the location of the "Where in the World?" photo in this issue? The answer is on page 50. Feel free to send in your own photos to hstowell@ite.org. Good luck! **itej**

Intersection No: 1
Location: Viera Avenue at Wilbur Avenue
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Tuesday, November 6, 2018
Collected By: Marie Cooper

VIERA AVENUE AT WILBUR AVENUE INTERSECTION TURNING MOVEMENT SUMMARY

1	Viera Avenue NORTHBOUND			Viera Avenue SOUTHBOUND			Wilbur Avenue EASTBOUND			Wilbur Avenue WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	5		1					19	0	0	53		78
7:15 AM	11		1					34	7	6	53		112
7:30 AM	13		3					42	4	5	59		126
7:45 AM	15		7					55	4	6	67		154
8:00 AM	10		1					56	11	4	61		143
8:15 AM	8		4					26	4	4	67		113
8:30 AM	8		4					19	3	6	50		90
8:45 AM	11		6					24	6	0	27		74
Total	81	0	27	0	0	0	0	275	39	31	437	0	890

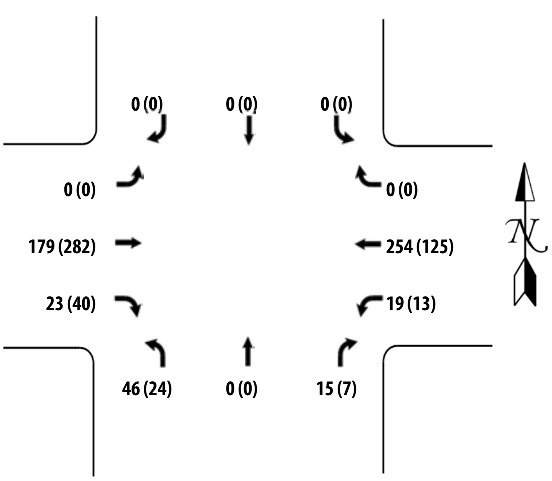
1	Viera Avenue NORTHBOUND			Viera Avenue SOUTHBOUND			Wilbur Avenue EASTBOUND			Wilbur Avenue WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	4		7					62	15	3	32		123
4:15 PM	1		0					69	11	0	27		108
4:30 PM	10		3					67	8	4	31		123
4:45 PM	7		2					54	12	4	42		121
5:00 PM	6		2					92	9	5	25		139
5:15 PM	3		5					52	13	3	27		103
5:30 PM	5		1					49	8	3	21		87
5:45 PM	4		1					37	11	5	20		78
Total	40	0	21	0	0	0	0	482	87	27	225	0	882

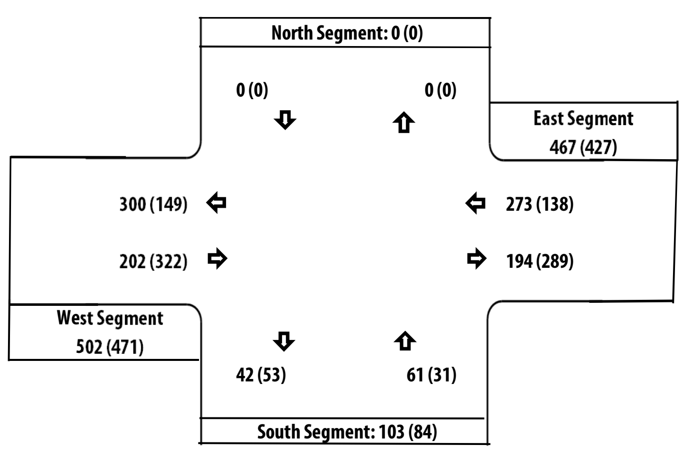
AM PEAK HOUR VOLUMES

1	Viera Avenue NORTHBOUND			Viera Avenue SOUTHBOUND			Wilbur Avenue EASTBOUND			Wilbur Avenue WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM	13		3					42	4	5	59		126
7:45 AM	15		7					55	4	6	67		154
8:00 AM	10		1					56	11	4	61		143
8:15 AM	8		4					26	4	4	67		113
Total	46	0	15	0	0	0	0	179	23	19	254	0	536

PM PEAK HOUR VOLUMES

1	Viera Avenue NORTHBOUND			Viera Avenue SOUTHBOUND			Wilbur Avenue EASTBOUND			Wilbur Avenue WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:15 PM	1		0					69	11	0	27		108
4:30 PM	10		3					67	8	4	31		123
4:45 PM	7		2					54	12	4	42		121
5:00 PM	6		2					92	9	5	25		139
Total	24	0	7	0	0	0	0	282	40	13	125	0	491





Intersection No: 2
Location: Maritime Way at Wilbur Avenue
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Tuesday, November 27, 2018
Collected By: Marie Cooper

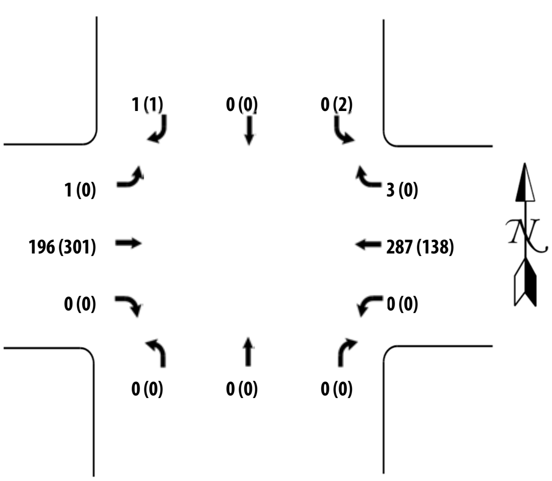
MARITIME WAY AT WILBUR AVENUE INTERSECTION TURNING MOVEMENT SUMMARY

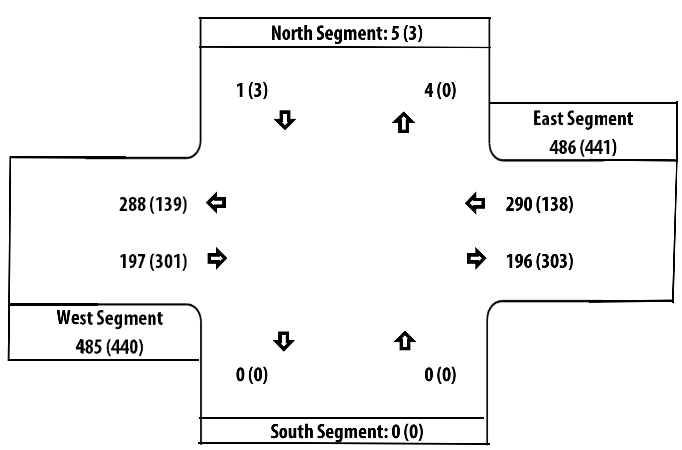
2	Maritime Way			Maritime Way			Wilbur Avenue			Wilbur Avenue			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM				1		0	0	27			55	0	83
7:15 AM				0		0	0	18			48	0	66
7:30 AM				0		0	0	45			76	1	122
7:45 AM				0		0	1	54			80	0	135
8:00 AM				0		1	0	58			65	2	126
8:15 AM				0		0	0	39			66	0	105
8:30 AM				0		0	1	31			42	0	74
8:45 AM				0		2	0	24			51	0	77
Total	0	0	0	1	0	3	2	296	0	0	483	3	788

2	Maritime Way			Maritime Way			Wilbur Avenue			Wilbur Avenue			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM				0		0	0	73			28	0	101
4:15 PM				1		0	1	56			35	0	93
4:30 PM				1		0	0	77			27	0	105
4:45 PM				0		0	0	54			32	0	86
5:00 PM				0		1	0	97			37	0	135
5:15 PM				1		0	0	73			42	0	116
5:30 PM				0		0	0	56			28	2	86
5:45 PM				1		0	1	64			25	0	91
Total	0	0	0	4	0	1	2	550	0	0	254	2	813

AM PEAK HOUR VOLUMES													
2	Maritime Way			Maritime Way			Wilbur Avenue			Wilbur Avenue			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM				0		0	0	45			76	1	122
7:45 AM				0		0	1	54			80	0	135
8:00 AM				0		1	0	58			65	2	126
8:15 AM				0		0	0	39			66	0	105
Total	0	0	0	0	0	1	1	196	0	0	287	3	488

PM PEAK HOUR VOLUMES													
2	Maritime Way			Maritime Way			Wilbur Avenue			Wilbur Avenue			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:30 PM				1		0	0	77			27	0	105
4:45 PM				0		0	0	54			32	0	86
5:00 PM				0		1	0	97			37	0	135
5:15 PM				1		0	0	73			42	0	116
Total	0	0	0	2	0	1	0	301	0	0	138	0	442





Intersection No: 3
Location: SR 160 SB Ramps at Wilbur Avenue
AM Start Time 7:00 AM
PM Start Time 4:15 PM
Date: Thursday, November 8, 2018
Collected By: Rick Folster

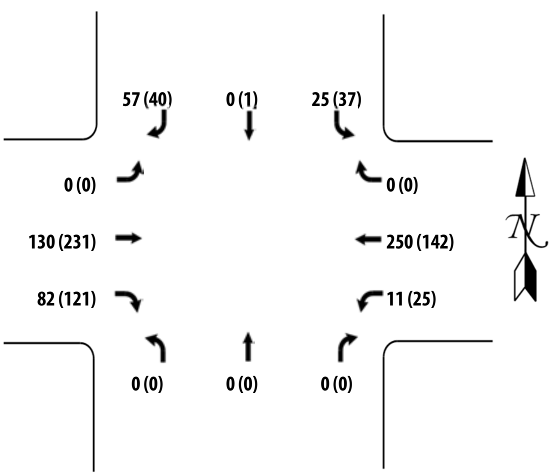
SR 160 SB RAMPS AT WILBUR AVENUE INTERSECTION TURNING MOVEMENT SUMMARY

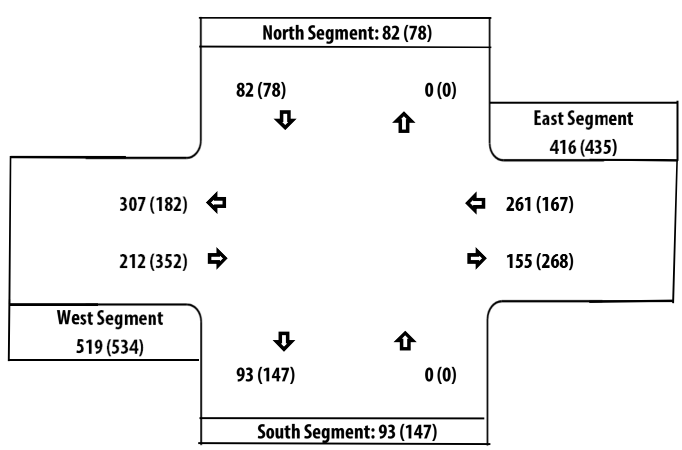
3	SR 160 SB Ramps NORTHBOUND			SR 160 SB Ramps SOUTHBOUND			Wilbur Avenue EASTBOUND			Wilbur Avenue WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM				4	1	16		8	5	0	18		52
7:15 AM				7	1	19		23	13	2	46		111
7:30 AM				10	0	16		32	28	2	54		142
7:45 AM				5	0	11		34	14	1	69		134
8:00 AM				4	0	13		39	17	2	62		137
8:15 AM				6	0	17		25	23	6	65		142
8:30 AM				4	3	7		17	18	6	45		100
8:45 AM				4	0	6		15	16	2	30		73
Total	0	0	0	44	5	105	0	193	134	21	389	0	891

3	SR 160 SB Ramps NORTHBOUND			SR 160 SB Ramps SOUTHBOUND			Wilbur Avenue EASTBOUND			Wilbur Avenue WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:15 PM				7	0	7		51	18	4	34		121
4:30 PM				10	0	12		63	39	11	31		166
4:45 PM				11	1	9		50	32	5	41		149
5:00 PM				9	0	12		67	32	5	36		161
5:15 PM				7	0	6		49	14	4	32		112
5:30 PM				11	0	10		49	20	3	32		125
5:45 PM				5	0	5		28	17	3	26		84
6:00 PM													
Total	0	0	0	60	1	61	0	357	172	35	232	0	918

AM PEAK HOUR VOLUMES													
3	SR 160 SB Ramps NORTHBOUND			SR 160 SB Ramps SOUTHBOUND			Wilbur Avenue EASTBOUND			Wilbur Avenue WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM				10	0	16		32	28	2	54		142
7:45 AM				5	0	11		34	14	1	69		134
8:00 AM				4	0	13		39	17	2	62		137
8:15 AM				6	0	17		25	23	6	65		142
Total	0	0	0	25	0	57	0	130	82	11	250	0	555

PM PEAK HOUR VOLUMES													
3	SR 160 SB Ramps NORTHBOUND			SR 160 SB Ramps SOUTHBOUND			Wilbur Avenue EASTBOUND			Wilbur Avenue WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:15 PM				7	0	7		51	18	4	34		121
4:30 PM				10	0	12		63	39	11	31		166
4:45 PM				11	1	9		50	32	5	41		149
5:00 PM				9	0	12		67	32	5	36		161
Total	0	0	0	37	1	40	0	231	121	25	142	0	597





Intersection No: 4
Location: SR 160 NB Ramps at Wilbur Avenue
AM Start Time 7:15 AM
PM Start Time 4:15 PM
Date: Thursday, November 8, 2018
Collected By: Jessica Fong

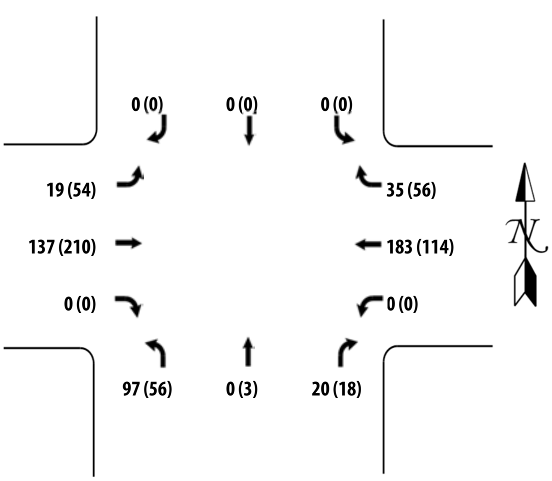
SR 160 NB RAMPS AT WILBUR AVENUE INTERSECTION TURNING MOVEMENT SUMMARY

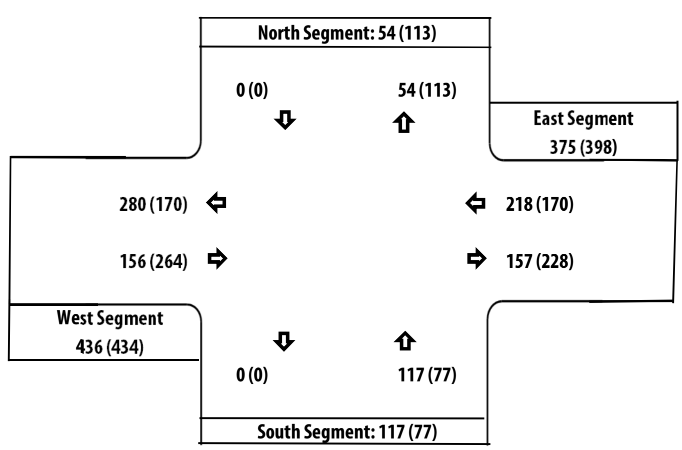
4	SR 160 NB Ramps			SR 160 NB Ramps			Wilbur Avenue			Wilbur Avenue			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:15 AM	14	1	4				5	16			31	8	79
7:30 AM	22	0	0				2	29			28	9	90
7:45 AM	14	0	2				7	37			45	10	115
8:00 AM	17	0	4				3	38			47	8	117
8:15 AM	19	0	6				4	39			49	5	122
8:30 AM	22	0	1				4	25			46	10	108
8:45 AM	39	0	9				8	35			41	12	144
9:00 AM													
Total	147	1	26	0	0	0	33	219	0	0	287	62	775

4	SR 160 NB Ramps			SR 160 NB Ramps			Wilbur Avenue			Wilbur Avenue			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:15 PM	11	1	4				15	44			27	6	108
4:30 PM	15	2	4				10	64			27	18	140
4:45 PM	22	0	5				13	46			23	11	120
5:00 PM	8	0	5				16	56			37	21	143
5:15 PM	12	0	3				10	40			22	14	101
5:30 PM	19	0	6				11	49			26	8	119
5:45 PM	5	1	7				9	24			19	11	76
6:00 PM													
Total	92	4	34	0	0	0	84	323	0	0	181	89	807

AM PEAK HOUR VOLUMES													
4	SR 160 NB Ramps			SR 160 NB Ramps			Wilbur Avenue			Wilbur Avenue			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
8:00 AM	17	0	4				3	38			47	8	117
8:15 AM	19	0	6				4	39			49	5	122
8:30 AM	22	0	1				4	25			46	10	108
8:45 AM	39	0	9				8	35			41	12	144
Total	97	0	20	0	0	0	19	137	0	0	183	35	491

PM PEAK HOUR VOLUMES													
4	SR 160 NB Ramps			SR 160 NB Ramps			Wilbur Avenue			Wilbur Avenue			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:15 PM	11	1	4				15	44			27	6	108
4:30 PM	15	2	4				10	64			27	18	140
4:45 PM	22	0	5				13	46			23	11	120
5:00 PM	8	0	5				16	56			37	21	143
Total	56	3	18	0	0	0	54	210	0	0	114	56	511





Intersection No: 5
Location: Bridgehead Road at Wilbur Avenue
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Tuesday, October 23, 2018
Collected By: Marie Cooper

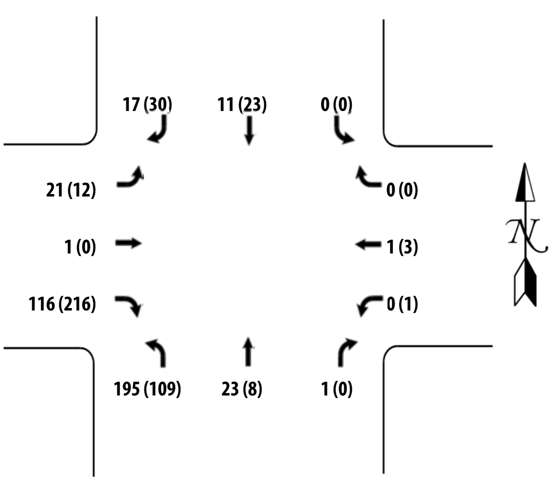
BRIDGEHEAD ROAD AT WILBUR AVENUE INTERSECTION TURNING MOVEMENT SUMMARY

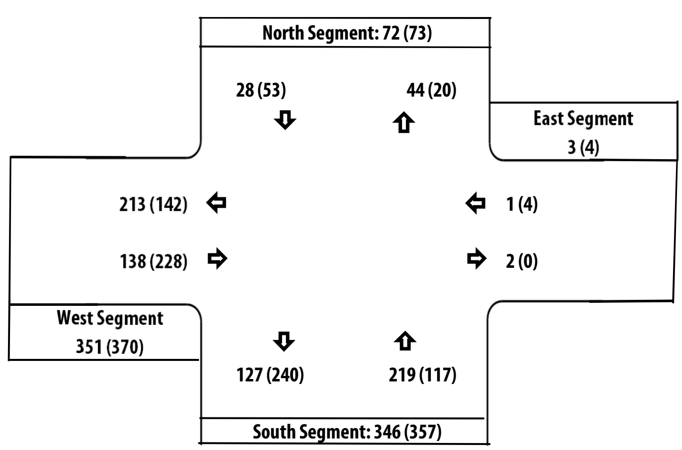
5	Bridgehead Road			Bridgehead Road			Wilbur Avenue			Wilbur Avenue			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	44	3	0		3	5	4	0	20		0		79
7:15 AM	39	4	1		1	10	2	1	18		0		76
7:30 AM	42	6	0		4	3	3	0	18		0		76
7:45 AM	58	8	0		3	1	10	0	46		0		126
8:00 AM	56	5	0		3	3	6	0	34		1		108
8:15 AM	34	2	0		3	4	11	1	17		1		73
8:30 AM	38	6	1		3	4	3	0	16		0		71
8:45 AM	39	6	0		2	8	8	0	15		0		78
Total	350	40	2	0	22	38	47	2	184	0	2	0	687

5	Bridgehead Road			Bridgehead Road			Wilbur Avenue			Wilbur Avenue			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	33	3			4	7	3	0	66	0	0		116
4:15 PM	22	2			7	9	5	0	47	1	2		95
4:30 PM	20	1			7	12	3	0	59	0	0		102
4:45 PM	34	2			5	2	1	0	44	0	1		89
5:00 PM	23	4			2	7	4	0	69	0	0		109
5:15 PM	28	3			1	3	5	0	60	0	0		100
5:30 PM	22	4			5	5	0	1	45	0	0		82
5:45 PM	20	4			3	2	2	0	32	0	0		63
Total	202	23	0	0	34	47	23	1	422	1	3	0	756

AM PEAK HOUR VOLUMES													
5	Bridgehead Road			Bridgehead Road			Wilbur Avenue			Wilbur Avenue			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:15 AM	39	4	1		1	10	2	1	18		0		76
7:30 AM	42	6	0		4	3	3	0	18		0		76
7:45 AM	58	8	0		3	1	10	0	46		0		126
8:00 AM	56	5	0		3	3	6	0	34		1		108
Total	195	23	1	0	11	17	21	1	116	0	1	0	386

PM PEAK HOUR VOLUMES													
5	Bridgehead Road			Bridgehead Road			Wilbur Avenue			Wilbur Avenue			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	33	3			4	7	3	0	66	0	0		116
4:15 PM	22	2			7	9	5	0	47	1	2		95
4:30 PM	20	1			7	12	3	0	59	0	0		102
4:45 PM	34	2			5	2	1	0	44	0	1		89
Total	109	8	0	0	23	30	12	0	216	1	3	0	402





Intersection No: 6
Location: Viera Avenue at E. 18th Street
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Wednesday, November 7, 2018
Collected By: Marie Cooper

VIERA AVENUE AT E. 18TH STREET INTERSECTION TURNING MOVEMENT SUMMARY

6	Viera Avenue			Viera Avenue			E. 18th Street			E. 18th Street			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	12	1	0	3	0	11	1	42	4	2	50	6	132
7:15 AM	11	4	1	5	0	11	3	44	4	0	63	6	152
7:30 AM	21	1	2	4	1	14	4	59	6	2	81	5	200
7:45 AM	21	1	3	18	3	14	9	105	10	2	140	5	331
8:00 AM	10	0	0	9	2	7	2	72	7	3	88	6	206
8:15 AM	12	2	1	2	1	3	6	66	4	1	77	10	185
8:30 AM	16	0	0	7	2	9	4	58	3	1	76	5	181
8:45 AM	9	0	1	5	0	7	5	42	4	0	64	4	141
Total	112	9	8	53	9	76	34	488	42	11	639	47	1528

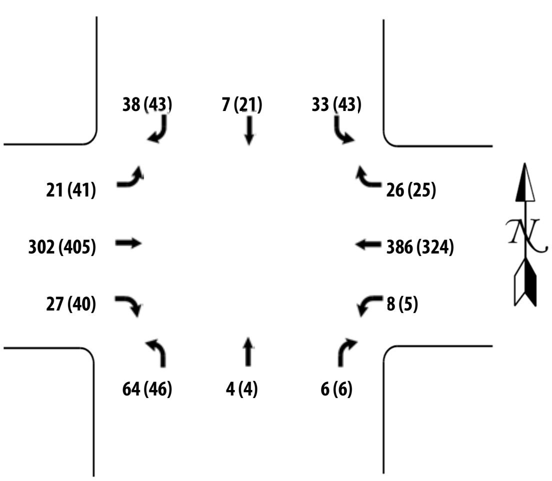
6	Viera Avenue			Viera Avenue			E. 18th Street			E. 18th Street			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	8	5	1	6	4	7	15	91	12	1	80	6	236
4:15 PM	7	0	0	7	5	10	11	91	15	1	76	5	228
4:30 PM	11	1	1	12	8	12	11	94	15	0	89	10	264
4:45 PM	8	1	1	11	4	13	11	92	8	2	79	4	234
5:00 PM	9	1	2	14	4	11	9	106	7	1	82	7	253
5:15 PM	18	1	2	6	5	7	10	113	10	2	74	4	252
5:30 PM	12	1	4	12	2	1	13	111	23	2	63	7	251
5:45 PM	9	1	2	11	6	8	10	103	12	3	66	5	236
Total	82	11	13	79	38	69	90	801	102	12	609	48	1954

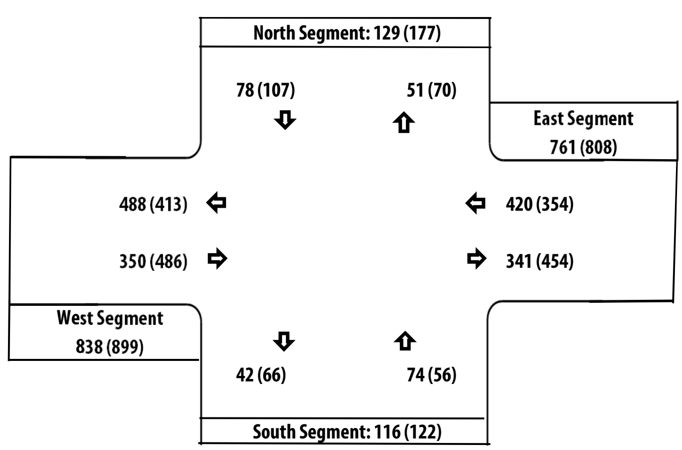
AM PEAK HOUR VOLUMES

6	Viera Avenue			Viera Avenue			E. 18th Street			E. 18th Street			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM	21	1	2	4	1	14	4	59	6	2	81	5	200
7:45 AM	21	1	3	18	3	14	9	105	10	2	140	5	331
8:00 AM	10	0	0	9	2	7	2	72	7	3	88	6	206
8:15 AM	12	2	1	2	1	3	6	66	4	1	77	10	185
Total	64	4	6	33	7	38	21	302	27	8	386	26	922

PM PEAK HOUR VOLUMES

6	Viera Avenue			Viera Avenue			E. 18th Street			E. 18th Street			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:30 PM	11	1	1	12	8	12	11	94	15	0	89	10	264
4:45 PM	8	1	1	11	4	13	11	92	8	2	79	4	234
5:00 PM	9	1	2	14	4	11	9	106	7	1	82	7	253
5:15 PM	18	1	2	6	5	7	10	113	10	2	74	4	252
Total	46	4	6	43	21	43	41	405	40	5	324	25	1003





Intersection No: 7
Location: SR 160 SB Ramps at E 18th Street
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Tuesday, November 27, 2018
Collected By: Laura Walker

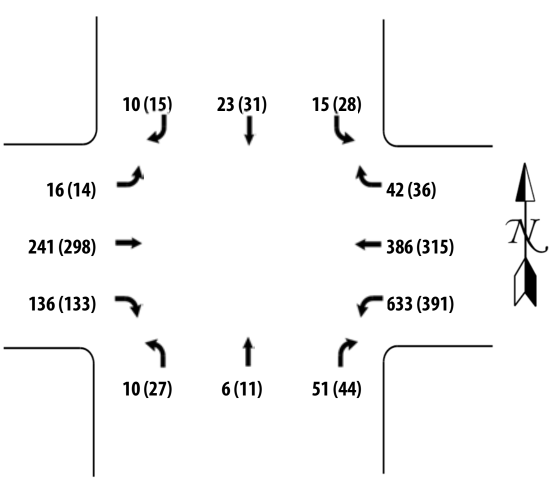
SR 160 SB RAMPS AT E 18TH STREET INTERSECTION TURNING MOVEMENT SUMMARY

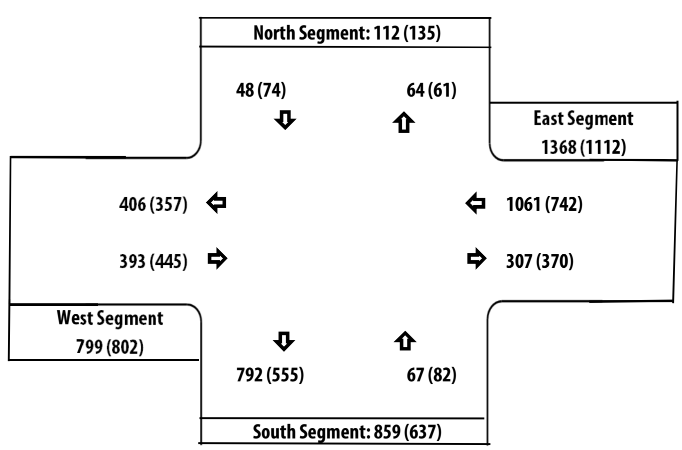
7	SR 160 SB Ramps			SR 160 SB Ramps			E 18th Street			E 18th Street			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	5	5	11	2	4	1	2	21	21	124	57	6	259
7:15 AM	2	0	14	2	10	3	3	59	38	149	63	7	350
7:30 AM	3	2	9	3	5	3	6	51	29	173	99	12	395
7:45 AM	4	0	14	3	6	2	5	78	39	166	124	13	454
8:00 AM	1	4	14	7	2	2	2	53	30	145	100	10	370
8:15 AM	1	1	11	6	6	5	2	34	38	163	62	10	339
8:30 AM	6	5	4	4	7	5	2	26	29	145	75	12	320
8:45 AM	2	1	9	5	3	2	0	37	20	145	50	10	284
Total	24	18	86	32	43	23	22	359	244	1210	630	80	2771

7	SR 160 SB Ramps			SR 160 SB Ramps			E 18th Street			E 18th Street			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	2	1	9	7	8	6	7	65	35	86	98	13	337
4:15 PM	3	1	5	6	4	0	1	71	22	101	79	8	301
4:30 PM	3	0	14	7	4	2	1	84	33	87	77	8	320
4:45 PM	5	2	8	8	3	2	0	65	44	103	87	12	339
5:00 PM	9	2	13	6	4	2	4	75	34	102	59	7	317
5:15 PM	6	5	11	6	13	9	3	79	35	107	85	7	366
5:30 PM	7	2	12	8	11	2	7	79	20	79	84	10	321
5:45 PM	9	0	10	9	4	4	3	52	17	63	77	8	256
Total	44	13	82	57	51	27	26	570	240	728	646	73	2557

AM PEAK HOUR VOLUMES													
7	SR 160 SB Ramps			SR 160 SB Ramps			E 18th Street			E 18th Street			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:15 AM	2	0	14	2	10	3	3	59	38	149	63	7	350
7:30 AM	3	2	9	3	5	3	6	51	29	173	99	12	395
7:45 AM	4	0	14	3	6	2	5	78	39	166	124	13	454
8:00 AM	1	4	14	7	2	2	2	53	30	145	100	10	370
Total	10	6	51	15	23	10	16	241	136	633	386	42	1569

PM PEAK HOUR VOLUMES													
7	SR 160 SB Ramps			SR 160 SB Ramps			E 18th Street			E 18th Street			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:45 PM	5	2	8	8	3	2	0	65	44	103	87	12	339
5:00 PM	9	2	13	6	4	2	4	75	34	102	59	7	317
5:15 PM	6	5	11	6	13	9	3	79	35	107	85	7	366
5:30 PM	7	2	12	8	11	2	7	79	20	79	84	10	321
Total	27	11	44	28	31	15	14	298	133	391	315	36	1343





Intersection No: 8
Location: SR 160 NB Ramps at Main Street
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Tuesday, November 27, 2018
Collected By: Scott Walker

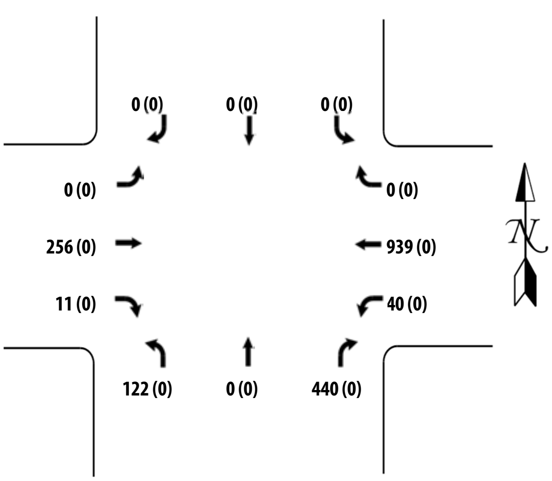
SR 160 NB RAMPS AT MAIN STREET INTERSECTION TURNING MOVEMENT SUMMARY

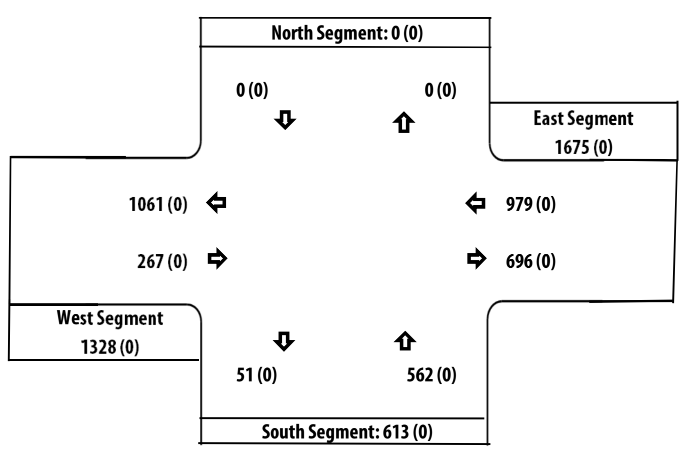
8	SR 160 NB Ramps NORTHBOUND			SR 160 NB Ramps SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	16		55					31	4	14	159		279
7:15 AM	23		83					53	7	6	176		348
7:30 AM	19		98					51	2	11	213		394
7:45 AM	42		127					84	4	14	267		538
8:00 AM	38		107					74	3	8	233		463
8:15 AM	23		108					47	2	7	226		413
8:30 AM	26		68					39	3	5	209		350
8:45 AM	21		84					45	4	6	182		342
Total	208	0	730	0	0	0	0	424	29	71	1665	0	3127

8	SR 160 NB Ramps NORTHBOUND			SR 160 NB Ramps SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM													
4:15 PM													
4:30 PM													
4:45 PM													
5:00 PM													
5:15 PM													
5:30 PM													
5:45 PM													
Total	0	0	0	0	0	0	0	0	0	0	0	0	

AM PEAK HOUR VOLUMES													
8	SR 160 NB Ramps NORTHBOUND			SR 160 NB Ramps SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM	19		98					51	2	11	213		394
7:45 AM	42		127					84	4	14	267		538
8:00 AM	38		107					74	3	8	233		463
8:15 AM	23		108					47	2	7	226		413
Total	122	0	440	0	0	0	0	256	11	40	939	0	1808

PM PEAK HOUR VOLUMES													
8	SR 160 NB Ramps NORTHBOUND			SR 160 NB Ramps SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM													
4:15 PM													
4:30 PM													
4:45 PM													
Total	0	0	0	0	0	0	0	0	0	0	0	0	





Intersection No: 9
Location: Neroly Road at Main Street
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Tuesday, October 30, 2018
Collected By: Laura Walker

NEROLY ROAD AT MAIN STREET INTERSECTION TURNING MOVEMENT SUMMARY

9	Neroly Road			Neroly Road			Main Street			Main Street			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	23	11	5	14	6	21	11	73	6	11	115	27	323
7:15 AM	23	14	3	11	9	22	14	94	10	10	138	28	376
7:30 AM	31	16	1	37	9	12	21	145	7	5	248	33	565
7:45 AM	35	21	7	35	17	10	26	192	24	21	254	40	682
8:00 AM	35	19	11	50	17	44	20	146	15	15	254	46	672
8:15 AM	34	17	6	21	8	24	20	122	15	17	164	32	480
8:30 AM	22	15	7	22	8	27	21	91	15	9	184	43	464
8:45 AM	15	7	2	24	11	23	25	104	7	8	163	20	409
Total	218	120	42	214	85	183	158	967	99	96	1520	269	3971

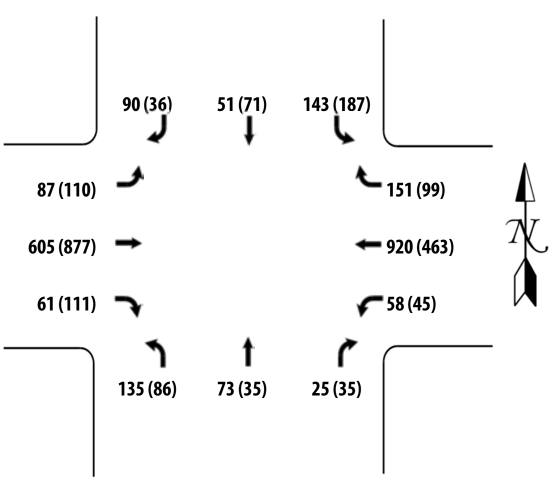
9	Neroly Road			Neroly Road			Main Street			Main Street			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	14	9	11	56	18	7	36	212	27	14	104	24	532
4:15 PM	21	11	6	43	14	13	39	213	26	15	128	27	556
4:30 PM	15	7	5	41	20	10	24	218	32	7	118	22	519
4:45 PM	24	12	1	46	18	7	21	192	20	6	108	16	471
5:00 PM	21	11	12	64	13	8	34	226	28	9	121	27	574
5:15 PM	33	9	7	39	23	17	33	214	26	14	113	33	561
5:30 PM	19	9	11	39	16	4	13	195	26	9	137	14	492
5:45 PM	13	6	5	45	19	7	30	242	31	13	92	25	528
Total	160	74	58	373	141	73	230	1712	216	87	921	188	4233

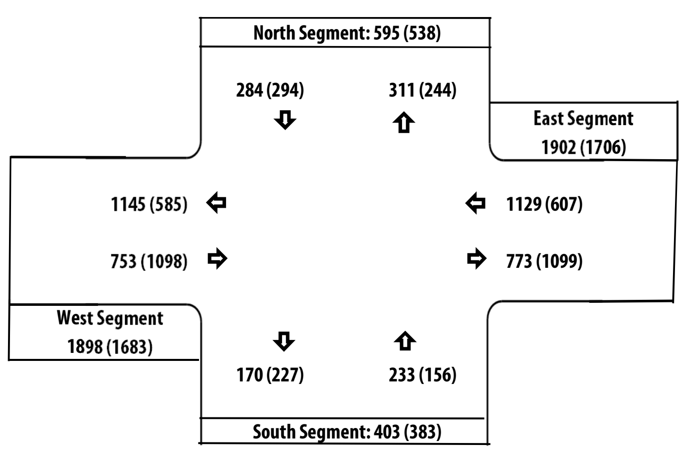
AM PEAK HOUR VOLUMES

9	Neroly Road			Neroly Road			Main Street			Main Street			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM	31	16	1	37	9	12	21	145	7	5	248	33	565
7:45 AM	35	21	7	35	17	10	26	192	24	21	254	40	682
8:00 AM	35	19	11	50	17	44	20	146	15	15	254	46	672
8:15 AM	34	17	6	21	8	24	20	122	15	17	164	32	480
Total	135	73	25	143	51	90	87	605	61	58	920	151	2399

PM PEAK HOUR VOLUMES

9	Neroly Road			Neroly Road			Main Street			Main Street			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
5:00 PM	21	11	12	64	13	8	34	226	28	9	121	27	574
5:15 PM	33	9	7	39	23	17	33	214	26	14	113	33	561
5:30 PM	19	9	11	39	16	4	13	195	26	9	137	14	492
5:45 PM	13	6	5	45	19	7	30	242	31	13	92	25	528
Total	86	35	35	187	71	36	110	877	111	45	463	99	2155





Intersection No: 10
Location: Live Oak Avenue at Main Street
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Tuesday, November 13, 2018
Collected By: Marie Cooper

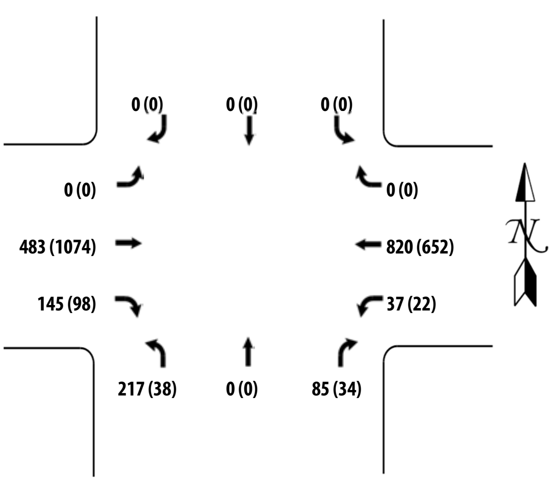
LIVE OAK AVENUE AT MAIN STREET INTERSECTION TURNING MOVEMENT SUMMARY

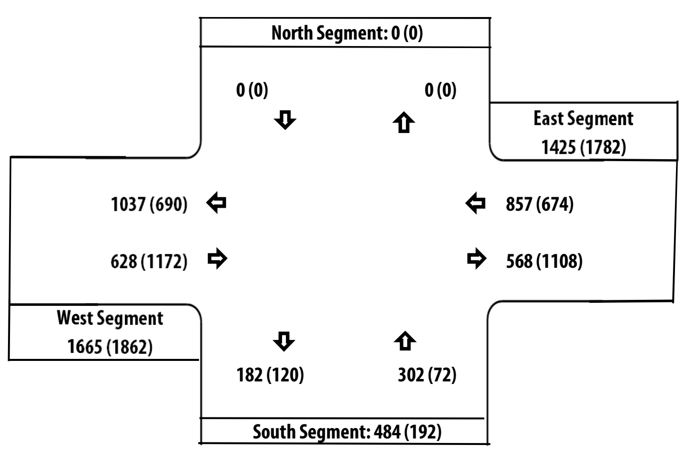
10	Live Oak Avenue NORTHBOUND			Live Oak Avenue SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	18		3					74	10	5	171		281
7:15 AM	15		7					86	19	1	150		278
7:30 AM	40		9					106	41	9	247		452
7:45 AM	64		29					131	55	15	190		484
8:00 AM	92		39					146	31	6	185		499
8:15 AM	21		8					100	18	7	198		352
8:30 AM	12		9					114	5	1	171		312
8:45 AM	31		15					106	7	2	147		308
Total	293	0	119	0	0	0	0	863	186	46	1459	0	2966

10	Live Oak Avenue NORTHBOUND			Live Oak Avenue SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	10		8					262	13	6	150		449
4:15 PM	8		9					261	18	5	157		458
4:30 PM	9		12					266	22	8	149		466
4:45 PM	11		8					266	23	3	178		489
5:00 PM	13		8					256	25	4	160		466
5:15 PM	5		6					286	28	7	165		497
5:30 PM	6		9					217	14	5	139		390
5:45 PM	11		7					254	24	2	122		420
Total	73	0	67	0	0	0	0	2068	167	40	1220	0	3635

AM PEAK HOUR VOLUMES													
10	Live Oak Avenue NORTHBOUND			Live Oak Avenue SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM	40		9					106	41	9	247		452
7:45 AM	64		29					131	55	15	190		484
8:00 AM	92		39					146	31	6	185		499
8:15 AM	21		8					100	18	7	198		352
Total	217	0	85	0	0	0	0	483	145	37	820	0	1787

PM PEAK HOUR VOLUMES													
10	Live Oak Avenue NORTHBOUND			Live Oak Avenue SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:30 PM	9		12					266	22	8	149		466
4:45 PM	11		8					266	23	3	178		489
5:00 PM	13		8					256	25	4	160		466
5:15 PM	5		6					286	28	7	165		497
Total	38	0	34	0	0	0	0	1074	98	22	652	0	1918





Intersection No: 11
Location: Big Break Rd at Main Street
AM Start Time 7:15 AM
PM Start Time 4:15 PM
Date: Thursday, November 29, 2018
Collected By: Laura Walker

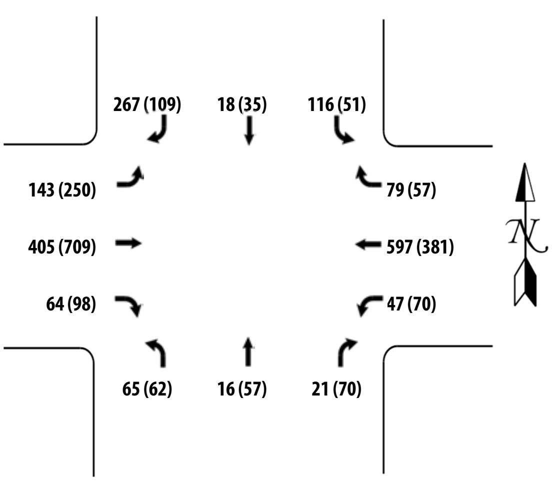
BIG BREAK RD AT MAIN STREET INTERSECTION TURNING MOVEMENT SUMMARY

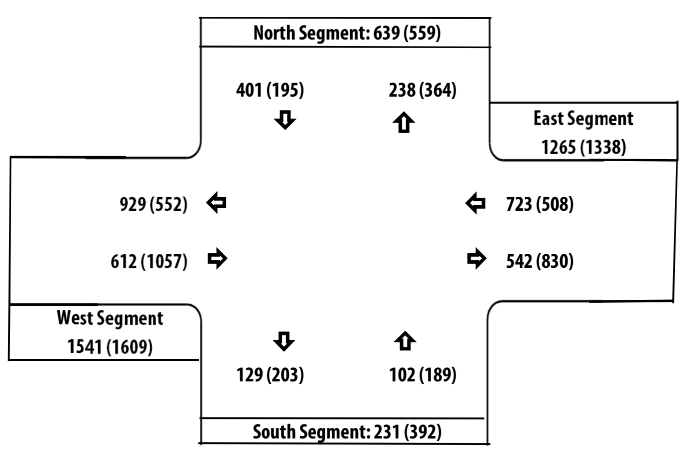
11	Big Break Rd NORTHBOUND			Big Break Rd SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:15 AM	11	0	3	8	1	38	11	72	5	19	128	3	299
7:30 AM	14	2	2	23	3	83	20	92	14	10	143	11	417
7:45 AM	13	3	6	35	3	63	46	94	12	17	169	31	492
8:00 AM	24	6	9	29	4	51	50	124	17	15	131	24	484
8:15 AM	14	5	4	29	8	70	27	95	21	5	154	13	445
8:30 AM	19	5	6	14	6	46	13	64	15	21	120	9	338
8:45 AM	16	4	7	9	1	38	17	85	11	23	114	7	332
9:00 AM													
Total	111	25	37	147	26	389	184	626	95	110	959	98	2807

11	Big Break Rd NORTHBOUND			Big Break Rd SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:15 PM	20	9	16	8	4	27	60	172	26	17	77	11	447
4:30 PM	11	13	20	13	10	25	61	181	32	22	112	13	513
4:45 PM	12	7	15	15	8	21	63	162	17	17	96	12	445
5:00 PM	13	11	14	16	8	40	61	163	21	17	94	18	476
5:15 PM	26	26	21	7	9	23	65	203	28	14	79	14	515
5:30 PM	13	15	25	19	12	18	54	176	25	15	82	13	467
5:45 PM	13	5	15	9	4	20	55	144	16	20	96	15	412
6:00 PM													
Total	108	86	126	87	55	174	419	1201	165	122	636	96	3275

AM PEAK HOUR VOLUMES													
11	Big Break Rd NORTHBOUND			Big Break Rd SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM	14	2	2	23	3	83	20	92	14	10	143	11	417
7:45 AM	13	3	6	35	3	63	46	94	12	17	169	31	492
8:00 AM	24	6	9	29	4	51	50	124	17	15	131	24	484
8:15 AM	14	5	4	29	8	70	27	95	21	5	154	13	445
Total	65	16	21	116	18	267	143	405	64	47	597	79	1838

PM PEAK HOUR VOLUMES													
11	Big Break Rd NORTHBOUND			Big Break Rd SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:30 PM	11	13	20	13	10	25	61	181	32	22	112	13	513
4:45 PM	12	7	15	15	8	21	63	162	17	17	96	12	445
5:00 PM	13	11	14	16	8	40	61	163	21	17	94	18	476
5:15 PM	26	26	21	7	9	23	65	203	28	14	79	14	515
Total	62	57	70	51	35	109	250	709	98	70	381	57	1949





Intersection No: 12
Location: Neroly Road at Oakley Road
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Thursday, November 8, 2018
Collected By: Marie Cooper

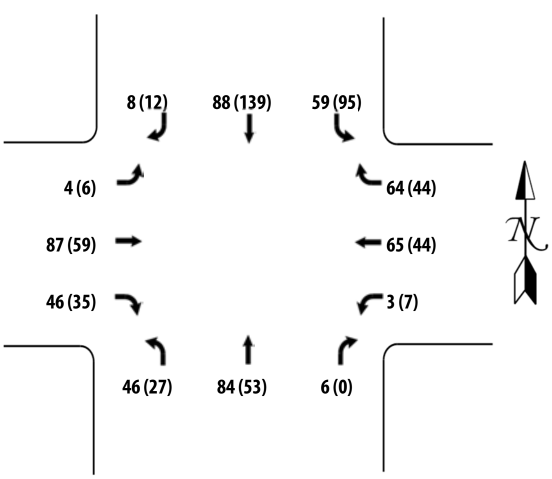
NEROLY ROAD AT OAKLEY ROAD INTERSECTION TURNING MOVEMENT SUMMARY

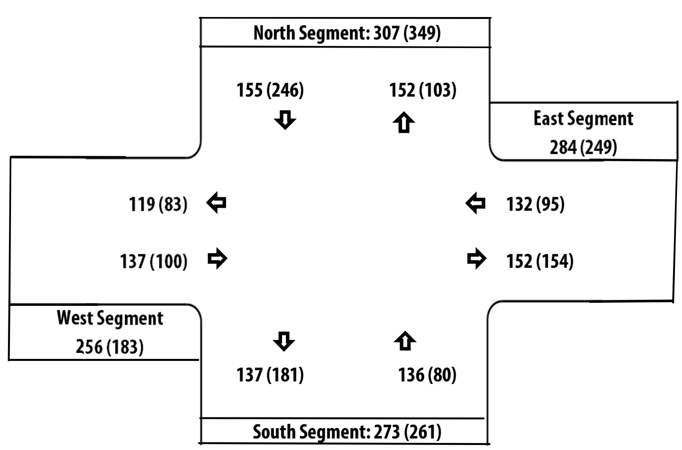
12	Neroly Road			Neroly Road			Oakley Road			Oakley Road			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	1	23	0	4	10	0	3	3	3	0	6	18	71
7:15 AM	6	16	1	14	14	2	1	9	5	1	4	14	87
7:30 AM	13	15	1	9	19	1	2	23	12	0	13	16	124
7:45 AM	14	27	3	27	20	4	0	47	11	1	18	18	190
8:00 AM	10	15	2	14	29	1	2	13	12	1	23	13	135
8:15 AM	9	27	0	9	20	2	0	4	11	1	11	17	111
8:30 AM	3	26	1	10	14	4	5	2	4	0	12	22	103
8:45 AM	3	15	0	10	11	4	1	3	4	0	4	12	67
Total	59	164	8	97	137	18	14	104	62	4	91	130	888

12	Neroly Road			Neroly Road			Oakley Road			Oakley Road			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	9	17	0	20	20	2	0	10	7	1	9	9	104
4:15 PM	6	21	1	22	30	7	1	7	5	0	5	14	119
4:30 PM	8	16	0	31	18	6	1	11	6	1	12	13	123
4:45 PM	8	6	1	28	18	4	7	14	13	1	8	9	117
5:00 PM	4	9	0	21	24	4	2	16	11	1	11	7	110
5:15 PM	9	15	0	27	38	1	2	8	5	1	12	14	132
5:30 PM	5	15	0	29	41	4	2	21	8	1	10	11	147
5:45 PM	9	14	0	18	36	3	0	14	11	4	11	12	132
Total	58	113	2	196	225	31	15	101	66	10	78	89	984

AM PEAK HOUR VOLUMES													
12	Neroly Road			Neroly Road			Oakley Road			Oakley Road			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM	13	15	1	9	19	1	2	23	12	0	13	16	124
7:45 AM	14	27	3	27	20	4	0	47	11	1	18	18	190
8:00 AM	10	15	2	14	29	1	2	13	12	1	23	13	135
8:15 AM	9	27	0	9	20	2	0	4	11	1	11	17	111
Total	46	84	6	59	88	8	4	87	46	3	65	64	560

PM PEAK HOUR VOLUMES													
12	Neroly Road			Neroly Road			Oakley Road			Oakley Road			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
5:00 PM	4	9	0	21	24	4	2	16	11	1	11	7	110
5:15 PM	9	15	0	27	38	1	2	8	5	1	12	14	132
5:30 PM	5	15	0	29	41	4	2	21	8	1	10	11	147
5:45 PM	9	14	0	18	36	3	0	14	11	4	11	12	132
Total	27	53	0	95	139	12	6	59	35	7	44	44	521





Intersection No: 13
Location: Live Oak Avenue at Oakley Road
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Wednesday, November 14, 2018
Collected By: Marie Cooper

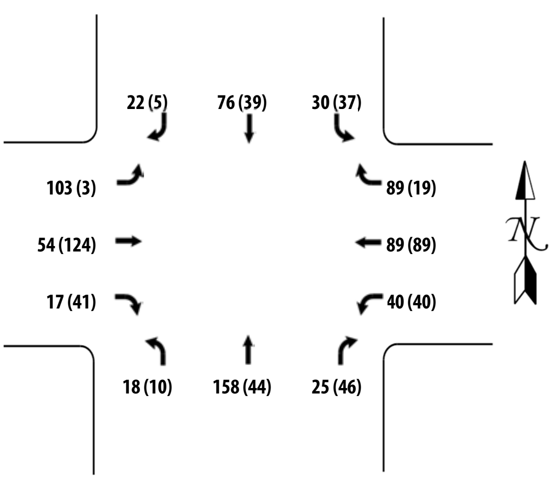
LIVE OAK AVENUE AT OAKLEY ROAD INTERSECTION TURNING MOVEMENT SUMMARY

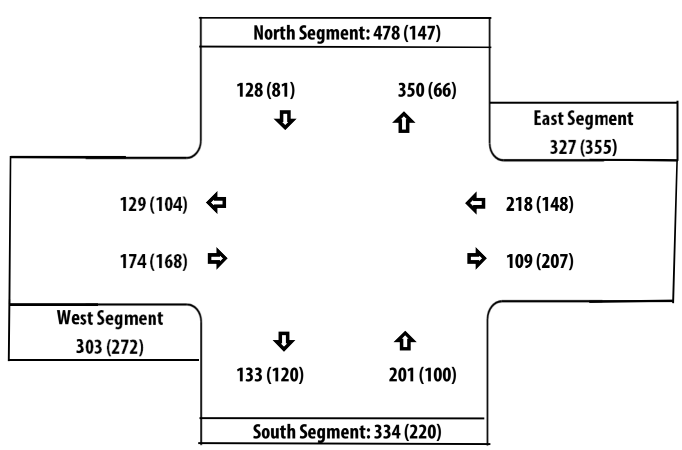
13	Live Oak Avenue NORTHBOUND			Live Oak Avenue SOUTHBOUND			Oakley Road EASTBOUND			Oakley Road WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	6	7	1	2	0	1	0	6	0	7	14	8	52
7:15 AM	7	18	1	0	4	1	2	9	1	4	11	8	66
7:30 AM	5	34	3	5	11	1	15	4	5	12	16	19	130
7:45 AM	10	69	4	9	35	7	73	19	5	8	31	51	321
8:00 AM	1	35	6	15	25	12	13	16	5	12	24	13	177
8:15 AM	2	20	12	1	5	2	2	15	2	8	18	6	93
8:30 AM	3	13	4	3	6	0	0	17	2	4	14	1	67
8:45 AM	3	10	4	6	29	2	2	8	1	2	17	5	89
Total	37	206	35	41	115	26	107	94	21	57	145	111	995

13	Live Oak Avenue NORTHBOUND			Live Oak Avenue SOUTHBOUND			Oakley Road EASTBOUND			Oakley Road WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	4	13	12	10	9	1	2	28	7	9	17	2	114
4:15 PM	5	13	12	11	10	3	0	37	11	8	17	4	131
4:30 PM	2	15	14	6	10	0	1	25	6	8	28	5	120
4:45 PM	0	9	8	8	6	1	0	33	17	11	18	5	116
5:00 PM	3	7	12	12	13	1	2	29	7	13	26	5	130
5:15 PM	2	12	8	8	14	0	2	23	2	9	19	4	103
5:30 PM	0	14	9	15	13	0	0	35	7	10	15	4	122
5:45 PM	1	6	9	12	12	2	1	33	4	6	17	6	109
Total	17	89	84	82	87	8	8	243	61	74	157	35	945

AM PEAK HOUR VOLUMES													
13	Live Oak Avenue NORTHBOUND			Live Oak Avenue SOUTHBOUND			Oakley Road EASTBOUND			Oakley Road WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM	5	34	3	5	11	1	15	4	5	12	16	19	130
7:45 AM	10	69	4	9	35	7	73	19	5	8	31	51	321
8:00 AM	1	35	6	15	25	12	13	16	5	12	24	13	177
8:15 AM	2	20	12	1	5	2	2	15	2	8	18	6	93
Total	18	158	25	30	76	22	103	54	17	40	89	89	721

PM PEAK HOUR VOLUMES													
13	Live Oak Avenue NORTHBOUND			Live Oak Avenue SOUTHBOUND			Oakley Road EASTBOUND			Oakley Road WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:15 PM	5	13	12	11	10	3	0	37	11	8	17	4	131
4:30 PM	2	15	14	6	10	0	1	25	6	8	28	5	120
4:45 PM	0	9	8	8	6	1	0	33	17	11	18	5	116
5:00 PM	3	7	12	12	13	1	2	29	7	13	26	5	130
Total	10	44	46	37	39	5	3	124	41	40	89	19	497





Intersection No: 14
Location: Empire Avenue at Main Street
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Wednesday, November 28, 2018
Collected By: Laura Walker

EMPIRE AVENUE AT MAIN STREET INTERSECTION TURNING MOVEMENT SUMMARY

14	Empire Avenue NORTHBOUND			Empire Avenue SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	16	0	13	0	6	6	6	42	24	15	96	2	226
7:15 AM	23	0	12	5	11	4	4	58	30	23	78	1	249
7:30 AM	30	1	16	6	15	7	5	77	41	31	113	2	344
7:45 AM	40	6	43	6	15	8	2	107	80	55	136	4	502
8:00 AM	78	5	65	3	8	10	12	169	63	45	137	8	603
8:15 AM	74	10	22	4	5	5	8	91	61	45	115	7	447
8:30 AM	61	4	26	0	5	2	2	112	40	44	99	0	395
8:45 AM	31	2	26	1	4	0	2	104	38	30	75	0	313
Total	353	28	223	25	69	42	41	760	377	288	849	24	3079

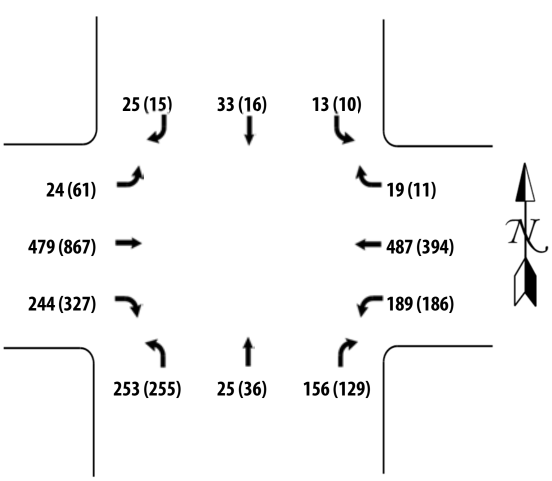
14	Empire Avenue NORTHBOUND			Empire Avenue SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	63	16	30	4	5	4	11	185	80	41	102	4	545
4:15 PM	67	8	38	1	3	7	8	200	83	42	109	5	571
4:30 PM	72	8	31	1	6	4	20	225	77	48	89	2	583
4:45 PM	53	4	30	4	2	0	22	257	87	55	94	0	608
5:00 PM	47	11	28	0	3	5	12	224	58	43	87	2	520
5:15 PM	39	10	22	1	3	2	17	195	73	53	100	4	519
5:30 PM	59	5	26	1	5	13	31	213	82	29	94	3	561
5:45 PM	45	2	33	1	5	3	12	228	64	42	115	4	554
Total	445	64	238	13	32	38	133	1727	604	353	790	24	4461

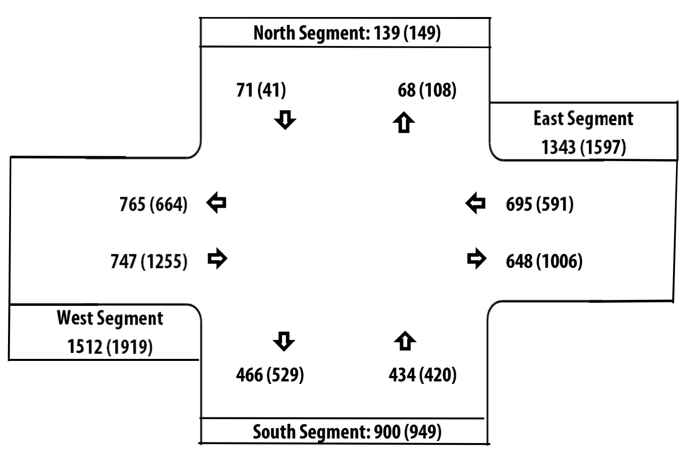
AM PEAK HOUR VOLUMES

14	Empire Avenue NORTHBOUND			Empire Avenue SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:45 AM	40	6	43	6	15	8	2	107	80	55	136	4	502
8:00 AM	78	5	65	3	8	10	12	169	63	45	137	8	603
8:15 AM	74	10	22	4	5	5	8	91	61	45	115	7	447
8:30 AM	61	4	26	0	5	2	2	112	40	44	99	0	395
Total	253	25	156	13	33	25	24	479	244	189	487	19	1947

PM PEAK HOUR VOLUMES

14	Empire Avenue NORTHBOUND			Empire Avenue SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	63	16	30	4	5	4	11	185	80	41	102	4	545
4:15 PM	67	8	38	1	3	7	8	200	83	42	109	5	571
4:30 PM	72	8	31	1	6	4	20	225	77	48	89	2	583
4:45 PM	53	4	30	4	2	0	22	257	87	55	94	0	608
Total	255	36	129	10	16	15	61	867	327	186	394	11	2307





Intersection No: 15
Location: Vintage Parkway at Main Street
AM Start Time 7:00 AM
PM Start Time 4:15 PM
Date: Thursday, November 15, 2018
Collected By: Jessica Fong

VINTAGE PARKWAY AT MAIN STREET INTERSECTION TURNING MOVEMENT SUMMARY

15	Vintage Parkway NORTHBOUND			Vintage Parkway SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM													
7:15 AM													
7:30 AM													
7:45 AM													
8:00 AM													
8:15 AM													
8:30 AM													
8:45 AM													
Total	0	0	0	0	0	0	0	0	0	0	0	0	

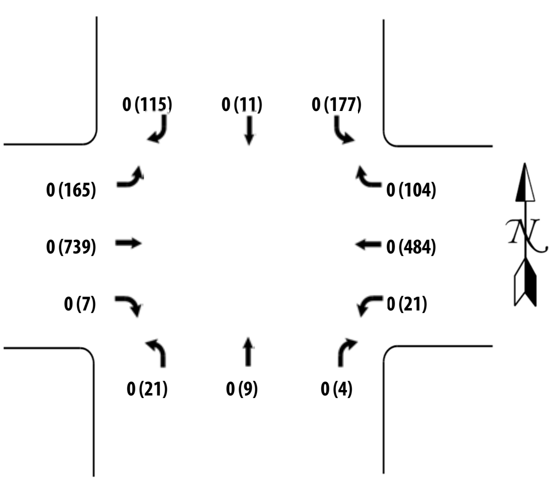
15	Vintage Parkway NORTHBOUND			Vintage Parkway SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:15 PM	3	1	1	29	4	29	48	206	0	15	123	23	482
4:30 PM	3	4	1	59	2	22	38	187	3	0	121	29	469
4:45 PM	10	3	2	55	3	34	31	165	1	1	114	31	450
5:00 PM	5	1	0	34	2	30	48	181	3	5	126	21	456
5:15 PM	1	1	0	41	1	34	48	180	8	2	107	23	446
5:30 PM	4	0	1	40	1	42	40	166	3	1	106	21	425
5:45 PM	4	0	1	35	0	19	49	134	4	4	103	26	379
6:00 PM	5	0	1	35	1	24	44	157	1	1	93	18	380
Total	35	10	7	328	14	234	346	1376	23	29	893	192	3487

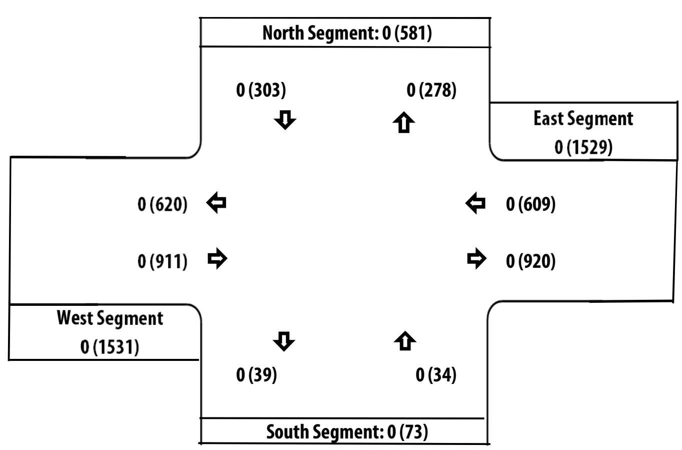
AM PEAK HOUR VOLUMES

15	Vintage Parkway NORTHBOUND			Vintage Parkway SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM													
7:15 AM													
7:30 AM													
7:45 AM													
Total	0	0	0	0	0	0	0	0	0	0	0	0	

PM PEAK HOUR VOLUMES

15	Vintage Parkway NORTHBOUND			Vintage Parkway SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:15 PM	3	1	1	29	4	29	48	206	0	15	123	23	482
4:30 PM	3	4	1	59	2	22	38	187	3	0	121	29	469
4:45 PM	10	3	2	55	3	34	31	165	1	1	114	31	450
5:00 PM	5	1	0	34	2	30	48	181	3	5	126	21	456
Total	21	9	4	177	11	115	165	739	7	21	484	104	1857





Intersection No: 16
Location: O'Hara Avenue at Main Street
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Thursday, November 15, 2018
Collected By: Marie Cooper

O'HARA AVENUE AT MAIN STREET INTERSECTION TURNING MOVEMENT SUMMARY

16	O'Hara Avenue NORTHBOUND			O'Hara Avenue SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	13		6					57	5	3	52		136
7:15 AM	12		2					61	13	3	100		191
7:30 AM	14		4					134	29	1	118		300
7:45 AM	22		2					123	40	2	146		335
8:00 AM	26		10					144	35	5	193		413
8:15 AM	25		15					111	18	4	113		286
8:30 AM	14		8					117	16	1	90		246
8:45 AM	18		4					70	20	2	94		208
Total	144	0	51	0	0	0	0	817	176	21	906	0	2115

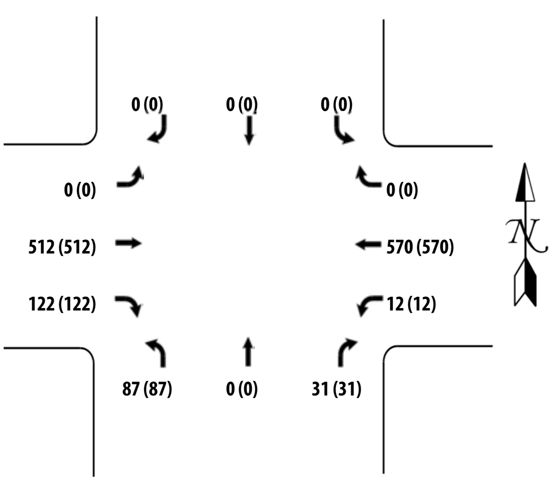
16	O'Hara Avenue NORTHBOUND			O'Hara Avenue SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	13		6					57	5	3	52		136
4:15 PM	12		2					61	13	3	100		191
4:30 PM	14		4					134	29	1	118		300
4:45 PM	22		2					123	40	2	146		335
5:00 PM	26		10					144	35	5	193		413
5:15 PM	25		15					111	18	4	113		286
5:30 PM	14		8					117	16	1	90		246
5:45 PM	18		4					70	20	2	94		208
Total	144	0	51	0	0	0	0	817	176	21	906	0	2115

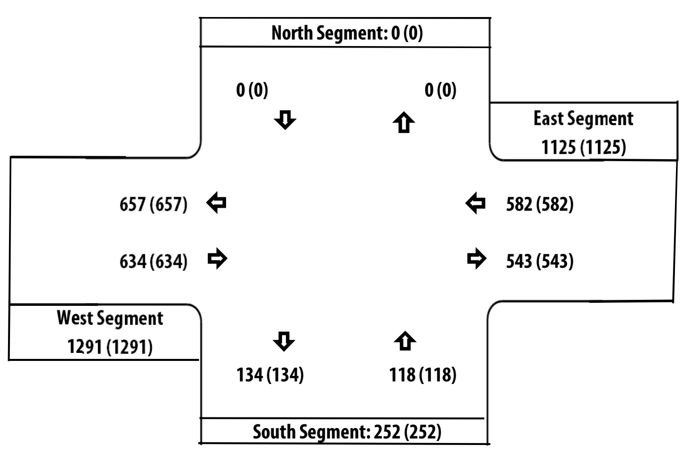
AM PEAK HOUR VOLUMES

16	O'Hara Avenue NORTHBOUND			O'Hara Avenue SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			AM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM	14		4					134	29	1	118		300
7:45 AM	22		2					123	40	2	146		335
8:00 AM	26		10					144	35	5	193		413
8:15 AM	25		15					111	18	4	113		286
Total	87	0	31	0	0	0	0	512	122	12	570	0	1334

PM PEAK HOUR VOLUMES

16	O'Hara Avenue NORTHBOUND			O'Hara Avenue SOUTHBOUND			Main Street EASTBOUND			Main Street WESTBOUND			PM
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:30 PM	14		4					134	29	1	118		300
4:45 PM	22		2					123	40	2	146		335
5:00 PM	26		10					144	35	5	193		413
5:15 PM	25		15					111	18	4	113		286
Total	87	0	31	0	0	0	0	512	122	12	570	0	1334





Intersection No: 17
Location: Neroly Road at Neroly Road
AM Start Time 7:15 AM
PM Start Time 4:00 PM
Date: Tuesday, November 27, 2018
Collected By: Jessica Fong

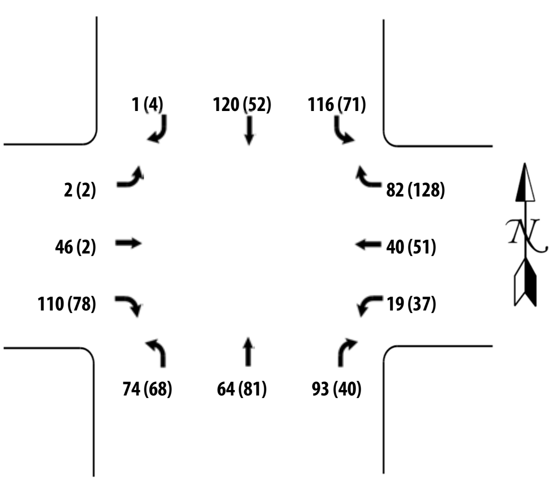
NEROLY ROAD AT NEROLY ROAD INTERSECTION TURNING MOVEMENT SUMMARY

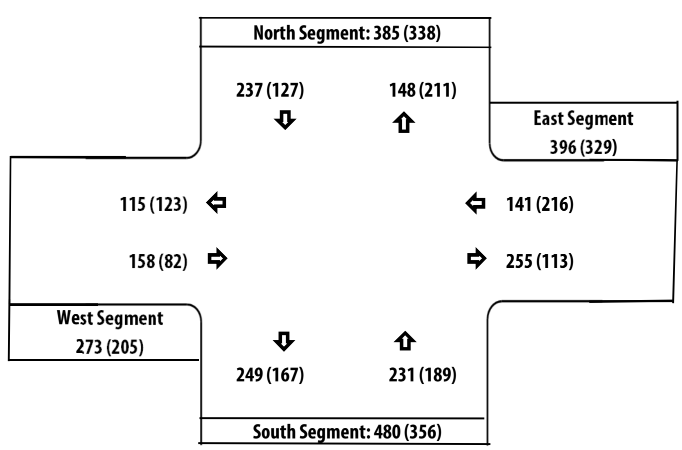
17	Neroly Road			Live Oak Avenue			Neroly Road			Live Oak Avenue			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:15 AM	3	5	15	18	5	0	0	6	10	1	3	13	79
7:30 AM	12	9	24	36	29	1	1	16	25	6	7	11	177
7:45 AM	25	21	22	30	40	0	0	10	32	5	11	33	229
8:00 AM	18	17	26	25	42	0	1	13	36	6	8	16	208
8:15 AM	19	17	21	25	9	0	0	7	17	2	14	22	153
8:30 AM	9	10	16	21	12	1	1	10	14	5	9	15	123
8:45 AM	14	7	13	17	9	1	2	6	10	3	10	11	103
9:00 AM													
Total	100	86	137	172	146	3	5	68	144	28	62	121	1072

17	Neroly Road			Live Oak Avenue			Neroly Road			Live Oak Avenue			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	14	13	10	12	9	0	0	0	21	3	5	32	119
4:15 PM	11	11	7	17	15	1	1	1	25	4	10	22	125
4:30 PM	20	17	13	12	22	0	5	5	32	1	10	24	161
4:45 PM	21	21	15	18	8	2	1	1	27	9	17	37	177
5:00 PM	14	18	12	15	21	0	0	0	19	1	8	30	138
5:15 PM	18	19	4	17	10	1	0	0	15	8	6	31	129
5:30 PM	15	23	9	21	13	1	1	1	17	19	20	30	170
5:45 PM	17	18	9	17	16	0	0	0	21	7	19	25	149
Total	130	140	79	129	114	5	8	8	177	52	95	231	1168

AM PEAK HOUR VOLUMES													
17	Neroly Road			Live Oak Avenue			Neroly Road			Live Oak Avenue			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM	12	9	24	36	29	1	1	16	25	6	7	11	177
7:45 AM	25	21	22	30	40	0	0	10	32	5	11	33	229
8:00 AM	18	17	26	25	42	0	1	13	36	6	8	16	208
8:15 AM	19	17	21	25	9	0	0	7	17	2	14	22	153
Total	74	64	93	116	120	1	2	46	110	19	40	82	767

PM PEAK HOUR VOLUMES													
17	Neroly Road			Live Oak Avenue			Neroly Road			Live Oak Avenue			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:45 PM	21	21	15	18	8	2	1	1	27	9	17	37	177
5:00 PM	14	18	12	15	21	0	0	0	19	1	8	30	138
5:15 PM	18	19	4	17	10	1	0	0	15	8	6	31	129
5:30 PM	15	23	9	21	13	1	1	1	17	19	20	30	170
Total	68	81	40	71	52	4	2	2	78	37	51	128	614





Intersection No: 22
Location: Empire Avenue at Oakley Road
AM Start Time 7:15 AM
PM Start Time 4:00 PM
Date: Tuesday, January 29, 2019
Collected By: Rick Folster

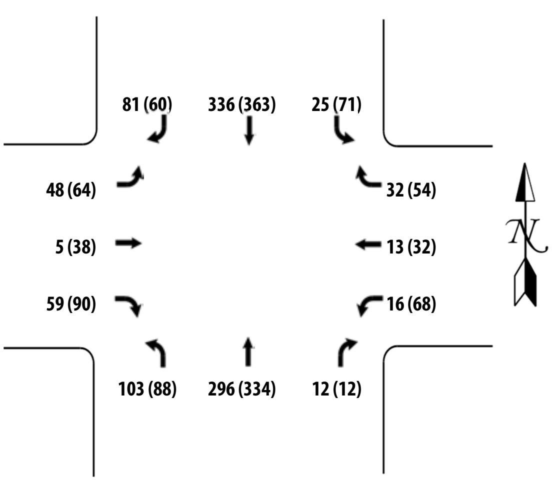
EMPIRE AVENUE AT OAKLEY ROAD INTERSECTION TURNING MOVEMENT SUMMARY

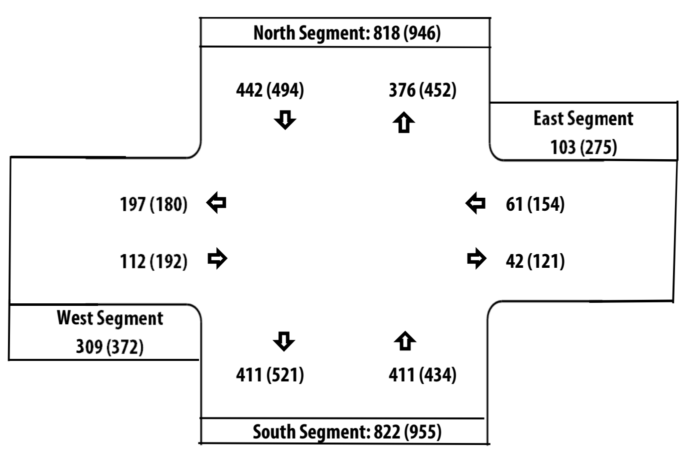
22	Empire Avenue			Empire Avenue			Oakley Road			Oakley Road			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:15 AM	7	36	0	3	39	8	10	2	10	0	1	3	119
7:30 AM	19	35	2	2	67	2	8	1	16	1	3	6	162
7:45 AM	27	52	2	8	107	31	17	1	22	5	1	9	282
8:00 AM	33	98	5	8	89	21	11	2	16	4	5	8	300
8:15 AM	26	92	5	5	74	18	11	1	15	3	3	5	258
8:30 AM	17	54	0	4	66	11	9	1	6	4	4	10	186
8:45 AM	14	47	2	8	31	5	8	4	7	3	5	9	143
9:00 AM													
Total	143	414	16	38	473	96	74	12	92	20	22	50	1450

22	Empire Avenue			Empire Avenue			Oakley Road			Oakley Road			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	18	72	5	19	72	17	11	9	17	10	5	10	265
4:15 PM	24	88	3	16	89	17	15	10	15	24	9	14	324
4:30 PM	27	79	4	29	111	8	22	10	21	18	14	2	345
4:45 PM	20	70	1	14	95	15	9	8	24	16	5	23	300
5:00 PM	18	72	4	12	87	16	18	14	26	13	4	12	296
5:15 PM	23	113	3	16	70	21	15	6	19	21	9	17	333
5:30 PM	21	74	4	13	86	10	15	12	20	20	6	15	296
5:45 PM													
Total	151	568	24	119	610	104	105	69	142	122	52	93	2159

AM PEAK HOUR VOLUMES													
22	Empire Avenue			Empire Avenue			Oakley Road			Oakley Road			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:45 AM	27	52	2	8	107	31	17	1	22	5	1	9	282
8:00 AM	33	98	5	8	89	21	11	2	16	4	5	8	300
8:15 AM	26	92	5	5	74	18	11	1	15	3	3	5	258
8:30 AM	17	54	0	4	66	11	9	1	6	4	4	10	186
Total	103	296	12	25	336	81	48	5	59	16	13	32	1026

PM PEAK HOUR VOLUMES													
22	Empire Avenue			Empire Avenue			Oakley Road			Oakley Road			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:30 PM	27	79	4	29	111	8	22	10	21	18	14	2	345
4:45 PM	20	70	1	14	95	15	9	8	24	16	5	23	300
5:00 PM	18	72	4	12	87	16	18	14	26	13	4	12	296
5:15 PM	23	113	3	16	70	21	15	6	19	21	9	17	333
Total	88	334	12	71	363	60	64	38	90	68	32	54	1274





Intersection No: 23
Location: Norcross Lane at Main Street
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Tuesday, January 29, 2019
Collected By: Marie Cooper

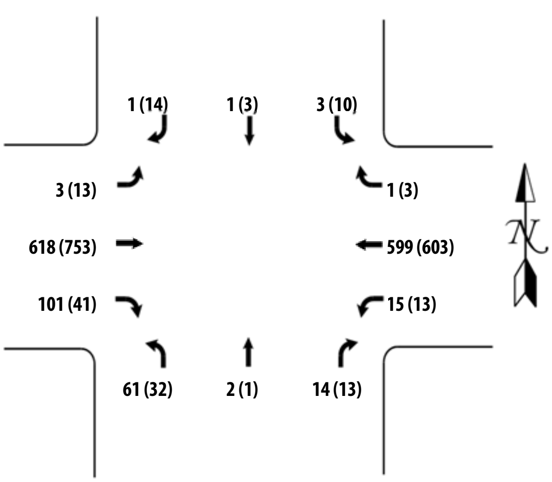
NORCROSS LANE AT MAIN STREET INTERSECTION TURNING MOVEMENT SUMMARY

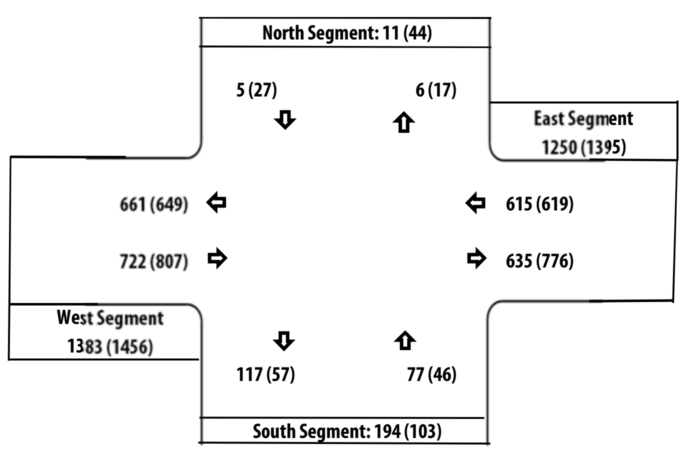
23	Norcross Lane			Norcross Lane			Main Street			Main Street			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	3	0	0	0	0	1	2	64	4	0	75	1	150
7:15 AM	9	0	0	3	0	1	2	88	13	3	104	1	224
7:30 AM	9	0	4	0	0	0	0	176	27	3	161	0	380
7:45 AM	5	0	1	1	0	0	1	149	14	3	131	0	305
8:00 AM	19	2	3	0	1	0	1	165	35	6	163	0	395
8:15 AM	28	0	6	2	0	1	1	128	25	3	144	1	339
8:30 AM	13	0	5	2	0	0	2	108	8	3	101	0	242
8:45 AM	5	0	5	0	0	2	1	97	8	3	99	0	220
Total	91	2	24	8	1	5	10	975	134	24	978	3	2255

23	Norcross Lane			Norcross Lane			Main Street			Main Street			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	10	1	1	1	0	0	2	200	11	5	128	1	360
4:15 PM	11	0	4	1	0	0	5	156	9	1	124	1	312
4:30 PM	11	1	0	3	0	4	5	186	8	5	138	0	361
4:45 PM	5	1	1	3	2	1	6	169	8	0	125	0	321
5:00 PM	3	0	2	1	0	4	1	197	13	1	168	0	390
5:15 PM	11	0	4	0	1	0	3	202	8	3	139	1	372
5:30 PM	9	1	4	2	1	5	5	198	8	6	161	0	400
5:45 PM	9	0	3	7	1	5	4	156	12	3	135	2	337
Total	69	4	19	18	5	19	31	1464	77	24	1118	5	2853

AM PEAK HOUR VOLUMES													
23	Norcross Lane			Norcross Lane			Main Street			Main Street			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:30 AM	9	0	4	0	0	0	0	176	27	3	161	0	380
7:45 AM	5	0	1	1	0	0	1	149	14	3	131	0	305
8:00 AM	19	2	3	0	1	0	1	165	35	6	163	0	395
8:15 AM	28	0	6	2	0	1	1	128	25	3	144	1	339
Total	61	2	14	3	1	1	3	618	101	15	599	1	1419

PM PEAK HOUR VOLUMES													
23	Norcross Lane			Norcross Lane			Main Street			Main Street			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
5:00 PM	3	0	2	1	0	4	1	197	13	1	168	0	390
5:15 PM	11	0	4	0	1	0	3	202	8	3	139	1	372
5:30 PM	9	1	4	2	1	5	5	198	8	6	161	0	400
5:45 PM	9	0	3	7	1	5	4	156	12	3	135	2	337
Total	32	1	13	10	3	14	13	753	41	13	603	3	1499





Intersection No: 24
Location: Empire Avenue at Gateway Drive
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Wednesday, January 30, 2019
Collected By: Marie Cooper

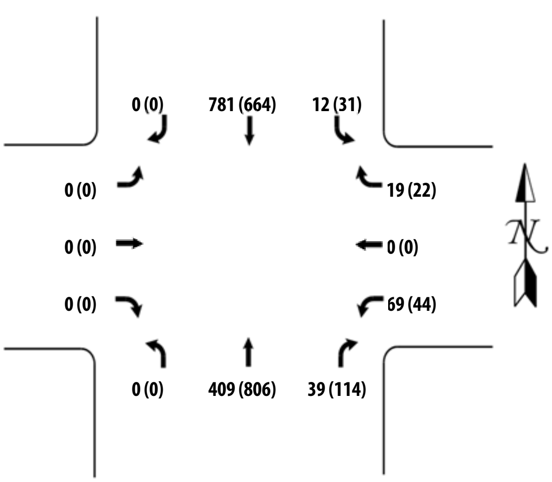
EMPIRE AVENUE AT GATEWAY DRIVE INTERSECTION TURNING MOVEMENT SUMMARY

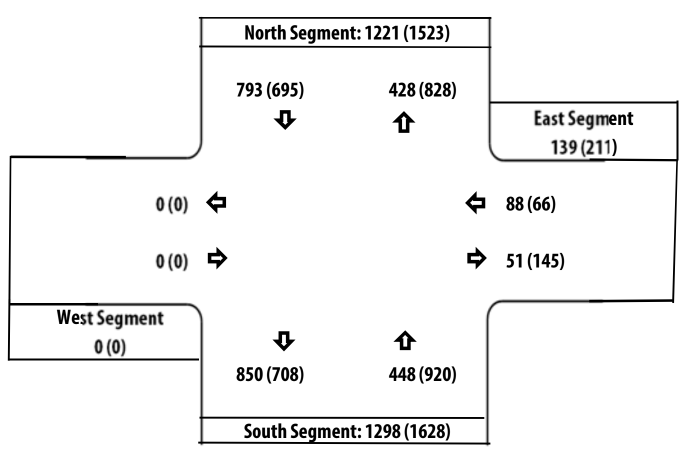
24	Empire Avenue			Empire Avenue			Gateway Drive			Gateway Drive			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM		40	4	0	130					13		2	189
7:15 AM		56	2	0	176					13		2	249
7:30 AM		69	8	4	186					11		5	283
7:45 AM		97	19	3	189					18		6	332
8:00 AM		112	7	2	198					17		4	340
8:15 AM		110	9	4	218					14		2	357
8:30 AM		90	4	3	176					20		7	300
8:45 AM		94	4	4	194					18		5	319
Total	0	668	57	20	1467	0	0	0	0	124	0	33	2369

24	Empire Avenue			Empire Avenue			Gateway Drive			Gateway Drive			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM		205	20	6	137					11		5	384
4:15 PM		192	17	2	128					8		5	352
4:30 PM		224	29	7	152					11		4	427
4:45 PM		195	18	5	136					15		6	375
5:00 PM		202	25	13	173					10		6	429
5:15 PM		212	32	7	149					14		4	418
5:30 PM		219	32	5	182					10		7	455
5:45 PM		173	25	6	160					10		5	379
Total	0	1622	198	51	1217	0	0	0	0	89	0	42	3219

AM PEAK HOUR VOLUMES													
24	Empire Avenue			Empire Avenue			Gateway Drive			Gateway Drive			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:45 AM		97	19	3	189					18		6	332
8:00 AM		112	7	2	198					17		4	340
8:15 AM		110	9	4	218					14		2	357
8:30 AM		90	4	3	176					20		7	300
Total	0	409	39	12	781	0	0	0	0	69	0	19	1329

PM PEAK HOUR VOLUMES													
24	Empire Avenue			Empire Avenue			Gateway Drive			Gateway Drive			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
5:00 PM		202	25	13	173					10		6	429
5:15 PM		212	32	7	149					14		4	418
5:30 PM		219	32	5	182					10		7	455
5:45 PM		173	25	6	160					10		5	379
Total	0	806	114	31	664	0	0	0	0	44	0	22	1681





Intersection No: 26
Location: O'Hara Avenue at Neroly Road
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Wednesday, January 30, 2019
Collected By: Rick Folster

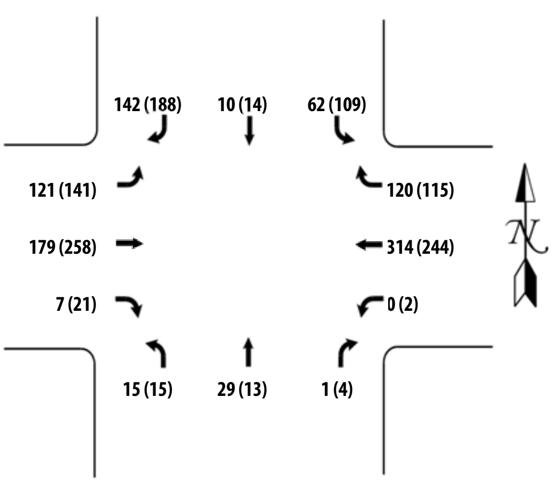
O'HARA AVENUE AT NEROLY ROAD INTERSECTION TURNING MOVEMENT SUMMARY

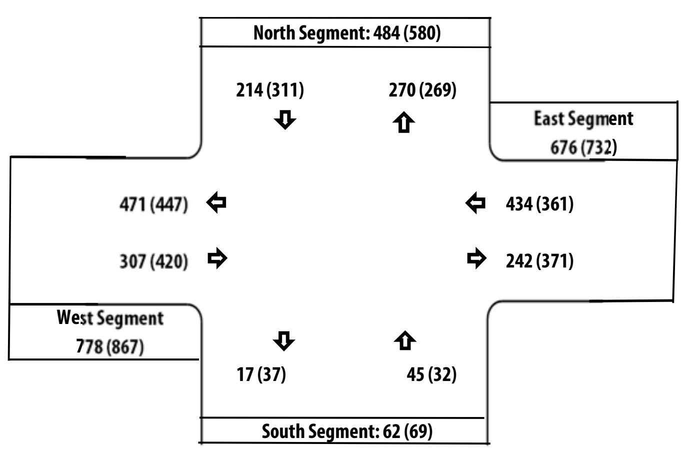
26	O'Hara Avenue			O'Hara Avenue			Neroly Road			Neroly Road			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	1	2	0	3	2	7	9	22	0		28	2	76
7:15 AM	5	3	0	4	0	11	25	39	2		39	11	139
7:30 AM	2	3	0	10	1	25	30	43	1		62	15	192
7:45 AM	5	1	0	14	2	37	39	50	1		92	28	269
8:00 AM	4	17	0	19	3	33	25	48	0		63	26	238
8:15 AM	2	9	0	11	2	27	26	31	3		80	27	218
8:30 AM	4	2	1	18	3	45	31	50	3		79	39	275
8:45 AM	8	20	0	19	0	31	20	23	1		47	58	227
Total	31	57	1	98	13	216	205	306	11	0	490	206	1634

26	O'Hara Avenue			O'Hara Avenue			Neroly Road			Neroly Road			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	1	2	0	21	3	32	17	58	1	0	54	20	209
4:15 PM	8	2	1	25	1	41	16	55	2	2	60	16	229
4:30 PM	8	6	2	25	4	48	36	56	9	1	69	24	288
4:45 PM	0	2	0	17	2	50	27	68	2	0	67	20	255
5:00 PM	3	1	2	28	5	42	57	66	6	0	49	41	300
5:15 PM	4	4	0	39	3	48	21	68	4	1	59	30	281
5:30 PM	6	1	0	26	5	47	29	66	3	0	68	18	269
5:45 PM													
Total	30	18	5	181	23	308	203	437	27	4	426	169	1831

AM PEAK HOUR VOLUMES													
26	O'Hara Avenue			O'Hara Avenue			Neroly Road			Neroly Road			AM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:45 AM	5	1	0	14	2	37	39	50	1		92	28	269
8:00 AM	4	17	0	19	3	33	25	48	0		63	26	238
8:15 AM	2	9	0	11	2	27	26	31	3		80	27	218
8:30 AM	4	2	1	18	3	45	31	50	3		79	39	275
Total	15	29	1	62	10	142	121	179	7	0	314	120	1000

PM PEAK HOUR VOLUMES													
26	O'Hara Avenue			O'Hara Avenue			Neroly Road			Neroly Road			PM
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:30 PM	8	6	2	25	4	48	36	56	9	1	69	24	288
4:45 PM	0	2	0	17	2	50	27	68	2	0	67	20	255
5:00 PM	3	1	2	28	5	42	57	66	6	0	49	41	300
5:15 PM	4	4	0	39	3	48	21	68	4	1	59	30	281
Total	15	13	4	109	14	188	141	258	21	2	244	115	1124



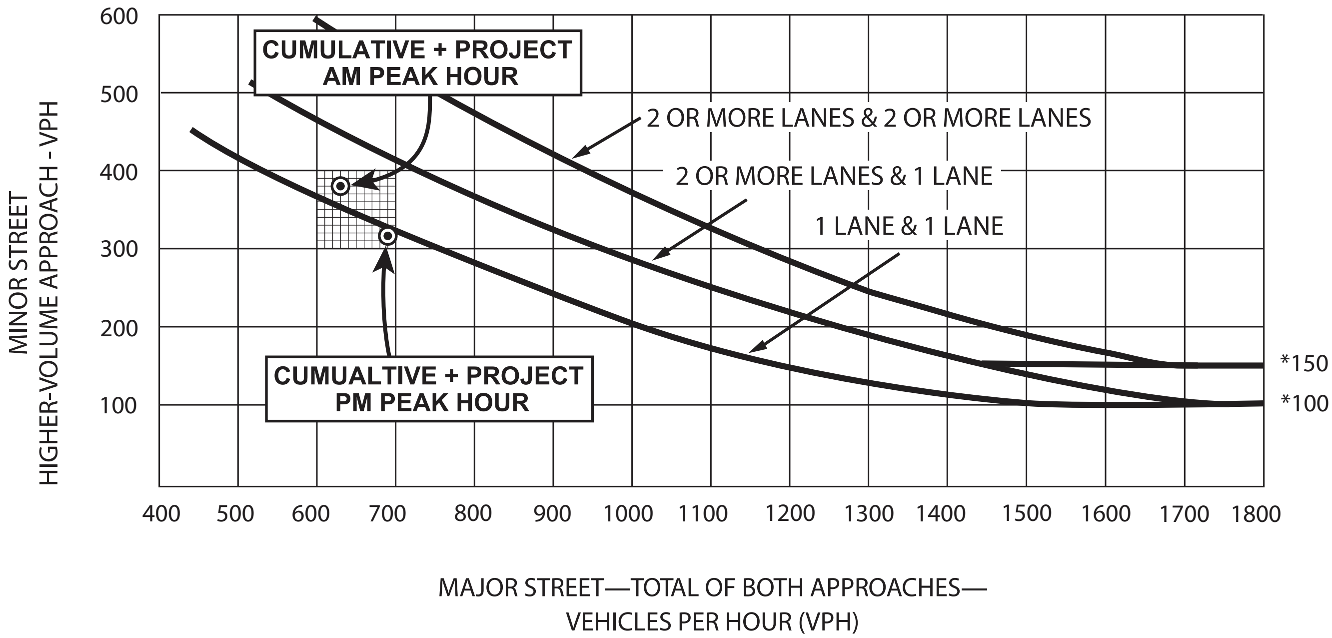


Oakley Logistics Center (City of Oakley)

Wilbur Avenue Accident Summary (2019-2013)

CASE ID	COLLISION DATE	COLLISION TIME	PRIMARY RD	SECONDARY RD	DISTANCE	DIRECTION	INTERSECTION	WEATHER 1	TYPE OF COLLISION	COLLISION SEVERITY	NUMBER KILLED	NUMBER INJURED	PCF VIOLATION CATEGORY	MOTOR VEHICLE INVOLVED WITH	ALCOHOL INVOLVED
2019															
8869582	20190421	447	WILBUR AV	RT 160	0	0	Y	Clear	Head On	Property Damage Only	0	0	Improper Turning	Other Motor Vehicle	0
90978677	20190425	1458	SR-160 N/B	WILBUR AVE	20	N	N	Clear	Rear End	Property Damage Only	0	0	Unsafe Speed	Other Motor Vehicle	0
91009094	20190611	755	SR-160 (S/B)	WILBUR AVE.	85	S	N	Clear	Rear End	Injury (Other Visible)	0	3	Unsafe Speed	Other Motor Vehicle	0
2018															
8623621	20180312	1601	WILBUR AV	RT 160	0	0	Y	Cloudy	Head On	Property Damage Only	0	0	Driving or Bicycling Under the Influence of Alcohol or Drug	Other Motor Vehicle	Y
8661418	20180609	115	BRIDGEHEAD RD	WILBUR AV	0	0	Y	Clear	Hit Object	Property Damage Only	0	0	Driving or Bicycling Under the Influence of Alcohol or Drug	Fixed Object	Y
90799680	20180820	1625	SR-160 N/B TO WILB	WILBUR AVE	12	S	N	Clear	Hit Object	Property Damage Only	0	0	Unsafe Starting or Backing	Fixed Object	0
2017															
6678394	20170520	1346	WILBUR AV	VIERA AV	0	0	N	Clear	Hit Object	Fatal	1	1	Improper Turning	Fixed Object	0
8311437	20170128	1543	WILBUR AV	RT 160	0	0	N	Clear	Head On	Property Damage Only	0	0	Driving or Bicycling Under the Influence of Alcohol or Drug	Fixed Object	0
8461583	20171003	953	BRIDGEHEAD RD	WILBUR AV	191	N	N	Clear	Rear End	Injury (Other Visible)	0	1	Improper Turning	Parked Motor Vehicle	0
8548071	20171018	1538	WILBUR AV	RT 160	1000	W	N	Clear	Broadside	Injury (Complaint of Pain)	0	1	Automobile Right of Way	Other Motor Vehicle	0
8608367	20171118	2105	WILBUR AV	VIERA AV	1500	E	N	Snowing	Head On	Injury (Complaint of Pain)	0	1	Driving or Bicycling Under	Other Object	Y
2016															
8067428	20160421	1248	WILBUR AV	RT 160	0	0	Y	Clear	Broadside	Injury (Complaint of Pain)	0	1	Automobile Right of Way	Other Motor Vehicle	0
8313258	20160809	1248	BRIDGEHEAD RD	WILBUR AV	0	0	Y	Clear	Rear End	Property Damage Only	0	0	Unsafe Speed	Other Motor Vehicle	0
90145390	20160324	835	WILBUR AVE.	MARITIME WAY	480	W	N	Clear	Broadside	Property Damage Only	0	0	Automobile Right of Way	Other Motor Vehicle	0
2015															
6964673	20150616	1355	WILBUR AV	RT 160	100	W	N	Clear	Hit Object	Property Damage Only	0	0	Improper Turning	Fixed Object	0
7102076	20150913	147	WILBUR AV	VIERA AV	0	0	Y	Clear	Hit Object	Property Damage Only	0	0	Unknown	Fixed Object	0
90051819	20151102	1030	SR-160 S/B	WILBUR AVE U/C	100	S	N	Raining	Overturned	Property Damage Only	0	0	Improper Turning	Non-Collision	0
2014															
6494346	20140524	1128	RT 160	WILBUR AV	45	S	N	Clear	Rear End	Property Damage Only	0	0	Unsafe Speed	Other Motor Vehicle	0
2013	None														

PEAK HOUR VOLUME WARRANT
(Urban Areas)



* **NOTE:**
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH ONE LANE.

SOURCE:
MUTCD, CHAPTER 4
(FIGURE 4C-3)

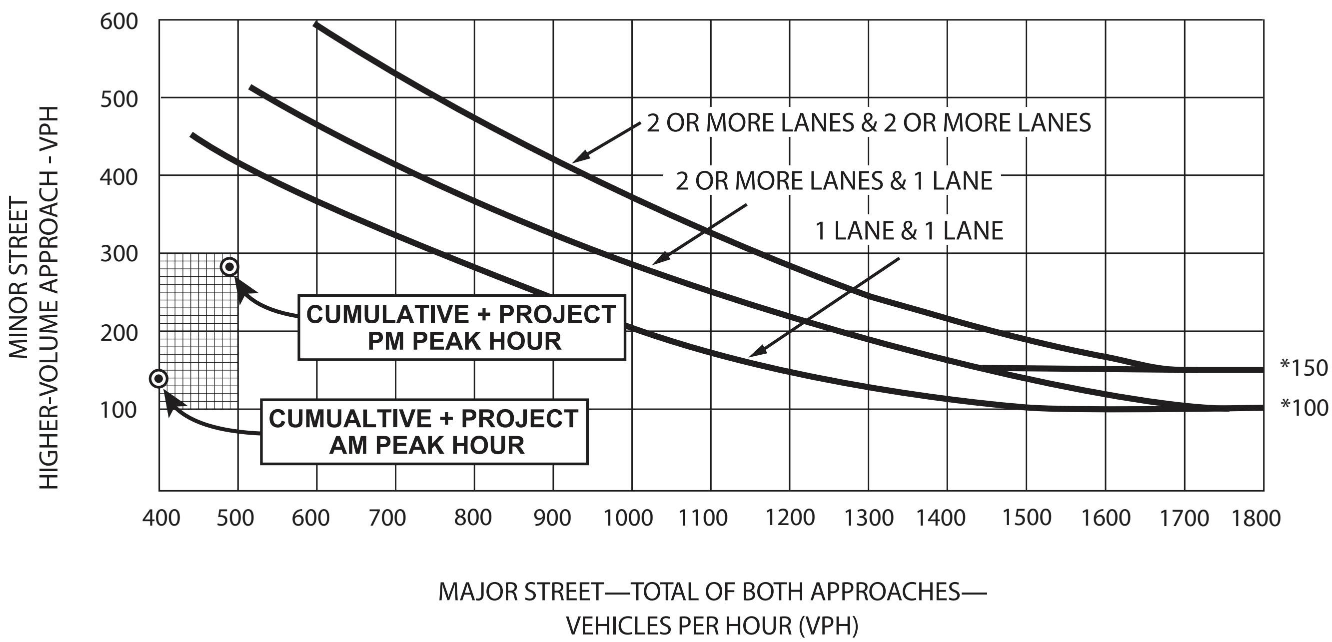
#5 - WILBUR AVENUE AND BRIDGEHEAD ROAD - CUMULATIVE PLUS PROJECT

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

PEAK HOUR VOLUME WARRANT
(Urban Areas)



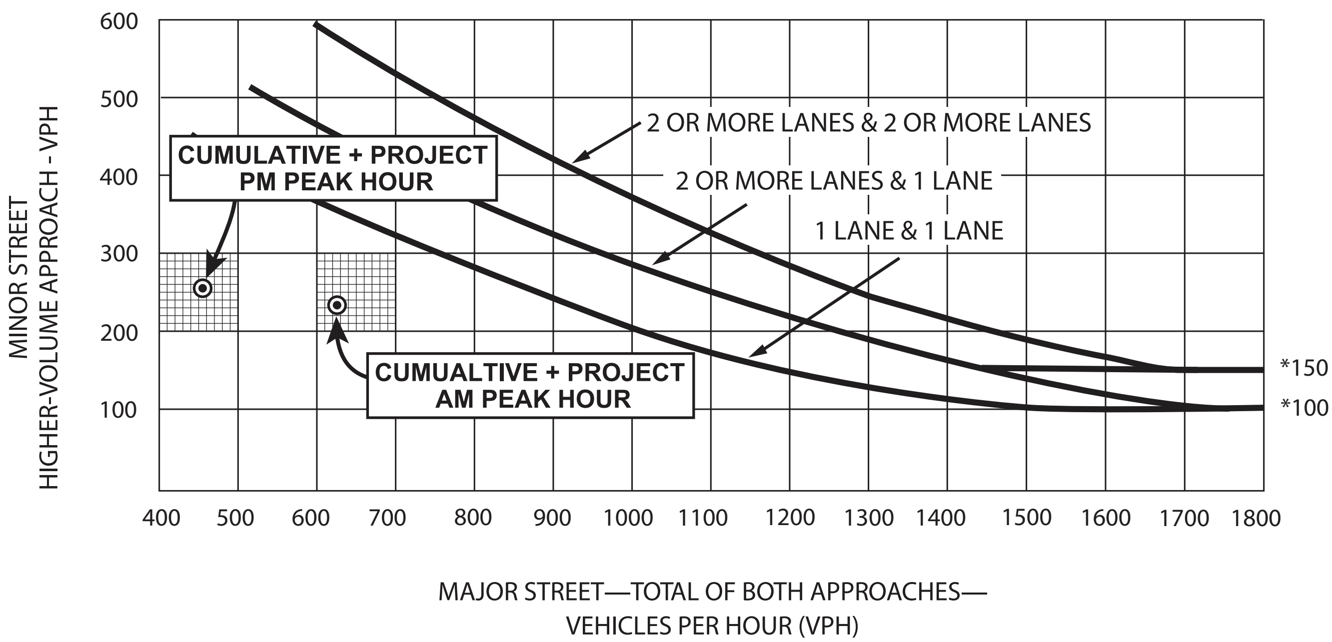
* **NOTE:**
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH ONE LANE.

SOURCE:
MUTCD, CHAPTER 4
(FIGURE 4C-3)

#13 - LIVE OAK AVENUE & OAKLEY ROAD - CUMULATIVE PLUS PROJECT
Oakley Logistics Center
City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

PEAK HOUR VOLUME WARRANT
(Urban Areas)



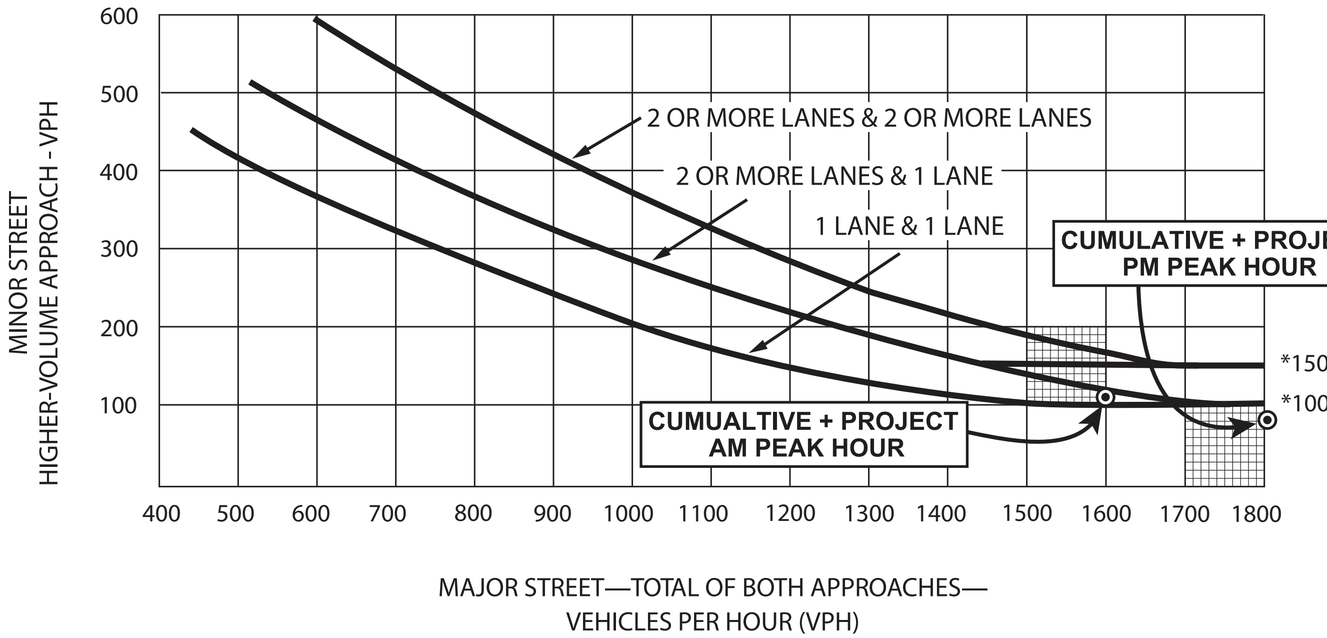
* **NOTE:**
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH ONE LANE.

SOURCE:
MUTCD, CHAPTER 4
(FIGURE 4C-3)

#17 - NEROLY ROAD AT LIVE OAK AVENUE - CUMULATIVE PLUS PROJECT
Oakley Logistics Center
City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

PEAK HOUR VOLUME WARRANT
(Urban Areas)



* **NOTE:**
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH ONE LANE.

SOURCE:
MUTCD, CHAPTER 4
(FIGURE 4C-3)

#24 - GATEWAY DRIVE AND EMPIRE AVENUE - CUMULATIVE PLUS PROJECT

Oakley Logistics Center

City of Oakley

Abrams Associates
TRAFFIC ENGINEERING, INC.

Intersection						
Int Delay, s/veh	1.7					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	179	23	19	254	46	15
Future Vol, veh/h	179	23	19	254	46	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	206	26	22	292	53	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	232	0	555	219
Stage 1	-	-	-	-	219	-
Stage 2	-	-	-	-	336	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1330	-	491	818
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	722	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1330	-	483	818
Mov Cap-2 Maneuver	-	-	-	-	483	-
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	710	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	12.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	537	-	-	1330	-
HCM Lane V/C Ratio	0.131	-	-	0.016	-
HCM Control Delay (s)	12.7	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	196	287	3	0	1
Future Vol, veh/h	1	196	287	3	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	218	319	3	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	322	0	-	0	541	321
Stage 1	-	-	-	-	321	-
Stage 2	-	-	-	-	220	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1232	-	-	-	500	718
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	814	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1232	-	-	-	500	718
Mov Cap-2 Maneuver	-	-	-	-	500	-
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	814	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1232	-	-	-	718
HCM Lane V/C Ratio	0.001	-	-	-	0.002
HCM Control Delay (s)	7.9	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	130	82	11	250	0	0	0	0	25	0	57
Future Vol, veh/h	0	130	82	11	250	0	0	0	0	25	0	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	75	-	-	-	-	-	-	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	133	84	11	255	0	0	0	0	26	0	58

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	217	0	0				452	494	128
Stage 1	-	-	-	-	-	-				277	277	-
Stage 2	-	-	-	-	-	-				175	217	-
Critical Hdwy	-	-	-	4.235	-	-				6.735	6.635	7.035
Critical Hdwy Stg 1	-	-	-	-	-	-				5.935	5.635	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.535	5.635	-
Follow-up Hdwy	-	-	-	2.2855	-	-				3.5855	4.0855	3.3855
Pot Cap-1 Maneuver	0	-	-	1306	-	0				535	463	879
Stage 1	0	-	-	-	-	0				728	666	-
Stage 2	0	-	-	-	-	0				836	708	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1306	-	-				531	0	879
Mov Cap-2 Maneuver	-	-	-	-	-	-				531	0	-
Stage 1	-	-	-	-	-	-				728	0	-
Stage 2	-	-	-	-	-	-				829	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.3	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1306	-	531	879
HCM Lane V/C Ratio	-	-	0.009	-	0.048	0.066
HCM Control Delay (s)	-	-	7.8	-	12.1	9.4
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0	-	0.2	0.2

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	137	0	0	183	35	97	0	20	0	0	0
Future Vol, veh/h	19	137	0	0	183	35	97	0	20	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	75	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	22	161	0	0	215	41	114	0	24	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	256	0	-	-	-	0	313	461	81
Stage 1	-	-	-	-	-	-	205	205	-
Stage 2	-	-	-	-	-	-	108	256	-
Critical Hdwy	4.28	-	-	-	-	-	6.98	6.68	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	5.98	5.68	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.98	5.68	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.59	4.09	3.39
Pot Cap-1 Maneuver	1257	-	0	0	-	-	636	481	941
Stage 1	-	-	0	0	-	-	789	714	-
Stage 2	-	-	0	0	-	-	884	677	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1257	-	-	-	-	-	625	0	941
Mov Cap-2 Maneuver	-	-	-	-	-	-	625	0	-
Stage 1	-	-	-	-	-	-	775	0	-
Stage 2	-	-	-	-	-	-	884	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	625	941	1257	-	-	-
HCM Lane V/C Ratio	0.183	0.025	0.018	-	-	-
HCM Control Delay (s)	12	8.9	7.9	-	-	-
HCM Lane LOS	B	A	A	-	-	-
HCM 95th %tile Q(veh)	0.7	0.1	0.1	-	-	-

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	1	116	0	1	0	195	23	1	0	11	17
Future Vol, veh/h	21	1	116	0	1	0	195	23	1	0	11	17
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	27	1	151	0	1	0	253	30	1	0	14	22
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	8.7	8.2	10.5	7.7
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	89%	100%	0%	0%	0%
Vol Thru, %	11%	0%	1%	100%	39%
Vol Right, %	0%	0%	99%	0%	61%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	219	21	117	1	28
LT Vol	195	21	0	0	0
Through Vol	23	0	1	1	11
RT Vol	1	0	116	0	17
Lane Flow Rate	284	27	152	1	36
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.372	0.045	0.2	0.002	0.045
Departure Headway (Hd)	4.708	5.942	4.74	5.169	4.463
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	765	604	758	691	801
Service Time	2.732	3.669	2.467	3.208	2.498
HCM Lane V/C Ratio	0.371	0.045	0.201	0.001	0.045
HCM Control Delay	10.5	9	8.7	8.2	7.7
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	1.7	0.1	0.7	0	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	302	27	8	386	26	64	4	6	33	7	38
Future Volume (veh/h)	21	302	27	8	386	26	64	4	6	33	7	38
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	30	431	39	11	551	37	91	6	9	47	10	54
Adj No. of Lanes	1	2	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	60	1532	685	25	713	48	131	9	125	63	13	72
Arrive On Green	0.03	0.44	0.44	0.01	0.42	0.42	0.08	0.08	0.08	0.09	0.09	0.09
Sat Flow, veh/h	1757	3505	1568	1757	1710	115	1653	109	1568	706	150	811
Grp Volume(v), veh/h	30	431	39	11	0	588	97	0	9	111	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	0	1824	1762	0	1568	1666	0	0
Q Serve(g_s), s	0.8	3.7	0.7	0.3	0.0	13.1	2.5	0.0	0.3	3.1	0.0	0.0
Cycle Q Clear(g_c), s	0.8	3.7	0.7	0.3	0.0	13.1	2.5	0.0	0.3	3.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.06	0.94		1.00	0.42		0.49
Lane Grp Cap(c), veh/h	60	1532	685	25	0	761	140	0	125	148	0	0
V/C Ratio(X)	0.50	0.28	0.06	0.44	0.00	0.77	0.69	0.00	0.07	0.75	0.00	0.00
Avail Cap(c_a), veh/h	245	4405	1971	204	0	2250	689	0	613	651	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.5	8.6	7.7	23.1	0.0	11.9	21.2	0.0	20.2	21.0	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.1	0.0	11.7	0.0	1.7	6.0	0.0	0.2	7.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.8	0.3	0.2	0.0	6.9	1.5	0.0	0.1	1.7	0.0	0.0
LnGrp Delay(d),s/veh	28.6	8.7	7.7	34.8	0.0	13.6	27.2	0.0	20.4	28.3	0.0	0.0
LnGrp LOS	C	A	A	C		B	C		C	C		
Approach Vol, veh/h		500			599			106			111	
Approach Delay, s/veh		9.8			14.0			26.7			28.3	
Approach LOS		A			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	25.2		8.7	6.1	24.2		8.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.5	59.5		18.5	6.6	58.4		18.5
Max Q Clear Time (g_c+I1), s	2.3	5.7		5.1	2.8	15.1		4.5
Green Ext Time (p_c), s	0.0	3.4		0.4	0.0	4.6		0.4

Intersection Summary		
HCM 2010 Ctrl Delay		14.6
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	241	136	633	386	42	10	6	51	15	23	10
Future Volume (veh/h)	16	241	136	633	386	42	10	6	51	15	23	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	19	280	158	736	449	49	12	7	59	17	27	12
Adj No. of Lanes	1	2	0	2	2	1	1	1	0	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	41	475	261	1017	1726	772	27	14	118	37	107	48
Arrive On Green	0.02	0.22	0.22	0.30	0.49	0.49	0.02	0.08	0.08	0.02	0.09	0.09
Sat Flow, veh/h	1757	2186	1199	3408	3505	1568	1757	169	1424	1757	1211	538
Grp Volume(v), veh/h	19	223	215	736	449	49	12	0	66	17	0	39
Grp Sat Flow(s),veh/h/ln	1757	1752	1633	1704	1752	1568	1757	0	1593	1757	0	1750
Q Serve(g_s), s	0.5	5.4	5.6	9.2	3.5	0.8	0.3	0.0	1.9	0.5	0.0	1.0
Cycle Q Clear(g_c), s	0.5	5.4	5.6	9.2	3.5	0.8	0.3	0.0	1.9	0.5	0.0	1.0
Prop In Lane	1.00		0.73	1.00		1.00	1.00		0.89	1.00		0.31
Lane Grp Cap(c), veh/h	41	381	355	1017	1726	772	27	0	132	37	0	155
V/C Ratio(X)	0.46	0.58	0.61	0.72	0.26	0.06	0.44	0.00	0.50	0.46	0.00	0.25
Avail Cap(c_a), veh/h	278	1091	1017	3202	4921	2201	241	0	690	278	0	794
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.8	16.6	16.7	14.9	7.0	6.3	23.1	0.0	20.8	22.9	0.0	20.1
Incr Delay (d2), s/veh	7.9	1.4	1.7	1.0	0.1	0.0	10.9	0.0	2.9	8.5	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.8	2.7	4.4	1.7	0.3	0.2	0.0	0.9	0.3	0.0	0.5
LnGrp Delay(d),s/veh	30.8	18.0	18.4	15.9	7.1	6.3	34.1	0.0	23.7	31.4	0.0	21.0
LnGrp LOS	C	B	B	B	A	A	C		C	C		C
Approach Vol, veh/h		457			1234			78			56	
Approach Delay, s/veh		18.7			12.3			25.3			24.1	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.6	14.8	5.2	8.7	5.6	27.8	5.5	8.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	44.5	29.5	6.5	21.5	7.5	66.5	7.5	20.5
Max Q Clear Time (g_c+I1), s	11.2	7.6	2.3	3.0	2.5	5.5	2.5	3.9
Green Ext Time (p_c), s	3.0	2.7	0.0	0.1	0.0	3.6	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	256	11	40	939	122	440
Future Volume (veh/h)	256	11	40	939	122	440
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1900	1743	1743	1743	1743
Adj Flow Rate, veh/h	305	13	48	1118	145	524
Adj No. of Lanes	2	0	1	2	1	2
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1240	53	82	1749	466	732
Arrive On Green	0.38	0.38	0.05	0.53	0.28	0.28
Sat Flow, veh/h	3324	138	1660	3399	1660	2608
Grp Volume(v), veh/h	156	162	48	1118	145	524
Grp Sat Flow(s),veh/h/ln	1656	1719	1660	1656	1660	1304
Q Serve(g_s), s	3.0	3.0	1.3	11.3	3.2	8.5
Cycle Q Clear(g_c), s	3.0	3.0	1.3	11.3	3.2	8.5
Prop In Lane		0.08	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	634	658	82	1749	466	732
V/C Ratio(X)	0.25	0.25	0.58	0.64	0.31	0.72
Avail Cap(c_a), veh/h	2024	2100	512	5384	1217	1912
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.9	9.9	21.9	7.9	13.3	15.2
Incr Delay (d2), s/veh	0.2	0.2	6.4	0.4	0.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.5	0.8	5.2	1.5	3.2
LnGrp Delay(d),s/veh	10.1	10.1	28.3	8.3	13.7	16.6
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	318			1166	669	
Approach Delay, s/veh	10.1			9.1	15.9	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.8	22.5				29.4		17.7
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	14.5	57.5				76.5		34.5
Max Q Clear Time (g_c+I1), s	3.3	5.0				13.3		10.5
Green Ext Time (p_c), s	0.1	2.0				11.5		2.7

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	605	61	58	920	151	135	73	25	143	51	90
Future Volume (veh/h)	87	605	61	58	920	151	135	73	25	143	51	90
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	99	688	69	66	1045	172	153	83	28	110	131	102
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	124	1264	127	100	1328	594	216	162	55	171	179	152
Arrive On Green	0.07	0.42	0.42	0.06	0.40	0.40	0.13	0.13	0.13	0.10	0.10	0.10
Sat Flow, veh/h	1660	3041	305	1660	3312	1482	1660	1248	421	1660	1743	1482
Grp Volume(v), veh/h	99	374	383	66	1045	172	153	0	111	110	131	102
Grp Sat Flow(s),veh/h/ln	1660	1656	1689	1660	1656	1482	1660	0	1669	1660	1743	1482
Q Serve(g_s), s	4.3	12.7	12.7	2.9	20.5	5.8	6.5	0.0	4.6	4.7	5.4	4.9
Cycle Q Clear(g_c), s	4.3	12.7	12.7	2.9	20.5	5.8	6.5	0.0	4.6	4.7	5.4	4.9
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	124	688	702	100	1328	594	216	0	217	171	179	152
V/C Ratio(X)	0.80	0.54	0.54	0.66	0.79	0.29	0.71	0.00	0.51	0.64	0.73	0.67
Avail Cap(c_a), veh/h	175	842	859	175	1685	754	986	0	991	199	209	178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	16.3	16.4	34.1	19.4	15.0	30.9	0.0	30.1	31.9	32.2	32.0
Incr Delay (d2), s/veh	15.6	0.7	0.7	7.2	2.0	0.3	4.3	0.0	1.9	5.5	10.4	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	5.8	6.0	1.5	9.7	2.4	3.2	0.0	2.2	2.4	3.1	2.3
LnGrp Delay(d),s/veh	49.3	17.0	17.0	41.3	21.4	15.3	35.2	0.0	31.9	37.4	42.6	39.6
LnGrp LOS	D	B	B	D	C	B	D		C	D	D	D
Approach Vol, veh/h		856			1283			264			343	
Approach Delay, s/veh		20.8			21.6			33.8			40.0	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	37.6		13.0	9.5	36.5		15.0
Change Period (Y+Rc), s	4.0	6.8		5.4	4.0	6.8		5.4
Max Green Setting (Gmax), s	7.8	37.7		8.9	7.8	37.7		44.0
Max Q Clear Time (g_c+I1), s	4.9	14.7		7.4	6.3	22.5		8.5
Green Ext Time (p_c), s	0.0	5.0		0.2	0.0	7.3		1.1

Intersection Summary			
HCM 2010 Ctrl Delay			24.8
HCM 2010 LOS			C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	483	145	37	820	217	85
Future Volume (veh/h)	483	145	37	820	217	85
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1743
Adj Flow Rate, veh/h	537	161	41	911	241	94
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1001	448	91	1673	342	305
Arrive On Green	0.30	0.30	0.05	0.51	0.21	0.21
Sat Flow, veh/h	3399	1482	1660	3399	1660	1482
Grp Volume(v), veh/h	537	161	41	911	241	94
Grp Sat Flow(s),veh/h/ln	1656	1482	1660	1656	1660	1482
Q Serve(g_s), s	5.5	3.4	1.0	7.6	5.5	2.2
Cycle Q Clear(g_c), s	5.5	3.4	1.0	7.6	5.5	2.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1001	448	91	1673	342	305
V/C Ratio(X)	0.54	0.36	0.45	0.54	0.71	0.31
Avail Cap(c_a), veh/h	3928	1757	492	5401	1735	1549
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	11.1	18.5	6.8	14.9	13.6
Incr Delay (d2), s/veh	0.4	0.5	3.5	0.3	2.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	1.4	0.5	3.5	2.7	0.9
LnGrp Delay(d),s/veh	12.2	11.5	22.0	7.1	17.6	14.2
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	698			952	335	
Approach Delay, s/veh	12.1			7.8	16.7	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.2	18.2				26.4		14.0
Change Period (Y+Rc), s	6.0	6.0				6.0		5.7
Max Green Setting (Gmax), s	12.0	48.0				66.0		42.3
Max Q Clear Time (g_c+I1), s	3.0	7.5				9.6		7.5
Green Ext Time (p_c), s	0.0	4.8				8.4		1.1

Intersection Summary		
HCM 2010 Ctrl Delay		10.8
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	405	64	47	597	79	65	16	21	116	18	267
Future Volume (veh/h)	143	405	64	47	597	79	65	16	21	116	18	267
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	154	435	69	51	642	85	70	17	23	125	19	287
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1133	507	100	939	420	145	59	79	360	55	368
Arrive On Green	0.11	0.32	0.32	0.06	0.27	0.27	0.08	0.08	0.08	0.23	0.23	0.23
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	712	963	1535	233	1568
Grp Volume(v), veh/h	154	435	69	51	642	85	70	0	40	144	0	287
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	0	1675	1768	0	1568
Q Serve(g_s), s	5.3	5.9	1.9	1.7	10.1	2.6	2.3	0.0	1.4	4.2	0.0	10.6
Cycle Q Clear(g_c), s	5.3	5.9	1.9	1.7	10.1	2.6	2.3	0.0	1.4	4.2	0.0	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.57	0.87		1.00
Lane Grp Cap(c), veh/h	197	1133	507	100	939	420	145	0	138	414	0	368
V/C Ratio(X)	0.78	0.38	0.14	0.51	0.68	0.20	0.48	0.00	0.29	0.35	0.00	0.78
Avail Cap(c_a), veh/h	370	1892	847	256	1665	745	1082	0	1032	1175	0	1042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.6	16.1	14.8	28.3	20.2	17.5	27.0	0.0	26.6	19.7	0.0	22.1
Incr Delay (d2), s/veh	6.6	0.2	0.1	4.0	0.9	0.2	2.5	0.0	1.1	0.5	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	2.9	0.8	0.9	5.0	1.1	1.2	0.0	0.7	2.1	0.0	4.9
LnGrp Delay(d),s/veh	33.3	16.3	14.9	32.3	21.1	17.7	29.5	0.0	27.7	20.2	0.0	25.8
LnGrp LOS	C	B	B	C	C	B	C		C	C		C
Approach Vol, veh/h		658			778			110			431	
Approach Delay, s/veh		20.2			21.5			28.9			23.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.5	25.9		19.2	10.9	22.5		9.1
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	9.0	33.3		* 41	13.0	29.3		38.0
Max Q Clear Time (g_c+I1), s	3.7	7.9		12.6	7.3	12.1		4.3
Green Ext Time (p_c), s	0.0	3.2		1.9	0.2	4.4		0.4

Intersection Summary		
HCM 2010 Ctrl Delay		22.0
HCM 2010 LOS		C

Notes

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	4	87	46	3	65	64	46	84	6	59	88	8
Future Vol, veh/h	4	87	46	3	65	64	46	84	6	59	88	8
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	5	118	62	4	88	86	62	114	8	80	119	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	9.7	10.2	10.5
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	3%	2%	38%
Vol Thru, %	62%	64%	49%	57%
Vol Right, %	4%	34%	48%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	136	137	132	155
LT Vol	46	4	3	59
Through Vol	84	87	65	88
RT Vol	6	46	64	8
Lane Flow Rate	184	185	178	209
Geometry Grp	1	1	1	1
Degree of Util (X)	0.268	0.262	0.249	0.304
Departure Headway (Hd)	5.259	5.1	5.024	5.224
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	684	707	719	689
Service Time	3.29	3.107	3.031	3.253
HCM Lane V/C Ratio	0.269	0.262	0.248	0.303
HCM Control Delay	10.2	9.9	9.7	10.5
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	1.1	1	1	1.3

Intersection	
Intersection Delay, s/veh	23.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	103	54	17	40	89	89	18	158	25	30	76	22
Future Vol, veh/h	103	54	17	40	89	89	18	158	25	30	76	22
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	184	96	30	71	159	159	32	282	45	54	136	39
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	21.7	26.5	25.3	17.2
HCM LOS	C	D	D	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	59%	18%	23%
Vol Thru, %	79%	31%	41%	59%
Vol Right, %	12%	10%	41%	17%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	201	174	218	128
LT Vol	18	103	40	30
Through Vol	158	54	89	76
RT Vol	25	17	89	22
Lane Flow Rate	359	311	389	229
Geometry Grp	1	1	1	1
Degree of Util (X)	0.704	0.625	0.734	0.475
Departure Headway (Hd)	7.058	7.244	6.791	7.474
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	510	497	529	480
Service Time	5.127	5.318	4.86	5.554
HCM Lane V/C Ratio	0.704	0.626	0.735	0.477
HCM Control Delay	25.3	21.7	26.5	17.2
HCM Lane LOS	D	C	D	C
HCM 95th-tile Q	5.5	4.2	6.1	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	479	244	189	487	19	253	25	156	13	33	25
Future Volume (veh/h)	24	479	244	189	487	19	253	25	156	13	33	25
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	30	591	0	233	601	23	312	31	193	16	41	31
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	0	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	47	893	400	283	1341	51	619	335	285	27	70	84
Arrive On Green	0.03	0.25	0.00	0.16	0.39	0.39	0.18	0.18	0.18	0.05	0.05	0.05
Sat Flow, veh/h	1757	3505	1568	1757	3442	132	3408	1845	1568	511	1308	1568
Grp Volume(v), veh/h	30	591	0	233	306	318	312	31	193	57	0	31
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1821	1704	1845	1568	1819	0	1568
Q Serve(g_s), s	1.0	8.6	0.0	7.3	7.3	7.3	4.7	0.8	6.5	1.7	0.0	1.1
Cycle Q Clear(g_c), s	1.0	8.6	0.0	7.3	7.3	7.3	4.7	0.8	6.5	1.7	0.0	1.1
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	0.28		1.00
Lane Grp Cap(c), veh/h	47	893	400	283	683	710	619	335	285	97	0	84
V/C Ratio(X)	0.64	0.66	0.00	0.82	0.45	0.45	0.50	0.09	0.68	0.59	0.00	0.37
Avail Cap(c_a), veh/h	189	1826	817	340	1052	1093	1500	812	690	800	0	690
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.4	19.0	0.0	23.0	12.8	12.8	20.9	19.3	21.7	26.3	0.0	26.0
Incr Delay (d2), s/veh	13.8	0.8	0.0	12.8	0.5	0.4	0.6	0.1	2.8	5.5	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.2	0.0	4.5	3.6	3.7	2.3	0.4	3.0	1.0	0.0	0.5
LnGrp Delay(d),s/veh	41.2	19.8	0.0	35.8	13.3	13.3	21.6	19.5	24.5	31.8	0.0	28.7
LnGrp LOS	D	B		D	B	B	C	B	C	C		C
Approach Vol, veh/h		621			857			536			88	
Approach Delay, s/veh		20.9			19.4			22.5			30.7	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.2	20.3		7.6	5.5	27.9		15.7
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	11.0	* 30		25.0	6.1	34.1		25.0
Max Q Clear Time (g_c+I1), s	9.3	10.6		3.7	3.0	9.3		8.5
Green Ext Time (p_c), s	0.1	3.9		0.3	0.0	4.0		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	21.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	447	26	7	507	94	24	13	3	254	0	144
Future Volume (veh/h)	152	447	26	7	507	94	24	13	3	254	0	144
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	179	526	31	8	596	111	28	15	4	299	0	169
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	214	1002	852	14	650	121	57	31	8	344	0	307
Arrive On Green	0.12	0.54	0.54	0.01	0.43	0.43	0.05	0.05	0.05	0.20	0.00	0.20
Sat Flow, veh/h	1757	1845	1568	1757	1513	282	1052	563	150	1757	0	1568
Grp Volume(v), veh/h	179	526	31	8	0	707	47	0	0	299	0	169
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1795	1766	0	0	1757	0	1568
Q Serve(g_s), s	8.7	16.0	0.8	0.4	0.0	32.5	2.3	0.0	0.0	14.4	0.0	8.5
Cycle Q Clear(g_c), s	8.7	16.0	0.8	0.4	0.0	32.5	2.3	0.0	0.0	14.4	0.0	8.5
Prop In Lane	1.00		1.00	1.00		0.16	0.60		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	214	1002	852	14	0	771	96	0	0	344	0	307
V/C Ratio(X)	0.84	0.53	0.04	0.56	0.00	0.92	0.49	0.00	0.00	0.87	0.00	0.55
Avail Cap(c_a), veh/h	241	1038	883	110	0	877	373	0	0	387	0	345
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.6	12.8	9.3	43.3	0.0	23.5	40.2	0.0	0.0	34.1	0.0	31.8
Incr Delay (d2), s/veh	20.4	0.4	0.0	30.6	0.0	13.2	3.8	0.0	0.0	17.3	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	8.2	0.3	0.3	0.0	18.7	1.2	0.0	0.0	8.6	0.0	3.8
LnGrp Delay(d),s/veh	58.0	13.2	9.3	73.9	0.0	36.8	44.0	0.0	0.0	51.5	0.0	33.3
LnGrp LOS	E	B	A	E		D	D			D		C
Approach Vol, veh/h		736			715			47			468	
Approach Delay, s/veh		24.0			37.2			44.0			44.9	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.7	52.3		21.8	14.7	42.3		8.8
Change Period (Y+Rc), s	4.0	* 4.7		* 4.7	4.0	* 4.7		4.0
Max Green Setting (Gmax), s	5.5	* 49		* 19	12.0	* 43		18.5
Max Q Clear Time (g_c+I1), s	2.4	18.0		16.4	10.7	34.5		4.3
Green Ext Time (p_c), s	0.0	3.9		0.7	0.1	3.2		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	34.2
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	512	122	12	570	0	87	0	31	0	0	0
Future Volume (veh/h)	0	512	122	12	570	0	87	0	31	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	0	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	0	632	151	15	704	0	107	0	38	0	0	0
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	0	3	3	3	3	3	3
Cap, veh/h	5	883	751	41	1127	0	222	0	198	0	5	0
Arrive On Green	0.00	0.48	0.48	0.02	0.61	0.00	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Grp Volume(v), veh/h	0	632	151	15	704	0	107	0	38	0	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Q Serve(g_s), s	0.0	9.9	2.0	0.3	8.8	0.0	2.1	0.0	0.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	9.9	2.0	0.3	8.8	0.0	2.1	0.0	0.8	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	5	883	751	41	1127	0	222	0	198	0	5	0
V/C Ratio(X)	0.00	0.72	0.20	0.37	0.62	0.00	0.48	0.00	0.19	0.00	0.00	0.00
Avail Cap(c_a), veh/h	312	2491	2117	312	2491	0	864	0	771	0	933	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	7.6	5.5	17.6	4.5	0.0	14.9	0.0	14.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	0.1	5.5	0.6	0.0	1.6	0.0	0.5	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.2	0.9	0.2	4.5	0.0	1.1	0.0	0.4	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	8.7	5.6	23.1	5.0	0.0	16.5	0.0	14.8	0.0	0.0	0.0
LnGrp LOS		A	A	C	A		B		B			
Approach Vol, veh/h		783			719			145			0	
Approach Delay, s/veh		8.1			5.4			16.0			0.0	
Approach LOS		A			A			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	22.5		0.0	0.0	27.4		9.2
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.6
Max Green Setting (Gmax), s	6.5	49.4		18.5	6.5	49.4		18.0
Max Q Clear Time (g_c+I1), s	2.3	11.9		0.0	0.0	10.8		4.1
Green Ext Time (p_c), s	0.0	5.6		0.0	0.0	5.9		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	7.6
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	46	110	19	40	82	74	64	93	116	120	1
Future Vol, veh/h	2	46	110	19	40	82	74	64	93	116	120	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	55	131	23	48	98	88	76	111	138	143	1
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.4	10.1	13.3	14.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	32%	100%	0%	0%	100%	0%	0%	49%
Vol Thru, %	28%	0%	100%	12%	0%	100%	14%	51%
Vol Right, %	40%	0%	0%	88%	0%	0%	86%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	231	2	31	125	19	27	95	237
LT Vol	74	2	0	0	19	0	0	116
Through Vol	64	0	31	15	0	27	13	120
RT Vol	93	0	0	110	0	0	82	1
Lane Flow Rate	275	2	37	149	23	32	113	282
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.448	0.005	0.067	0.246	0.045	0.058	0.189	0.486
Departure Headway (Hd)	5.865	7.084	6.571	5.941	7.118	6.605	5.987	6.195
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	613	504	543	601	501	540	597	581
Service Time	3.614	4.847	4.333	3.702	4.883	4.369	3.751	3.942
HCM Lane V/C Ratio	0.449	0.004	0.068	0.248	0.046	0.059	0.189	0.485
HCM Control Delay	13.3	9.9	9.8	10.6	10.2	9.8	10.2	14.7
HCM Lane LOS	B	A	A	B	B	A	B	B
HCM 95th-tile Q	2.3	0	0.2	1	0.1	0.2	0.7	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	232	625	975	183	43	192
Future Volume (veh/h)	232	625	975	183	43	192
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	252	679	1060	199	47	209
Adj No. of Lanes	2	3	3	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	386	3028	1782	334	305	272
Arrive On Green	0.11	0.60	0.42	0.42	0.17	0.17
Sat Flow, veh/h	3408	5202	4428	799	1757	1568
Grp Volume(v), veh/h	252	679	835	424	47	209
Grp Sat Flow(s),veh/h/ln	1704	1679	1679	1704	1757	1568
Q Serve(g_s), s	4.1	3.6	11.0	11.1	1.3	7.3
Cycle Q Clear(g_c), s	4.1	3.6	11.0	11.1	1.3	7.3
Prop In Lane	1.00			0.47	1.00	1.00
Lane Grp Cap(c), veh/h	386	3028	1404	712	305	272
V/C Ratio(X)	0.65	0.22	0.59	0.60	0.15	0.77
Avail Cap(c_a), veh/h	891	5637	2646	1343	1314	1173
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	5.3	12.9	12.9	20.1	22.6
Incr Delay (d2), s/veh	1.9	0.0	0.4	0.8	0.2	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.6	5.2	5.3	0.6	6.4
LnGrp Delay(d),s/veh	26.2	5.3	13.3	13.7	20.3	27.1
LnGrp LOS	C	A	B	B	C	C
Approach Vol, veh/h		931	1259		256	
Approach Delay, s/veh		11.0	13.5		25.9	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		41.3		16.1	10.5	30.8		
Change Period (Y+Rc), s		6.8		6.1	4.0	6.8		
Max Green Setting (Gmax), s		64.2		42.9	15.0	45.2		
Max Q Clear Time (g_c+I1), s		5.6		9.3	6.1	13.1		
Green Ext Time (p_c), s		5.6		0.8	0.6	10.9		

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	341	198	55	636	226	203	278	24	105	428	338
Future Volume (veh/h)	145	341	198	55	636	226	203	278	24	105	428	338
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	165	388	225	62	723	257	231	316	27	119	486	327
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	198	1148	514	87	928	415	266	1019	86	149	918	411
Arrive On Green	0.11	0.33	0.33	0.05	0.26	0.26	0.15	0.33	0.33	0.09	0.26	0.26
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	3103	263	1757	3505	1568
Grp Volume(v), veh/h	165	388	225	62	723	257	231	178	165	119	486	327
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	1752	1614	1757	1752	1568
Q Serve(g_s), s	9.1	8.2	11.1	3.4	18.8	14.2	12.6	7.5	7.6	6.5	11.7	19.2
Cycle Q Clear(g_c), s	9.1	8.2	11.1	3.4	18.8	14.2	12.6	7.5	7.6	6.5	11.7	19.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	198	1148	514	87	928	415	266	575	530	149	918	411
V/C Ratio(X)	0.83	0.34	0.44	0.71	0.78	0.62	0.87	0.31	0.31	0.80	0.53	0.80
Avail Cap(c_a), veh/h	268	1449	648	187	1274	570	357	851	783	300	1602	717
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	25.0	26.0	46.1	33.5	31.8	40.8	24.7	24.7	44.2	31.1	33.9
Incr Delay (d2), s/veh	15.2	0.2	0.6	10.1	2.2	1.5	15.7	0.3	0.3	9.3	0.5	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	4.0	4.8	1.9	9.3	6.3	7.3	3.6	3.4	3.6	5.7	8.6
LnGrp Delay(d),s/veh	58.0	25.2	26.6	56.2	35.7	33.3	56.5	25.0	25.1	53.5	31.6	37.5
LnGrp LOS	E	C	C	E	D	C	E	C	C	D	C	D
Approach Vol, veh/h		778			1042			574			932	
Approach Delay, s/veh		32.6			36.3			37.7			36.5	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	39.1	18.9	31.6	15.1	32.9	12.4	38.1
Change Period (Y+Rc), s	4.0	* 6.8	4.0	* 5.8	4.0	6.8	4.0	5.8
Max Green Setting (Gmax), s	10.5	* 41	20.0	* 45	15.0	35.8	16.8	47.8
Max Q Clear Time (g_c+I1), s	5.4	13.1	14.6	21.2	11.1	20.8	8.5	9.6
Green Ext Time (p_c), s	0.0	3.5	0.3	4.6	0.1	5.3	0.2	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	35.7
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	5	59	16	13	32	103	296	12	25	336	81
Future Volume (veh/h)	48	5	59	16	13	32	103	296	12	25	336	81
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	60	0	69	19	15	37	120	344	14	29	391	94
Adj No. of Lanes	2	0	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	277	0	124	56	44	88	157	1084	44	49	715	170
Arrive On Green	0.08	0.00	0.08	0.06	0.06	0.06	0.09	0.32	0.32	0.03	0.25	0.25
Sat Flow, veh/h	3514	0	1568	1003	792	1568	1757	3433	139	1757	2810	669
Grp Volume(v), veh/h	60	0	69	34	0	37	120	175	183	29	242	243
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1795	0	1568	1757	1752	1820	1757	1752	1727
Q Serve(g_s), s	0.6	0.0	1.6	0.7	0.0	0.9	2.5	2.8	2.9	0.6	4.5	4.6
Cycle Q Clear(g_c), s	0.6	0.0	1.6	0.7	0.0	0.9	2.5	2.8	2.9	0.6	4.5	4.6
Prop In Lane	1.00		1.00	0.56		1.00	1.00		0.08	1.00		0.39
Lane Grp Cap(c), veh/h	277	0	124	100	0	88	157	553	575	49	446	439
V/C Ratio(X)	0.22	0.00	0.56	0.34	0.00	0.42	0.77	0.32	0.32	0.59	0.54	0.55
Avail Cap(c_a), veh/h	1692	0	755	1440	0	1259	658	1707	1773	287	1336	1317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.1	0.0	16.6	17.0	0.0	17.1	16.6	9.7	9.7	18.0	12.1	12.1
Incr Delay (d2), s/veh	0.4	0.0	3.9	2.0	0.0	3.2	7.6	0.3	0.3	11.0	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.8	0.4	0.0	0.4	1.5	1.4	1.5	0.4	2.3	2.3
LnGrp Delay(d),s/veh	16.5	0.0	20.5	19.0	0.0	20.3	24.2	10.0	10.0	28.9	13.1	13.2
LnGrp LOS	B		C	B		C	C	B	B	C	B	B
Approach Vol, veh/h		129			71			478			514	
Approach Delay, s/veh		18.6			19.6			13.6			14.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.0	18.2		8.1	7.3	15.9		6.1
Change Period (Y+Rc), s	4.0	6.4		5.1	4.0	6.4		4.0
Max Green Setting (Gmax), s	6.1	36.4		18.0	14.0	28.5		30.0
Max Q Clear Time (g_c+I1), s	2.6	4.9		3.6	4.5	6.6		2.9
Green Ext Time (p_c), s	0.0	2.2		0.3	0.2	2.9		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.7
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	618	101	15	599	1	61	2	14	3	1	1
Future Volume (veh/h)	3	618	101	15	599	1	61	2	14	3	1	1
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	3	687	112	17	666	1	68	2	16	3	1	1
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	7	847	138	37	1038	2	96	3	23	7	2	2
Arrive On Green	0.00	0.55	0.55	0.02	0.56	0.56	0.07	0.07	0.07	0.01	0.01	0.01
Sat Flow, veh/h	1757	1548	252	1757	1841	3	1360	40	320	1039	346	346
Grp Volume(v), veh/h	3	0	799	17	0	667	86	0	0	5	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1800	1757	0	1844	1720	0	0	1732	0	0
Q Serve(g_s), s	0.1	0.0	17.6	0.5	0.0	12.1	2.4	0.0	0.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.0	17.6	0.5	0.0	12.1	2.4	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.00	0.79		0.19	0.60		0.20
Lane Grp Cap(c), veh/h	7	0	985	37	0	1040	121	0	0	12	0	0
V/C Ratio(X)	0.42	0.00	0.81	0.46	0.00	0.64	0.71	0.00	0.00	0.43	0.00	0.00
Avail Cap(c_a), veh/h	198	0	1871	198	0	1917	635	0	0	657	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.2	0.0	9.0	23.6	0.0	7.3	22.2	0.0	0.0	24.1	0.0	0.0
Incr Delay (d2), s/veh	34.4	0.0	1.7	8.6	0.0	0.7	7.4	0.0	0.0	23.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	8.9	0.3	0.0	6.1	1.4	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	58.7	0.0	10.7	32.2	0.0	7.9	29.6	0.0	0.0	47.3	0.0	0.0
LnGrp LOS	E		B	C		A	C			D		
Approach Vol, veh/h		802			684			86			5	
Approach Delay, s/veh		10.8			8.5			29.6			47.3	
Approach LOS		B			A			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.0	31.4		4.3	4.2	32.2		8.0
Change Period (Y+Rc), s	4.0	* 4.7		4.0	4.0	* 4.7		4.6
Max Green Setting (Gmax), s	5.5	* 51		18.5	5.5	* 51		18.0
Max Q Clear Time (g_c+I1), s	2.5	19.6		2.1	2.1	14.1		4.4
Green Ext Time (p_c), s	0.0	7.0		0.0	0.0	5.4		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	69	19	409	39	12	781
Future Vol, veh/h	69	19	409	39	12	781
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	74	20	440	42	13	840

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	907	241	0	0	482	0
Stage 1	461	-	-	-	-	-
Stage 2	446	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	273	757	-	-	1070	-
Stage 1	599	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	270	757	-	-	1070	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	599	-	-	-	-	-
Stage 2	602	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.3	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	314	1070	-
HCM Lane V/C Ratio	-	-	0.301	0.012	-
HCM Control Delay (s)	-	-	21.3	8.4	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.2	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	179	7	0	314	120	15	29	1	62	10	142
Future Volume (veh/h)	121	179	7	0	314	120	15	29	1	62	10	142
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	133	197	8	0	345	132	16	32	1	68	11	156
Adj No. of Lanes	2	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	370	925	38	3	438	168	42	486	15	124	328	293
Arrive On Green	0.11	0.53	0.53	0.00	0.34	0.34	0.02	0.14	0.14	0.07	0.19	0.19
Sat Flow, veh/h	3408	1761	71	1757	1272	487	1757	3470	108	1757	1752	1568
Grp Volume(v), veh/h	133	0	205	0	0	477	16	16	17	68	11	156
Grp Sat Flow(s),veh/h/ln	1704	0	1832	1757	0	1759	1757	1752	1826	1757	1752	1568
Q Serve(g_s), s	2.0	0.0	3.3	0.0	0.0	13.4	0.5	0.4	0.4	2.1	0.3	4.9
Cycle Q Clear(g_c), s	2.0	0.0	3.3	0.0	0.0	13.4	0.5	0.4	0.4	2.1	0.3	4.9
Prop In Lane	1.00		0.04	1.00		0.28	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	370	0	963	3	0	605	42	246	256	124	328	293
V/C Ratio(X)	0.36	0.00	0.21	0.00	0.00	0.79	0.38	0.07	0.07	0.55	0.03	0.53
Avail Cap(c_a), veh/h	558	0	1763	192	0	1597	192	1049	1093	320	1167	1044
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	0.0	7.0	0.0	0.0	16.2	26.4	20.5	20.5	24.7	18.3	20.2
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.0	0.0	2.3	5.7	0.1	0.1	3.8	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.7	0.0	0.0	6.9	0.3	0.2	0.2	1.1	0.1	2.2
LnGrp Delay(d),s/veh	23.3	0.0	7.1	0.0	0.0	18.5	32.2	20.6	20.6	28.5	18.3	21.7
LnGrp LOS	C		A			B	C	C	C	C	B	C
Approach Vol, veh/h		338			477			49			235	
Approach Delay, s/veh		13.5			18.5			24.4			23.5	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	13.1	0.0	34.0	5.3	15.7	10.0	24.0
Change Period (Y+Rc), s	4.0	* 5.4	4.0	5.1	4.0	5.4	4.0	5.1
Max Green Setting (Gmax), s	10.0	* 33	6.0	52.9	6.0	36.6	9.0	49.9
Max Q Clear Time (g_c+I1), s	4.1	2.4	0.0	5.3	2.5	6.9	4.0	15.4
Green Ext Time (p_c), s	0.1	0.1	0.0	1.3	0.0	1.1	0.2	3.5

Intersection Summary	
HCM 2010 Ctrl Delay	18.3
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	282	40	13	125	24	7
Future Vol, veh/h	282	40	13	125	24	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	320	45	15	142	27	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	365	0	515	343
Stage 1	-	-	-	-	343	-
Stage 2	-	-	-	-	172	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1188	-	518	697
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	856	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1188	-	511	697
Mov Cap-2 Maneuver	-	-	-	-	511	-
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	845	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	544	-	-	1188	-
HCM Lane V/C Ratio	0.065	-	-	0.012	-
HCM Control Delay (s)	12.1	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	301	138	0	2	1
Future Vol, veh/h	0	301	138	0	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	346	159	0	2	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	159	0	-	0	505	159
Stage 1	-	-	-	-	159	-
Stage 2	-	-	-	-	346	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1414	-	-	-	525	884
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	714	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1414	-	-	-	525	884
Mov Cap-2 Maneuver	-	-	-	-	525	-
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	714	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1414	-	-	-	607
HCM Lane V/C Ratio	-	-	-	-	0.006
HCM Control Delay (s)	0	-	-	-	11
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	231	121	25	142	0	0	0	0	37	1	40
Future Vol, veh/h	0	231	121	25	142	0	0	0	0	37	1	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	75	-	-	-	-	-	-	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	257	134	28	158	0	0	0	0	41	1	44

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	391	0	0				538	605	79
Stage 1	-	-	-	-	-	-				214	214	-
Stage 2	-	-	-	-	-	-				324	391	-
Critical Hdwy	-	-	-	4.235	-	-				6.735	6.635	7.035
Critical Hdwy Stg 1	-	-	-	-	-	-				5.935	5.635	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.535	5.635	-
Follow-up Hdwy	-	-	-	2.2855	-	-				3.5855	4.0855	3.3855
Pot Cap-1 Maneuver	0	-	-	1123	-	0				474	399	946
Stage 1	0	-	-	-	-	0				783	710	-
Stage 2	0	-	-	-	-	0				714	592	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1123	-	-				462	0	946
Mov Cap-2 Maneuver	-	-	-	-	-	-				462	0	-
Stage 1	-	-	-	-	-	-				783	0	-
Stage 2	-	-	-	-	-	-				696	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.2	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1123	-	462	946
HCM Lane V/C Ratio	-	-	0.025	-	0.091	0.047
HCM Control Delay (s)	-	-	8.3	-	13.6	9
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	-	0.3	0.1

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	54	210	0	0	114	56	56	3	18	0	0	0
Future Vol, veh/h	54	210	0	0	114	56	56	3	18	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	75	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	61	236	0	0	128	63	63	3	20	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	191	0	-	-	-	0	422	549	118
Stage 1	-	-	-	-	-	-	358	358	-
Stage 2	-	-	-	-	-	-	64	191	-
Critical Hdwy	4.28	-	-	-	-	-	6.98	6.68	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	5.98	5.68	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.98	5.68	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.59	4.09	3.39
Pot Cap-1 Maneuver	1330	-	0	0	-	-	542	427	890
Stage 1	-	-	0	0	-	-	658	609	-
Stage 2	-	-	0	0	-	-	931	724	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1330	-	-	-	-	-	517	0	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	517	0	-
Stage 1	-	-	-	-	-	-	628	0	-
Stage 2	-	-	-	-	-	-	931	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.6	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	517	890	1330	-	-	-
HCM Lane V/C Ratio	0.128	0.023	0.046	-	-	-
HCM Control Delay (s)	13	9.1	7.8	-	-	-
HCM Lane LOS	B	A	A	-	-	-
HCM 95th %tile Q(veh)	0.4	0.1	0.1	-	-	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	0	216	1	3	0	109	8	0	0	23	30
Future Vol, veh/h	12	0	216	1	3	0	109	8	0	0	23	30
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	14	0	248	1	3	0	125	9	0	0	26	34
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	9.1	8	9.1	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	93%	100%	0%	25%	0%
Vol Thru, %	7%	0%	0%	75%	43%
Vol Right, %	0%	0%	100%	0%	57%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	117	12	216	4	53
LT Vol	109	12	0	1	0
Through Vol	8	0	0	3	23
RT Vol	0	0	216	0	30
Lane Flow Rate	134	14	248	5	61
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.184	0.022	0.306	0.006	0.076
Departure Headway (Hd)	4.923	5.642	4.437	4.981	4.497
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	730	636	812	718	796
Service Time	2.948	3.363	2.157	3.014	2.525
HCM Lane V/C Ratio	0.184	0.022	0.305	0.007	0.077
HCM Control Delay	9.1	8.5	9.1	8	7.9
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.7	0.1	1.3	0	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	405	40	5	324	25	46	4	6	43	21	43
Future Volume (veh/h)	41	405	40	5	324	25	46	4	6	43	21	43
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	43	426	42	5	341	26	48	4	6	45	22	45
Adj No. of Lanes	1	2	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	85	1200	537	12	509	39	99	8	96	63	31	63
Arrive On Green	0.05	0.34	0.34	0.01	0.30	0.30	0.06	0.06	0.06	0.09	0.09	0.09
Sat Flow, veh/h	1757	3505	1568	1757	1693	129	1628	136	1568	679	332	679
Grp Volume(v), veh/h	43	426	42	5	0	367	52	0	6	112	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	0	1822	1763	0	1568	1691	0	0
Q Serve(g_s), s	0.9	3.3	0.7	0.1	0.0	6.4	1.0	0.0	0.1	2.3	0.0	0.0
Cycle Q Clear(g_c), s	0.9	3.3	0.7	0.1	0.0	6.4	1.0	0.0	0.1	2.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.07	0.92		1.00	0.40		0.40
Lane Grp Cap(c), veh/h	85	1200	537	12	0	548	108	0	96	158	0	0
V/C Ratio(X)	0.50	0.36	0.08	0.42	0.00	0.67	0.48	0.00	0.06	0.71	0.00	0.00
Avail Cap(c_a), veh/h	509	5077	2271	315	0	2438	997	0	887	1050	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.8	8.9	8.1	17.9	0.0	11.1	16.5	0.0	16.0	16.0	0.0	0.0
Incr Delay (d2), s/veh	4.6	0.2	0.1	21.9	0.0	1.4	3.3	0.0	0.3	5.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.6	0.3	0.1	0.0	3.4	0.6	0.0	0.1	1.3	0.0	0.0
LnGrp Delay(d),s/veh	21.4	9.1	8.1	39.8	0.0	12.5	19.8	0.0	16.3	21.7	0.0	0.0
LnGrp LOS	C	A	A	D		B	B		B	C		
Approach Vol, veh/h		511			372			58			112	
Approach Delay, s/veh		10.1			12.9			19.4			21.7	
Approach LOS		B			B			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	16.9		7.9	6.3	15.4		6.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	52.5		22.5	10.5	48.5		20.5				
Max Q Clear Time (g_c+I1), s	2.1	5.3		4.3	2.9	8.4		3.0				
Green Ext Time (p_c), s	0.0	3.3		0.5	0.0	2.5		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			12.8									
HCM 2010 LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	373	133	391	315	36	27	11	44	28	31	15
Future Volume (veh/h)	14	373	133	391	315	36	27	11	44	28	31	15
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	15	405	145	425	342	39	29	12	48	30	34	16
Adj No. of Lanes	1	2	0	2	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	33	686	243	661	1560	698	60	30	120	61	111	52
Arrive On Green	0.02	0.27	0.27	0.19	0.45	0.45	0.03	0.09	0.09	0.03	0.09	0.09
Sat Flow, veh/h	1757	2539	899	3408	3505	1568	1757	323	1293	1757	1187	559
Grp Volume(v), veh/h	15	278	272	425	342	39	29	0	60	30	0	50
Grp Sat Flow(s),veh/h/ln	1757	1752	1686	1704	1752	1568	1757	0	1616	1757	0	1746
Q Serve(g_s), s	0.4	6.1	6.2	5.1	2.6	0.6	0.7	0.0	1.5	0.7	0.0	1.2
Cycle Q Clear(g_c), s	0.4	6.1	6.2	5.1	2.6	0.6	0.7	0.0	1.5	0.7	0.0	1.2
Prop In Lane	1.00		0.53	1.00		1.00	1.00		0.80	1.00		0.32
Lane Grp Cap(c), veh/h	33	473	455	661	1560	698	60	0	150	61	0	164
V/C Ratio(X)	0.45	0.59	0.60	0.64	0.22	0.06	0.49	0.00	0.40	0.49	0.00	0.31
Avail Cap(c_a), veh/h	339	1570	1511	2435	4969	2223	379	0	788	379	0	852
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.4	14.0	14.0	16.4	7.5	7.0	20.9	0.0	18.8	20.9	0.0	18.6
Incr Delay (d2), s/veh	9.1	1.2	1.3	1.1	0.1	0.0	6.0	0.0	1.7	5.9	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.1	3.0	2.5	1.3	0.3	0.4	0.0	0.8	0.5	0.0	0.6
LnGrp Delay(d),s/veh	30.5	15.1	15.3	17.4	7.6	7.0	27.0	0.0	20.6	26.8	0.0	19.7
LnGrp LOS	C	B	B	B	A	A	C		C	C		B
Approach Vol, veh/h		565			806			89			80	
Approach Delay, s/veh		15.6			12.7			22.6			22.4	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	16.4	6.0	8.6	5.3	24.1	6.0	8.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	31.5	39.5	9.5	21.5	8.5	62.5	9.5	21.5
Max Q Clear Time (g_c+I1), s	7.1	8.2	2.7	3.2	2.4	4.6	2.7	3.5
Green Ext Time (p_c), s	1.5	3.7	0.0	0.2	0.0	2.6	0.0	0.2

Intersection Summary		
HCM 2010 Ctrl Delay		14.9
HCM 2010 LOS		B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	491	31	48	587	113	607
Future Volume (veh/h)	491	31	48	587	113	607
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1900	1743	1743	1743	1743
Adj Flow Rate, veh/h	606	38	59	725	140	749
Adj No. of Lanes	2	0	1	2	1	2
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	942	59	93	1472	620	974
Arrive On Green	0.30	0.30	0.06	0.44	0.37	0.37
Sat Flow, veh/h	3253	198	1660	3399	1660	2608
Grp Volume(v), veh/h	317	327	59	725	140	749
Grp Sat Flow(s),veh/h/ln	1656	1708	1660	1656	1660	1304
Q Serve(g_s), s	8.2	8.2	1.7	7.7	2.9	12.5
Cycle Q Clear(g_c), s	8.2	8.2	1.7	7.7	2.9	12.5
Prop In Lane		0.12	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	493	508	93	1472	620	974
V/C Ratio(X)	0.64	0.64	0.63	0.49	0.23	0.77
Avail Cap(c_a), veh/h	1522	1570	486	4314	1559	2449
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.1	15.1	22.9	9.8	10.6	13.6
Incr Delay (d2), s/veh	1.4	1.4	6.9	0.3	0.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	4.0	1.0	3.6	1.3	4.7
LnGrp Delay(d),s/veh	16.5	16.5	29.8	10.0	10.8	14.9
LnGrp LOS	B	B	C	B	B	B
Approach Vol, veh/h	644			784	889	
Approach Delay, s/veh	16.5			11.5	14.3	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	7.3	19.2				26.5		23.0
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	14.5	45.5				64.5		46.5
Max Q Clear Time (g_c+I1), s	3.7	10.2				9.7		14.5
Green Ext Time (p_c), s	0.1	4.5				6.1		4.0

Intersection Summary		
HCM 2010 Ctrl Delay		14.0
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	877	111	45	463	99	86	35	35	187	71	36
Future Volume (veh/h)	110	877	111	45	463	99	86	35	35	187	71	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	117	933	118	48	493	105	91	37	37	138	162	38
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	146	1153	146	89	1177	527	149	72	72	223	234	199
Arrive On Green	0.09	0.39	0.39	0.05	0.36	0.36	0.09	0.09	0.09	0.13	0.13	0.13
Sat Flow, veh/h	1660	2959	374	1660	3312	1482	1660	801	801	1660	1743	1482
Grp Volume(v), veh/h	117	522	529	48	493	105	91	0	74	138	162	38
Grp Sat Flow(s),veh/h/ln	1660	1656	1677	1660	1656	1482	1660	0	1602	1660	1743	1482
Q Serve(g_s), s	4.5	18.2	18.2	1.8	7.3	3.2	3.4	0.0	2.9	5.1	5.8	1.5
Cycle Q Clear(g_c), s	4.5	18.2	18.2	1.8	7.3	3.2	3.4	0.0	2.9	5.1	5.8	1.5
Prop In Lane	1.00		0.22	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	146	645	654	89	1177	527	149	0	144	223	234	199
V/C Ratio(X)	0.80	0.81	0.81	0.54	0.42	0.20	0.61	0.00	0.52	0.62	0.69	0.19
Avail Cap(c_a), veh/h	166	786	796	166	1572	703	1125	0	1086	437	459	390
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.0	17.7	17.7	29.9	15.8	14.5	28.5	0.0	28.2	26.5	26.8	25.0
Incr Delay (d2), s/veh	21.6	5.3	5.2	5.0	0.2	0.2	4.0	0.0	2.8	2.8	3.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	9.2	9.3	1.0	3.4	1.3	1.7	0.0	1.4	2.5	3.0	0.6
LnGrp Delay(d),s/veh	50.6	22.9	22.9	35.0	16.1	14.7	32.5	0.0	31.0	29.3	30.4	25.4
LnGrp LOS	D	C	C	C	B	B	C		C	C	C	C
Approach Vol, veh/h		1168			646			165			338	
Approach Delay, s/veh		25.7			17.3			31.8			29.4	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.5	32.1		14.1	9.7	29.9		11.2
Change Period (Y+Rc), s	4.0	6.8		5.4	4.0	6.8		5.4
Max Green Setting (Gmax), s	6.5	30.8		17.1	6.5	30.8		44.0
Max Q Clear Time (g_c+I1), s	3.8	20.2		7.8	6.5	9.3		5.4
Green Ext Time (p_c), s	0.0	5.0		1.0	0.0	3.7		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.3
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1074	98	22	652	38	34
Future Volume (veh/h)	1074	98	22	652	38	34
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1743
Adj Flow Rate, veh/h	1119	102	23	679	40	35
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1722	770	54	2217	170	152
Arrive On Green	0.52	0.52	0.03	0.67	0.10	0.10
Sat Flow, veh/h	3399	1482	1660	3399	1660	1482
Grp Volume(v), veh/h	1119	102	23	679	40	35
Grp Sat Flow(s),veh/h/ln	1656	1482	1660	1656	1660	1482
Q Serve(g_s), s	12.6	1.8	0.7	4.4	1.1	1.1
Cycle Q Clear(g_c), s	12.6	1.8	0.7	4.4	1.1	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1722	770	54	2217	170	152
V/C Ratio(X)	0.65	0.13	0.42	0.31	0.24	0.23
Avail Cap(c_a), veh/h	4714	2109	324	5747	625	558
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.9	6.4	24.3	3.5	21.2	21.2
Incr Delay (d2), s/veh	0.4	0.1	5.2	0.1	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.8	0.4	2.0	0.6	0.5
LnGrp Delay(d),s/veh	9.3	6.4	29.5	3.6	21.9	21.9
LnGrp LOS	A	A	C	A	C	C
Approach Vol, veh/h	1221			702	75	
Approach Delay, s/veh	9.1			4.4	21.9	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	7.7	32.7				40.3		11.0
Change Period (Y+Rc), s	6.0	6.0				6.0		5.7
Max Green Setting (Gmax), s	10.0	73.0				89.0		19.3
Max Q Clear Time (g_c+I1), s	2.7	14.6				6.4		3.1
Green Ext Time (p_c), s	0.0	12.1				5.7		0.1

Intersection Summary		
HCM 2010 Ctrl Delay		7.9
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	709	98	70	381	57	62	57	70	51	35	109
Future Volume (veh/h)	250	709	98	70	381	57	62	57	70	51	35	109
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	263	746	103	74	401	60	65	60	74	54	37	115
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	319	1156	517	132	782	350	220	94	116	126	86	186
Arrive On Green	0.18	0.33	0.33	0.08	0.22	0.22	0.13	0.13	0.13	0.12	0.12	0.12
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	753	928	1063	728	1568
Grp Volume(v), veh/h	263	746	103	74	401	60	65	0	134	91	0	115
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	0	1681	1792	0	1568
Q Serve(g_s), s	7.7	9.6	2.5	2.2	5.3	1.6	1.8	0.0	4.0	2.5	0.0	3.7
Cycle Q Clear(g_c), s	7.7	9.6	2.5	2.2	5.3	1.6	1.8	0.0	4.0	2.5	0.0	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.55	0.59		1.00
Lane Grp Cap(c), veh/h	319	1156	517	132	782	350	220	0	210	212	0	186
V/C Ratio(X)	0.83	0.65	0.20	0.56	0.51	0.17	0.30	0.00	0.64	0.43	0.00	0.62
Avail Cap(c_a), veh/h	396	2333	1044	228	1997	894	1256	0	1201	1381	0	1209
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.9	15.2	12.8	23.7	18.1	16.7	21.1	0.0	22.1	21.8	0.0	22.3
Incr Delay (d2), s/veh	11.0	0.6	0.2	3.7	0.5	0.2	0.7	0.0	3.2	1.4	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	4.8	1.1	1.2	2.6	0.7	0.9	0.0	2.0	1.3	0.0	1.8
LnGrp Delay(d),s/veh	32.0	15.8	13.0	27.5	18.6	16.9	21.9	0.0	25.3	23.1	0.0	25.6
LnGrp LOS	C	B	B	C	B	B	C		C	C		C
Approach Vol, veh/h		1112			535			199			206	
Approach Delay, s/veh		19.4			19.7			24.2			24.5	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	23.5		11.0	13.6	17.9		10.7				
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0				
Max Green Setting (Gmax), s	6.9	35.4		* 41	12.0	30.3		38.0				
Max Q Clear Time (g_c+I1), s	4.2	11.6		5.7	9.7	7.3		6.0				
Green Ext Time (p_c), s	0.0	5.9		0.9	0.2	2.9		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			20.4									
HCM 2010 LOS			C									
Notes												

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	6	59	35	7	44	44	27	53	0	95	139	12
Future Vol, veh/h	6	59	35	7	44	44	27	53	0	95	139	12
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	7	66	39	8	49	49	30	60	0	107	156	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	8.5	8.6	10.2
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	6%	7%	39%
Vol Thru, %	66%	59%	46%	57%
Vol Right, %	0%	35%	46%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	100	95	246
LT Vol	27	6	7	95
Through Vol	53	59	44	139
RT Vol	0	35	44	12
Lane Flow Rate	90	112	107	276
Geometry Grp	1	1	1	1
Degree of Util (X)	0.122	0.149	0.139	0.355
Departure Headway (Hd)	4.869	4.76	4.704	4.629
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	733	751	759	774
Service Time	2.917	2.807	2.752	2.669
HCM Lane V/C Ratio	0.123	0.149	0.141	0.357
HCM Control Delay	8.6	8.6	8.5	10.2
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.4	0.5	0.5	1.6

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	3	124	41	40	89	19	10	44	46	37	39	5
Future Vol, veh/h	3	124	41	40	89	19	10	44	46	37	39	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	3	131	43	42	94	20	11	46	48	39	41	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	8.7	8.3	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	2%	27%	46%
Vol Thru, %	44%	74%	60%	48%
Vol Right, %	46%	24%	13%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	168	148	81
LT Vol	10	3	40	37
Through Vol	44	124	89	39
RT Vol	46	41	19	5
Lane Flow Rate	105	177	156	85
Geometry Grp	1	1	1	1
Degree of Util (X)	0.133	0.218	0.198	0.116
Departure Headway (Hd)	4.563	4.443	4.581	4.893
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	784	808	782	732
Service Time	2.601	2.474	2.614	2.932
HCM Lane V/C Ratio	0.134	0.219	0.199	0.116
HCM Control Delay	8.3	8.7	8.7	8.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.8	0.7	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	867	327	186	394	11	255	36	129	10	16	15
Future Volume (veh/h)	61	867	327	186	394	11	255	36	129	10	16	15
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	64	913	0	196	415	12	268	38	136	11	17	16
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	81	1268	567	246	1586	46	461	250	212	25	38	54
Arrive On Green	0.05	0.36	0.00	0.14	0.46	0.46	0.14	0.14	0.14	0.03	0.03	0.03
Sat Flow, veh/h	1757	3505	1568	1757	3479	100	3408	1845	1568	711	1098	1568
Grp Volume(v), veh/h	64	913	0	196	209	218	268	38	136	28	0	16
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1827	1704	1845	1568	1809	0	1568
Q Serve(g_s), s	2.2	13.6	0.0	6.5	4.4	4.5	4.5	1.1	5.0	0.9	0.0	0.6
Cycle Q Clear(g_c), s	2.2	13.6	0.0	6.5	4.4	4.5	4.5	1.1	5.0	0.9	0.0	0.6
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	0.39		1.00
Lane Grp Cap(c), veh/h	81	1268	567	246	799	833	461	250	212	63	0	54
V/C Ratio(X)	0.79	0.72	0.00	0.80	0.26	0.26	0.58	0.15	0.64	0.45	0.00	0.30
Avail Cap(c_a), veh/h	279	1946	870	437	1118	1166	966	523	444	749	0	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.5	16.6	0.0	25.1	10.1	10.1	24.5	23.0	24.7	28.6	0.0	28.4
Incr Delay (d2), s/veh	15.6	0.8	0.0	5.8	0.2	0.2	1.2	0.3	3.2	4.9	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.6	0.0	3.6	2.2	2.3	2.2	0.6	2.3	0.5	0.0	0.3
LnGrp Delay(d),s/veh	44.1	17.4	0.0	30.9	10.3	10.3	25.7	23.3	27.9	33.5	0.0	31.4
LnGrp LOS	D	B		C	B	B	C	C	C	C		C
Approach Vol, veh/h		977			623			442			44	
Approach Delay, s/veh		19.2			16.8			26.1			32.7	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.5	27.6		6.7	6.8	33.3		13.6
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	15.0	* 34		25.0	9.6	38.5		17.1
Max Q Clear Time (g_c+I1), s	8.5	15.6		2.9	4.2	6.5		7.0
Green Ext Time (p_c), s	0.3	6.3		0.1	0.0	2.7		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	739	7	21	484	104	21	9	4	177	11	115
Future Volume (veh/h)	165	739	7	21	484	104	21	9	4	177	11	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	172	770	7	22	504	108	22	9	4	184	11	120
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	216	939	798	35	598	128	56	23	10	252	15	237
Arrive On Green	0.12	0.51	0.51	0.02	0.41	0.41	0.05	0.05	0.05	0.15	0.15	0.15
Sat Flow, veh/h	1757	1845	1568	1757	1473	316	1103	451	200	1662	99	1568
Grp Volume(v), veh/h	172	770	7	22	0	612	35	0	0	195	0	120
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1789	1754	0	0	1762	0	1568
Q Serve(g_s), s	6.2	22.8	0.1	0.8	0.0	20.0	1.3	0.0	0.0	6.8	0.0	4.6
Cycle Q Clear(g_c), s	6.2	22.8	0.1	0.8	0.0	20.0	1.3	0.0	0.0	6.8	0.0	4.6
Prop In Lane	1.00		1.00	1.00		0.18	0.63		0.11	0.94		1.00
Lane Grp Cap(c), veh/h	216	939	798	35	0	727	89	0	0	267	0	237
V/C Ratio(X)	0.80	0.82	0.01	0.62	0.00	0.84	0.40	0.00	0.00	0.73	0.00	0.51
Avail Cap(c_a), veh/h	353	1448	1230	149	0	1197	501	0	0	484	0	431
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.6	13.4	7.8	31.5	0.0	17.3	29.8	0.0	0.0	26.2	0.0	25.2
Incr Delay (d2), s/veh	6.5	2.3	0.0	16.3	0.0	3.0	2.8	0.0	0.0	3.8	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	11.9	0.1	0.5	0.0	10.3	0.7	0.0	0.0	3.6	0.0	2.1
LnGrp Delay(d),s/veh	34.1	15.6	7.8	47.8	0.0	20.3	32.6	0.0	0.0	30.1	0.0	26.9
LnGrp LOS	C	B	A	D		C	C			C		C
Approach Vol, veh/h		949			634			35			315	
Approach Delay, s/veh		18.9			21.3			32.6			28.9	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	37.7		14.5	12.0	31.0		7.3
Change Period (Y+Rc), s	4.0	* 4.7		* 4.7	4.0	* 4.7		4.0
Max Green Setting (Gmax), s	5.5	* 51		* 18	13.0	* 43		18.5
Max Q Clear Time (g_c+I1), s	2.8	24.8		8.8	8.2	22.0		3.3
Green Ext Time (p_c), s	0.0	6.2		1.0	0.2	4.3		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	512	122	12	570	0	87	0	31	0	0	0
Future Volume (veh/h)	0	512	122	12	570	0	87	0	31	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	0	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	0	632	151	15	704	0	107	0	38	0	0	0
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	0	3	3	3	3	3	3
Cap, veh/h	5	883	751	41	1127	0	222	0	198	0	5	0
Arrive On Green	0.00	0.48	0.48	0.02	0.61	0.00	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Grp Volume(v), veh/h	0	632	151	15	704	0	107	0	38	0	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Q Serve(g_s), s	0.0	9.9	2.0	0.3	8.8	0.0	2.1	0.0	0.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	9.9	2.0	0.3	8.8	0.0	2.1	0.0	0.8	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	5	883	751	41	1127	0	222	0	198	0	5	0
V/C Ratio(X)	0.00	0.72	0.20	0.37	0.62	0.00	0.48	0.00	0.19	0.00	0.00	0.00
Avail Cap(c_a), veh/h	312	2491	2117	312	2491	0	864	0	771	0	933	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	7.6	5.5	17.6	4.5	0.0	14.9	0.0	14.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	0.1	5.5	0.6	0.0	1.6	0.0	0.5	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.2	0.9	0.2	4.5	0.0	1.1	0.0	0.4	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	8.7	5.6	23.1	5.0	0.0	16.5	0.0	14.8	0.0	0.0	0.0
LnGrp LOS		A	A	C	A		B		B			
Approach Vol, veh/h		783			719			145			0	
Approach Delay, s/veh		8.1			5.4			16.0			0.0	
Approach LOS		A			A			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	22.5		0.0	0.0	27.4		9.2
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.6
Max Green Setting (Gmax), s	6.5	49.4		18.5	6.5	49.4		18.0
Max Q Clear Time (g_c+I1), s	2.3	11.9		0.0	0.0	10.8		4.1
Green Ext Time (p_c), s	0.0	5.6		0.0	0.0	5.9		0.4

Intersection Summary			
HCM 2010 Ctrl Delay			7.6
HCM 2010 LOS			A

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	2	78	37	51	128	68	81	40	71	52	4
Future Vol, veh/h	2	2	78	37	51	128	68	81	40	71	52	4
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	2	90	43	59	147	78	93	46	82	60	5
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	8.8	9.3	11.2	10.6
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	36%	100%	0%	0%	100%	0%	0%	56%
Vol Thru, %	43%	0%	100%	1%	0%	100%	12%	41%
Vol Right, %	21%	0%	0%	99%	0%	0%	88%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	189	2	1	79	37	34	145	127
LT Vol	68	2	0	0	37	0	0	71
Through Vol	81	0	1	1	0	34	17	52
RT Vol	40	0	0	78	0	0	128	4
Lane Flow Rate	217	2	2	90	43	39	167	146
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.335	0.004	0.003	0.133	0.073	0.062	0.235	0.242
Departure Headway (Hd)	5.652	6.505	5.996	5.29	6.205	5.697	5.071	5.963
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	641	553	600	681	572	622	700	606
Service Time	3.352	4.214	3.705	2.998	4	3.493	2.865	3.663
HCM Lane V/C Ratio	0.339	0.004	0.003	0.132	0.075	0.063	0.239	0.241
HCM Control Delay	11.2	9.2	8.7	8.8	9.5	8.9	9.4	10.6
HCM Lane LOS	B	A	A	A	A	A	A	B
HCM 95th-tile Q	1.5	0	0	0.5	0.2	0.2	0.9	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	220	1267	690	63	75	140
Future Volume (veh/h)	220	1267	690	63	75	140
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	239	1377	750	68	82	152
Adj No. of Lanes	2	3	3	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	399	2754	1605	145	295	263
Arrive On Green	0.12	0.55	0.34	0.34	0.17	0.17
Sat Flow, veh/h	3408	5202	4869	424	1757	1568
Grp Volume(v), veh/h	239	1377	534	284	82	152
Grp Sat Flow(s),veh/h/ln	1704	1679	1679	1770	1757	1568
Q Serve(g_s), s	3.0	7.7	5.6	5.7	1.8	4.0
Cycle Q Clear(g_c), s	3.0	7.7	5.6	5.7	1.8	4.0
Prop In Lane	1.00			0.24	1.00	1.00
Lane Grp Cap(c), veh/h	399	2754	1146	604	295	263
V/C Ratio(X)	0.60	0.50	0.47	0.47	0.28	0.58
Avail Cap(c_a), veh/h	1131	7155	3358	1770	1668	1489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	6.4	11.7	11.7	16.4	17.3
Incr Delay (d2), s/veh	1.4	0.1	0.3	0.6	0.5	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.5	2.6	2.9	0.9	3.6
LnGrp Delay(d),s/veh	20.4	6.5	12.0	12.2	16.9	19.3
LnGrp LOS	C	A	B	B	B	B
Approach Vol, veh/h		1616	818		234	
Approach Delay, s/veh		8.6	12.1		18.5	
Approach LOS		A	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		31.5		13.7	9.3	22.2		
Change Period (Y+Rc), s		6.8		6.1	4.0	6.8		
Max Green Setting (Gmax), s		64.2		42.9	15.0	45.2		
Max Q Clear Time (g_c+I1), s		9.7		6.0	5.0	7.7		
Green Ext Time (p_c), s		15.0		0.7	0.6	6.3		

Intersection Summary		
HCM 2010 Ctrl Delay		10.5
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	424	716	260	78	374	108	120	357	90	83	299	273
Future Volume (veh/h)	424	716	260	78	374	108	120	357	90	83	299	273
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	482	814	295	89	425	123	136	406	102	94	340	253
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	511	1397	625	115	607	272	167	662	165	120	739	331
Arrive On Green	0.29	0.40	0.40	0.07	0.17	0.17	0.10	0.24	0.24	0.07	0.21	0.21
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	2783	692	1757	3505	1568
Grp Volume(v), veh/h	482	814	295	89	425	123	136	254	254	94	340	253
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	1752	1722	1757	1752	1568
Q Serve(g_s), s	24.0	16.3	12.5	4.5	10.2	6.3	6.8	11.6	11.8	4.7	7.6	13.6
Cycle Q Clear(g_c), s	24.0	16.3	12.5	4.5	10.2	6.3	6.8	11.6	11.8	4.7	7.6	13.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	511	1397	625	115	607	272	167	417	410	120	739	331
V/C Ratio(X)	0.94	0.58	0.47	0.78	0.70	0.45	0.81	0.61	0.62	0.79	0.46	0.77
Avail Cap(c_a), veh/h	511	1908	854	265	1403	628	177	887	872	163	1763	789
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	21.1	19.9	41.2	34.8	33.2	39.7	30.4	30.5	41.0	30.8	33.2
Incr Delay (d2), s/veh	26.5	0.4	0.6	10.6	1.5	1.2	23.6	1.4	1.5	16.0	0.4	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.4	7.9	5.5	2.5	5.1	2.8	4.4	5.7	5.7	2.8	3.7	6.2
LnGrp Delay(d),s/veh	57.5	21.5	20.5	51.8	36.3	34.4	63.3	31.8	32.0	57.0	31.3	36.9
LnGrp LOS	E	C	C	D	D	C	E	C	C	E	C	D
Approach Vol, veh/h		1591			637			644			687	
Approach Delay, s/veh		32.2			38.1			38.5			36.9	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	42.5	12.5	24.7	30.0	22.3	10.1	27.1
Change Period (Y+Rc), s	4.0	* 6.8	4.0	* 5.8	4.0	6.8	4.0	5.8
Max Green Setting (Gmax), s	13.5	* 49	9.0	* 45	26.0	35.8	8.3	45.3
Max Q Clear Time (g_c+I1), s	6.5	18.3	8.8	15.6	26.0	12.2	6.7	13.8
Green Ext Time (p_c), s	0.1	7.9	0.0	3.3	0.0	3.3	0.0	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	35.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	38	90	68	32	54	88	334	12	71	363	60
Future Volume (veh/h)	64	38	90	68	32	54	88	334	12	71	363	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	56	61	98	74	35	59	96	363	13	77	395	65
Adj No. of Lanes	1	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	198	207	176	130	61	168	123	852	30	100	705	115
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.07	0.25	0.25	0.06	0.23	0.23
Sat Flow, veh/h	1757	1845	1568	1211	573	1568	1757	3452	123	1757	3017	493
Grp Volume(v), veh/h	56	61	98	109	0	59	96	184	192	77	228	232
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1784	0	1568	1757	1752	1823	1757	1752	1758
Q Serve(g_s), s	1.2	1.2	2.4	2.4	0.0	1.4	2.2	3.6	3.6	1.8	4.7	4.8
Cycle Q Clear(g_c), s	1.2	1.2	2.4	2.4	0.0	1.4	2.2	3.6	3.6	1.8	4.7	4.8
Prop In Lane	1.00		1.00	0.68		1.00	1.00		0.07	1.00		0.28
Lane Grp Cap(c), veh/h	198	207	176	191	0	168	123	432	450	100	409	410
V/C Ratio(X)	0.28	0.29	0.56	0.57	0.00	0.35	0.78	0.43	0.43	0.77	0.56	0.56
Avail Cap(c_a), veh/h	769	807	686	1309	0	1150	559	1380	1435	447	1269	1272
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	16.7	17.2	17.4	0.0	16.9	18.7	13.0	13.0	19.0	13.8	13.8
Incr Delay (d2), s/veh	0.8	0.8	2.7	2.7	0.0	1.3	10.1	0.7	0.6	11.6	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.7	1.2	1.3	0.0	0.7	1.4	1.8	1.9	1.2	2.4	2.5
LnGrp Delay(d),s/veh	17.4	17.4	19.9	20.0	0.0	18.2	28.8	13.6	13.6	30.6	15.0	15.1
LnGrp LOS	B	B	B	C		B	C	B	B	C	B	B
Approach Vol, veh/h		215			168			472			537	
Approach Delay, s/veh		18.6			19.4			16.7			17.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.3	16.5		9.7	6.9	15.9		8.4
Change Period (Y+Rc), s	4.0	6.4		5.1	4.0	6.4		4.0
Max Green Setting (Gmax), s	10.4	32.2		17.9	13.0	29.6		30.0
Max Q Clear Time (g_c+I1), s	3.8	5.6		4.4	4.2	6.8		4.4
Green Ext Time (p_c), s	0.1	2.3		0.6	0.1	2.8		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	753	41	13	603	3	32	1	13	10	3	14
Future Volume (veh/h)	13	753	41	13	603	3	32	1	13	10	3	14
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	14	801	44	14	641	3	34	1	14	11	3	15
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	31	974	54	31	1031	5	58	2	24	21	6	28
Arrive On Green	0.02	0.56	0.56	0.02	0.56	0.56	0.05	0.05	0.05	0.03	0.03	0.03
Sat Flow, veh/h	1757	1733	95	1757	1835	9	1180	35	486	630	172	859
Grp Volume(v), veh/h	14	0	845	14	0	644	49	0	0	29	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1828	1757	0	1843	1700	0	0	1661	0	0
Q Serve(g_s), s	0.4	0.0	19.3	0.4	0.0	12.0	1.4	0.0	0.0	0.9	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	19.3	0.4	0.0	12.0	1.4	0.0	0.0	0.9	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.00	0.69		0.29	0.38		0.52
Lane Grp Cap(c), veh/h	31	0	1028	31	0	1036	83	0	0	55	0	0
V/C Ratio(X)	0.45	0.00	0.82	0.45	0.00	0.62	0.59	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	189	0	1811	189	0	1826	598	0	0	601	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.9	0.0	9.1	24.9	0.0	7.5	23.8	0.0	0.0	24.3	0.0	0.0
Incr Delay (d2), s/veh	10.0	0.0	1.7	10.0	0.0	0.6	6.4	0.0	0.0	7.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	9.9	0.3	0.0	6.1	0.8	0.0	0.0	0.5	0.0	0.0
LnGrp Delay(d),s/veh	34.8	0.0	10.8	34.8	0.0	8.2	30.3	0.0	0.0	32.0	0.0	0.0
LnGrp LOS	C		B	C		A	C			C		
Approach Vol, veh/h		859			658			49			29	
Approach Delay, s/veh		11.2			8.7			30.3			32.0	
Approach LOS		B			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	33.5		5.7	4.9	33.5		7.1
Change Period (Y+Rc), s	4.0	* 4.7		4.0	4.0	* 4.7		4.6
Max Green Setting (Gmax), s	5.5	* 51		18.5	5.5	* 51		18.0
Max Q Clear Time (g_c+I1), s	2.4	21.3		2.9	2.4	14.0		3.4
Green Ext Time (p_c), s	0.0	7.5		0.1	0.0	5.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	22	806	114	31	664
Future Vol, veh/h	44	22	806	114	31	664
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	48	24	876	124	34	722

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1367	500	0	0	1000	0
Stage 1	938	-	-	-	-	-
Stage 2	429	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	137	514	-	-	682	-
Stage 1	339	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	130	514	-	-	682	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	339	-	-	-	-	-
Stage 2	590	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	39.8		0		0.5	
HCM LOS	E					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	173	682	-
HCM Lane V/C Ratio	-	-	0.415	0.049	-
HCM Control Delay (s)	-	-	39.8	10.6	-
HCM Lane LOS	-	-	E	B	-
HCM 95th %tile Q(veh)	-	-	1.9	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	258	21	2	244	115	15	13	4	109	14	188
Future Volume (veh/h)	141	258	21	2	244	115	15	13	4	109	14	188
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	150	274	22	2	260	122	16	14	4	116	15	200
Adj No. of Lanes	2	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	392	672	54	6	341	160	42	406	111	165	384	344
Arrive On Green	0.11	0.40	0.40	0.00	0.29	0.29	0.02	0.15	0.15	0.09	0.22	0.22
Sat Flow, veh/h	3408	1685	135	1757	1189	558	1757	2722	744	1757	1752	1568
Grp Volume(v), veh/h	150	0	296	2	0	382	16	9	9	116	15	200
Grp Sat Flow(s),veh/h/ln	1704	0	1821	1757	0	1746	1757	1752	1713	1757	1752	1568
Q Serve(g_s), s	2.1	0.0	6.1	0.1	0.0	10.4	0.5	0.2	0.2	3.3	0.4	6.0
Cycle Q Clear(g_c), s	2.1	0.0	6.1	0.1	0.0	10.4	0.5	0.2	0.2	3.3	0.4	6.0
Prop In Lane	1.00		0.07	1.00		0.32	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	392	0	726	6	0	502	42	262	256	165	384	344
V/C Ratio(X)	0.38	0.00	0.41	0.35	0.00	0.76	0.38	0.03	0.04	0.71	0.04	0.58
Avail Cap(c_a), veh/h	1242	0	1827	222	0	1337	236	904	884	539	1197	1071
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	11.2	25.9	0.0	16.9	25.1	19.0	19.0	22.9	16.0	18.2
Incr Delay (d2), s/veh	0.6	0.0	0.4	32.2	0.0	2.4	5.6	0.1	0.1	5.4	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	3.1	0.1	0.0	5.3	0.3	0.1	0.1	1.9	0.2	2.7
LnGrp Delay(d),s/veh	22.0	0.0	11.6	58.1	0.0	19.4	30.7	19.0	19.0	28.4	16.1	19.8
LnGrp LOS	C		B	E		B	C	B	B	C	B	B
Approach Vol, veh/h		446			384			34			331	
Approach Delay, s/veh		15.1			19.6			24.5			22.6	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	13.2	4.2	25.9	5.2	16.8	10.0	20.1
Change Period (Y+Rc), s	4.0	* 5.4	4.0	5.1	4.0	5.4	4.0	5.1
Max Green Setting (Gmax), s	16.0	* 27	6.6	52.3	7.0	35.6	19.0	39.9
Max Q Clear Time (g_c+I1), s	5.3	2.2	2.1	8.1	2.5	8.0	4.1	12.4
Green Ext Time (p_c), s	0.2	0.0	0.0	2.0	0.0	1.4	0.4	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	194	23	23	259	46	27
Future Vol, veh/h	194	23	23	259	46	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	223	26	26	298	53	31

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	249	0	586	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	350	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1311	-	471	801
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	711	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1311	-	462	801
Mov Cap-2 Maneuver	-	-	-	-	462	-
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	697	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	548	-	-	1311	-
HCM Lane V/C Ratio	0.153	-	-	0.02	-
HCM Control Delay (s)	12.8	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection						
Int Delay, s/veh	0					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	223	296	3	0	1
Future Vol, veh/h	1	223	296	3	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	248	329	3	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	332	0	-	0	581	331
Stage 1	-	-	-	-	331	-
Stage 2	-	-	-	-	250	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1222	-	-	-	474	708
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1222	-	-	-	474	708
Mov Cap-2 Maneuver	-	-	-	-	474	-
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	789	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1222	-	-	-	708
HCM Lane V/C Ratio	0.001	-	-	-	0.002
HCM Control Delay (s)	7.9	0	-	-	10.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	157	82	39	259	0	0	0	0	46	0	57
Future Vol, veh/h	0	157	82	39	259	0	0	0	0	46	0	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	75	-	-	-	-	-	-	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	160	84	40	264	0	0	0	0	47	0	58

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	244	0	0				546	588	132
Stage 1	-	-	-	-	-	-				344	344	-
Stage 2	-	-	-	-	-	-				202	244	-
Critical Hdwy	-	-	-	4.235	-	-				6.735	6.635	7.035
Critical Hdwy Stg 1	-	-	-	-	-	-				5.935	5.635	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.535	5.635	-
Follow-up Hdwy	-	-	-	2.2855	-	-				3.5855	4.0855	3.3855
Pot Cap-1 Maneuver	0	-	-	1276	-	0				469	409	874
Stage 1	0	-	-	-	-	0				673	621	-
Stage 2	0	-	-	-	-	0				813	689	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1276	-	-				454	0	874
Mov Cap-2 Maneuver	-	-	-	-	-	-				454	0	-
Stage 1	-	-	-	-	-	-				673	0	-
Stage 2	-	-	-	-	-	-				788	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1276	-	454	874
HCM Lane V/C Ratio	-	-	0.031	-	0.103	0.067
HCM Control Delay (s)	-	-	7.9	-	13.8	9.4
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	-	0.3	0.2

Intersection												
Int Delay, s/veh	3.8											
Movement	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**
Lane Configurations												
Traffic Vol, veh/h	19	185	0	0	220	41	97	0	116	0	0	0
Future Vol, veh/h	19	185	0	0	220	41	97	0	116	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	75	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	22	218	0	0	259	48	114	0	136	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	307	0	-	-	-	0	392	569	109
Stage 1	-	-	-	-	-	-	262	262	-
Stage 2	-	-	-	-	-	-	130	307	-
Critical Hdwy	4.28	-	-	-	-	-	6.98	6.68	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	5.98	5.68	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.98	5.68	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.59	4.09	3.39
Pot Cap-1 Maneuver	1201	-	0	0	-	-	567	416	902
Stage 1	-	-	0	0	-	-	737	673	-
Stage 2	-	-	0	0	-	-	862	642	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1201	-	-	-	-	-	557	0	902
Mov Cap-2 Maneuver	-	-	-	-	-	-	557	0	-
Stage 1	-	-	-	-	-	-	724	0	-
Stage 2	-	-	-	-	-	-	862	0	-
Approach	**EB**			**WB**			**NB**		
HCM Control Delay, s	0.8			0			11.2		
HCM LOS							B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	557	902	1201	-	-	-
HCM Lane V/C Ratio	0.205	0.151	0.019	-	-	-
HCM Control Delay (s)	13.1	9.7	8.1	-	-	-
HCM Lane LOS	B	A	A	-	-	-
HCM 95th %tile Q(veh)	0.8	0.5	0.1	-	-	-

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	109	138	35	33	0	201	39	119	0	15	21
Future Vol, veh/h	35	109	138	35	33	0	201	39	119	0	15	21
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	45	142	179	45	43	0	261	51	155	0	19	27
Number of Lanes	1	1	0	1	2	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	3	2
HCM Control Delay	15.8	10.4	15.7	10.4
HCM LOS	C	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	84%	0%	100%	0%	100%	0%	0%	0%
Vol Thru, %	16%	0%	0%	44%	0%	100%	100%	42%
Vol Right, %	0%	100%	0%	56%	0%	0%	0%	58%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	240	119	35	247	35	17	17	36
LT Vol	201	0	35	0	35	0	0	0
Through Vol	39	0	0	109	0	17	17	15
RT Vol	0	119	0	138	0	0	0	21
Lane Flow Rate	312	155	45	321	45	21	21	47
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.583	0.241	0.09	0.554	0.099	0.043	0.032	0.09
Departure Headway (Hd)	6.729	5.605	7.129	6.222	7.803	7.293	5.401	6.924
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	536	638	501	577	457	489	657	515
Service Time	4.479	3.355	4.89	3.983	5.583	5.072	3.178	4.704
HCM Lane V/C Ratio	0.582	0.243	0.09	0.556	0.098	0.043	0.032	0.091
HCM Control Delay	18.5	10.1	10.6	16.5	11.4	10.4	8.4	10.4
HCM Lane LOS	C	B	B	C	B	B	A	B
HCM 95th-tile Q	3.7	0.9	0.3	3.4	0.3	0.1	0.1	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	302	27	8	386	26	64	4	6	33	7	42
Future Volume (veh/h)	33	302	27	8	386	26	64	4	6	33	7	42
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	47	431	39	11	551	37	91	6	9	47	10	60
Adj No. of Lanes	1	2	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	85	1567	701	25	706	47	129	8	122	63	13	80
Arrive On Green	0.05	0.45	0.45	0.01	0.41	0.41	0.08	0.08	0.08	0.09	0.09	0.09
Sat Flow, veh/h	1757	3505	1568	1757	1710	115	1653	109	1568	667	142	852
Grp Volume(v), veh/h	47	431	39	11	0	588	97	0	9	117	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	0	1824	1762	0	1568	1661	0	0
Q Serve(g_s), s	1.3	3.8	0.7	0.3	0.0	13.7	2.6	0.0	0.3	3.4	0.0	0.0
Cycle Q Clear(g_c), s	1.3	3.8	0.7	0.3	0.0	13.7	2.6	0.0	0.3	3.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.06	0.94		1.00	0.40		0.51
Lane Grp Cap(c), veh/h	85	1567	701	25	0	754	137	0	122	157	0	0
V/C Ratio(X)	0.56	0.28	0.06	0.44	0.00	0.78	0.71	0.00	0.07	0.75	0.00	0.00
Avail Cap(c_a), veh/h	325	4274	1912	182	0	2076	664	0	591	626	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.9	8.6	7.7	24.0	0.0	12.5	22.1	0.0	21.0	21.7	0.0	0.0
Incr Delay (d2), s/veh	5.6	0.1	0.0	11.8	0.0	1.8	6.5	0.0	0.3	6.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.8	0.3	0.2	0.0	7.2	1.5	0.0	0.1	1.8	0.0	0.0
LnGrp Delay(d),s/veh	28.4	8.7	7.7	35.8	0.0	14.3	28.6	0.0	21.3	28.6	0.0	0.0
LnGrp LOS	C	A	A	D		B	C		C	C		
Approach Vol, veh/h		517			599			106			117	
Approach Delay, s/veh		10.4			14.7			28.0			28.6	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	26.5		9.1	6.9	24.8		8.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.1	59.9		18.5	9.1	55.9		18.5
Max Q Clear Time (g_c+I1), s	2.3	5.8		5.4	3.3	15.7		4.6
Green Ext Time (p_c), s	0.0	3.4		0.4	0.0	4.6		0.4

Intersection Summary		
HCM 2010 Ctrl Delay		15.3
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	241	136	637	386	42	10	6	51	15	23	10
Future Volume (veh/h)	16	241	136	637	386	42	10	6	51	15	23	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	19	280	158	741	449	49	12	7	59	17	27	12
Adj No. of Lanes	1	2	0	2	2	1	1	1	0	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	41	475	261	1022	1731	774	27	14	118	37	107	48
Arrive On Green	0.02	0.22	0.22	0.30	0.49	0.49	0.02	0.08	0.08	0.02	0.09	0.09
Sat Flow, veh/h	1757	2186	1199	3408	3505	1568	1757	169	1424	1757	1211	538
Grp Volume(v), veh/h	19	223	215	741	449	49	12	0	66	17	0	39
Grp Sat Flow(s),veh/h/ln	1757	1752	1633	1704	1752	1568	1757	0	1593	1757	0	1750
Q Serve(g_s), s	0.5	5.4	5.6	9.2	3.5	0.8	0.3	0.0	1.9	0.5	0.0	1.0
Cycle Q Clear(g_c), s	0.5	5.4	5.6	9.2	3.5	0.8	0.3	0.0	1.9	0.5	0.0	1.0
Prop In Lane	1.00		0.73	1.00		1.00	1.00		0.89	1.00		0.31
Lane Grp Cap(c), veh/h	41	381	355	1022	1731	774	27	0	132	37	0	155
V/C Ratio(X)	0.46	0.59	0.61	0.72	0.26	0.06	0.44	0.00	0.50	0.46	0.00	0.25
Avail Cap(c_a), veh/h	277	1088	1014	3193	4907	2195	240	0	688	277	0	792
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.9	16.7	16.8	14.9	7.0	6.3	23.2	0.0	20.8	23.0	0.0	20.2
Incr Delay (d2), s/veh	7.9	1.4	1.7	1.0	0.1	0.0	10.9	0.0	2.9	8.5	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.8	2.7	4.5	1.7	0.3	0.2	0.0	0.9	0.3	0.0	0.5
LnGrp Delay(d),s/veh	30.8	18.1	18.4	15.9	7.1	6.3	34.1	0.0	23.8	31.5	0.0	21.0
LnGrp LOS	C	B	B	B	A	A	C		C	C		C
Approach Vol, veh/h		457			1239			78			56	
Approach Delay, s/veh		18.8			12.3			25.4			24.2	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.7	14.8	5.2	8.7	5.6	28.0	5.5	8.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	44.5	29.5	6.5	21.5	7.5	66.5	7.5	20.5
Max Q Clear Time (g_c+I1), s	11.2	7.6	2.3	3.0	2.5	5.5	2.5	3.9
Green Ext Time (p_c), s	3.0	2.7	0.0	0.1	0.0	3.6	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	256	11	40	943	122	453
Future Volume (veh/h)	256	11	40	943	122	453
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1900	1743	1743	1743	1743
Adj Flow Rate, veh/h	305	13	48	1123	145	539
Adj No. of Lanes	2	0	1	2	1	2
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1241	53	82	1744	474	745
Arrive On Green	0.38	0.38	0.05	0.53	0.29	0.29
Sat Flow, veh/h	3324	138	1660	3399	1660	2608
Grp Volume(v), veh/h	156	162	48	1123	145	539
Grp Sat Flow(s),veh/h/ln	1656	1719	1660	1656	1660	1304
Q Serve(g_s), s	3.1	3.1	1.4	11.6	3.3	8.9
Cycle Q Clear(g_c), s	3.1	3.1	1.4	11.6	3.3	8.9
Prop In Lane		0.08	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	635	659	82	1744	474	745
V/C Ratio(X)	0.24	0.25	0.59	0.64	0.31	0.72
Avail Cap(c_a), veh/h	1951	2025	502	5215	1229	1931
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.1	10.1	22.3	8.1	13.4	15.4
Incr Delay (d2), s/veh	0.2	0.2	6.5	0.4	0.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.5	0.8	5.2	1.5	3.3
LnGrp Delay(d),s/veh	10.3	10.3	28.8	8.5	13.8	16.8
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	318			1171	684	
Approach Delay, s/veh	10.3			9.4	16.1	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.9	22.9				29.7		18.2
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	14.5	56.5				75.5		35.5
Max Q Clear Time (g_c+I1), s	3.4	5.1				13.6		10.9
Green Ext Time (p_c), s	0.1	2.0				11.6		2.8

Intersection Summary		
HCM 2010 Ctrl Delay		11.6
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	605	61	58	920	217	135	106	25	164	60	94
Future Volume (veh/h)	100	605	61	58	920	217	135	106	25	164	60	94
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	114	688	69	66	1045	247	153	120	28	127	151	107
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	142	1212	121	99	1235	552	220	181	42	205	216	183
Arrive On Green	0.09	0.40	0.40	0.06	0.37	0.37	0.13	0.13	0.13	0.12	0.12	0.12
Sat Flow, veh/h	1660	3041	305	1660	3312	1482	1660	1368	319	1660	1743	1482
Grp Volume(v), veh/h	114	374	383	66	1045	247	153	0	148	127	151	107
Grp Sat Flow(s),veh/h/ln	1660	1656	1689	1660	1656	1482	1660	0	1687	1660	1743	1482
Q Serve(g_s), s	5.1	13.3	13.3	2.9	21.8	9.5	6.7	0.0	6.3	5.5	6.3	5.2
Cycle Q Clear(g_c), s	5.1	13.3	13.3	2.9	21.8	9.5	6.7	0.0	6.3	5.5	6.3	5.2
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	142	660	673	99	1235	552	220	0	223	205	216	183
V/C Ratio(X)	0.80	0.57	0.57	0.67	0.85	0.45	0.70	0.00	0.66	0.62	0.70	0.58
Avail Cap(c_a), veh/h	143	675	689	143	1350	604	967	0	983	376	395	335
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	17.7	17.7	34.8	21.7	17.8	31.3	0.0	31.2	31.4	31.8	31.3
Incr Delay (d2), s/veh	27.3	1.1	1.1	7.5	4.8	0.6	4.0	0.0	3.4	3.0	4.1	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	6.2	6.4	1.6	10.7	3.9	3.3	0.0	3.1	2.7	3.3	2.3
LnGrp Delay(d),s/veh	61.2	18.7	18.7	42.3	26.6	18.4	35.3	0.0	34.5	34.4	35.8	34.2
LnGrp LOS	E	B	B	D	C	B	D		C	C	D	C
Approach Vol, veh/h		871			1358			301			385	
Approach Delay, s/veh		24.3			25.8			34.9			34.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	36.9		14.7	10.4	35.0		15.4
Change Period (Y+Rc), s	4.0	6.8		5.4	4.0	6.8		5.4
Max Green Setting (Gmax), s	6.5	30.8		17.1	6.5	30.8		44.0
Max Q Clear Time (g_c+I1), s	4.9	15.3		8.3	7.1	23.8		8.7
Green Ext Time (p_c), s	0.0	4.3		1.1	0.0	4.3		1.4

Intersection Summary		
HCM 2010 Ctrl Delay		27.5
HCM 2010 LOS		C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	494	155	37	856	247	85
Future Volume (veh/h)	494	155	37	856	247	85
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1743
Adj Flow Rate, veh/h	549	172	41	951	274	94
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1000	448	90	1650	374	334
Arrive On Green	0.30	0.30	0.05	0.50	0.23	0.23
Sat Flow, veh/h	3399	1482	1660	3399	1660	1482
Grp Volume(v), veh/h	549	172	41	951	274	94
Grp Sat Flow(s),veh/h/ln	1656	1482	1660	1656	1660	1482
Q Serve(g_s), s	5.9	3.9	1.0	8.6	6.5	2.2
Cycle Q Clear(g_c), s	5.9	3.9	1.0	8.6	6.5	2.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1000	448	90	1650	374	334
V/C Ratio(X)	0.55	0.38	0.46	0.58	0.73	0.28
Avail Cap(c_a), veh/h	3680	1646	432	5011	1738	1552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.4	11.7	19.4	7.5	15.2	13.6
Incr Delay (d2), s/veh	0.5	0.5	3.6	0.3	2.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	1.6	0.6	3.9	3.3	1.0
LnGrp Delay(d),s/veh	12.8	12.2	23.0	7.8	18.0	14.0
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	721			992	368	
Approach Delay, s/veh	12.7			8.4	17.0	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.3	18.8				27.1		15.2
Change Period (Y+Rc), s	6.0	6.0				6.0		5.7
Max Green Setting (Gmax), s	11.0	47.0				64.0		44.3
Max Q Clear Time (g_c+I1), s	3.0	7.9				10.6		8.5
Green Ext Time (p_c), s	0.0	4.9				8.9		1.2

Intersection Summary		
HCM 2010 Ctrl Delay		11.4
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	414	64	47	627	79	65	16	21	116	18	273
Future Volume (veh/h)	145	414	64	47	627	79	65	16	21	116	18	273
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	156	445	69	51	674	85	70	17	23	125	19	294
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	199	1164	521	98	964	431	142	57	78	364	55	372
Arrive On Green	0.11	0.33	0.33	0.06	0.28	0.28	0.08	0.08	0.08	0.24	0.24	0.24
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	712	963	1535	233	1568
Grp Volume(v), veh/h	156	445	69	51	674	85	70	0	40	144	0	294
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	0	1675	1768	0	1568
Q Serve(g_s), s	5.5	6.2	2.0	1.8	11.0	2.6	2.4	0.0	1.4	4.3	0.0	11.2
Cycle Q Clear(g_c), s	5.5	6.2	2.0	1.8	11.0	2.6	2.4	0.0	1.4	4.3	0.0	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.57	0.87		1.00
Lane Grp Cap(c), veh/h	199	1164	521	98	964	431	142	0	135	420	0	372
V/C Ratio(X)	0.79	0.38	0.13	0.52	0.70	0.20	0.49	0.00	0.30	0.34	0.00	0.79
Avail Cap(c_a), veh/h	359	1795	803	268	1613	722	1049	0	1000	1139	0	1010
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.5	16.3	14.9	29.2	20.7	17.7	28.0	0.0	27.5	20.2	0.0	22.8
Incr Delay (d2), s/veh	6.7	0.2	0.1	4.2	0.9	0.2	2.6	0.0	1.2	0.5	0.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.0	0.9	1.0	5.4	1.2	1.3	0.0	0.7	2.1	0.0	5.2
LnGrp Delay(d),s/veh	34.2	16.5	15.0	33.4	21.6	17.9	30.6	0.0	28.8	20.6	0.0	26.6
LnGrp LOS	C	B	B	C	C	B	C		C	C		C
Approach Vol, veh/h		670			810			110			438	
Approach Delay, s/veh		20.4			22.0			30.0			24.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	27.1		19.8	11.2	23.5		9.1
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	9.7	32.6		* 41	13.0	29.3		38.0
Max Q Clear Time (g_c+I1), s	3.8	8.2		13.2	7.5	13.0		4.4
Green Ext Time (p_c), s	0.0	3.3		1.9	0.2	4.5		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

Notes

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	7	87	46	3	65	64	46	114	6	59	96	9
Future Vol, veh/h	7	87	46	3	65	64	46	114	6	59	96	9
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	118	62	4	88	86	62	154	8	80	130	12
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.3	10	11	11
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	5%	2%	36%
Vol Thru, %	69%	62%	49%	59%
Vol Right, %	4%	33%	48%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	166	140	132	164
LT Vol	46	7	3	59
Through Vol	114	87	65	96
RT Vol	6	46	64	9
Lane Flow Rate	224	189	178	222
Geometry Grp	1	1	1	1
Degree of Util (X)	0.332	0.276	0.257	0.328
Departure Headway (Hd)	5.32	5.257	5.179	5.33
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	675	683	692	674
Service Time	3.353	3.295	3.218	3.363
HCM Lane V/C Ratio	0.332	0.277	0.257	0.329
HCM Control Delay	11	10.3	10	11
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	1.5	1.1	1	1.4

Intersection	
Intersection Delay, s/veh	32
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	103	54	17	40	89	89	18	188	25	30	86	22
Future Vol, veh/h	103	54	17	40	89	89	18	188	25	30	86	22
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	184	96	30	71	159	159	32	336	45	54	154	39
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	26.3	34.1	41	20.7
HCM LOS	D	D	E	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	59%	18%	22%
Vol Thru, %	81%	31%	41%	62%
Vol Right, %	11%	10%	41%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	231	174	218	138
LT Vol	18	103	40	30
Through Vol	188	54	89	86
RT Vol	25	17	89	22
Lane Flow Rate	412	311	389	246
Geometry Grp	1	1	1	1
Degree of Util (X)	0.856	0.681	0.8	0.552
Departure Headway (Hd)	7.469	7.893	7.397	8.059
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	483	457	487	446
Service Time	5.533	5.968	5.465	6.138
HCM Lane V/C Ratio	0.853	0.681	0.799	0.552
HCM Control Delay	41	26.3	34.1	20.7
HCM Lane LOS	E	D	D	C
HCM 95th-tile Q	8.8	5	7.4	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	487	245	189	514	19	256	25	156	13	33	25
Future Volume (veh/h)	24	487	245	189	514	19	256	25	156	13	33	25
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	30	601	0	233	635	23	316	31	193	16	41	31
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	0	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	47	904	404	292	1372	50	596	323	274	27	70	84
Arrive On Green	0.03	0.26	0.00	0.17	0.40	0.40	0.17	0.17	0.17	0.05	0.05	0.05
Sat Flow, veh/h	1757	3505	1568	1757	3450	125	3408	1845	1568	511	1308	1568
Grp Volume(v), veh/h	30	601	0	233	322	336	316	31	193	57	0	31
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1823	1704	1845	1568	1819	0	1568
Q Serve(g_s), s	1.0	8.8	0.0	7.3	7.7	7.8	4.8	0.8	6.6	1.7	0.0	1.1
Cycle Q Clear(g_c), s	1.0	8.8	0.0	7.3	7.7	7.8	4.8	0.8	6.6	1.7	0.0	1.1
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	0.28		1.00
Lane Grp Cap(c), veh/h	47	904	404	292	697	725	596	323	274	97	0	84
V/C Ratio(X)	0.64	0.66	0.00	0.80	0.46	0.46	0.53	0.10	0.70	0.59	0.00	0.37
Avail Cap(c_a), veh/h	188	1813	811	585	1291	1343	1022	553	470	798	0	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.5	18.9	0.0	22.8	12.7	12.7	21.4	19.7	22.1	26.4	0.0	26.1
Incr Delay (d2), s/veh	13.9	0.8	0.0	5.0	0.5	0.5	0.7	0.1	3.3	5.5	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.3	0.0	3.9	3.8	3.9	2.3	0.4	3.1	1.0	0.0	0.5
LnGrp Delay(d),s/veh	41.4	19.8	0.0	27.8	13.2	13.1	22.1	19.9	25.4	31.9	0.0	28.7
LnGrp LOS	D	B		C	B	B	C	B	C	C		C
Approach Vol, veh/h		631			891			540			88	
Approach Delay, s/veh		20.8			17.0			23.2			30.8	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.5	20.5		7.7	5.5	28.5		15.4
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	19.0	* 30		25.0	6.1	42.0		17.1
Max Q Clear Time (g_c+I1), s	9.3	10.8		3.7	3.0	9.8		8.6
Green Ext Time (p_c), s	0.5	3.9		0.3	0.0	4.5		1.4

Intersection Summary		
HCM 2010 Ctrl Delay		20.2
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	454	26	7	531	94	24	13	3	254	0	147
Future Volume (veh/h)	153	454	26	7	531	94	24	13	3	254	0	147
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	180	534	31	8	625	111	28	15	4	299	0	173
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	214	1018	866	14	669	119	56	30	8	341	0	304
Arrive On Green	0.12	0.55	0.55	0.01	0.44	0.44	0.05	0.05	0.05	0.19	0.00	0.19
Sat Flow, veh/h	1757	1845	1568	1757	1526	271	1052	563	150	1757	0	1568
Grp Volume(v), veh/h	180	534	31	8	0	736	47	0	0	299	0	173
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1797	1766	0	0	1757	0	1568
Q Serve(g_s), s	9.1	16.5	0.8	0.4	0.0	35.2	2.3	0.0	0.0	15.0	0.0	9.0
Cycle Q Clear(g_c), s	9.1	16.5	0.8	0.4	0.0	35.2	2.3	0.0	0.0	15.0	0.0	9.0
Prop In Lane	1.00		1.00	1.00		0.15	0.60		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	214	1018	866	14	0	788	95	0	0	341	0	304
V/C Ratio(X)	0.84	0.52	0.04	0.57	0.00	0.93	0.50	0.00	0.00	0.88	0.00	0.57
Avail Cap(c_a), veh/h	233	1018	866	107	0	850	361	0	0	375	0	334
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.9	12.8	9.3	44.7	0.0	24.2	41.6	0.0	0.0	35.4	0.0	33.0
Incr Delay (d2), s/veh	22.2	0.5	0.0	30.9	0.0	16.4	4.0	0.0	0.0	19.2	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	8.4	0.4	0.3	0.0	21.0	1.3	0.0	0.0	9.0	0.0	4.0
LnGrp Delay(d),s/veh	61.1	13.3	9.3	75.6	0.0	40.6	45.6	0.0	0.0	54.6	0.0	34.9
LnGrp LOS	E	B	A	E		D	D			D		C
Approach Vol, veh/h		745			744			47			472	
Approach Delay, s/veh		24.7			41.0			45.6			47.4	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.7	54.7		22.3	15.0	44.4		8.9
Change Period (Y+Rc), s	4.0	* 4.7		* 4.7	4.0	* 4.7		4.0
Max Green Setting (Gmax), s	5.5	* 49		* 19	12.0	* 43		18.5
Max Q Clear Time (g_c+I1), s	2.4	18.5		17.0	11.1	37.2		4.3
Green Ext Time (p_c), s	0.0	3.9		0.6	0.0	2.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	36.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	517	124	12	588	0	93	0	31	0	0	0
Future Volume (veh/h)	0	517	124	12	588	0	93	0	31	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	0	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	0	638	153	15	726	0	115	0	38	0	0	0
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	0	3	3	3	3	3	3
Cap, veh/h	5	887	754	41	1129	0	226	0	201	0	5	0
Arrive On Green	0.00	0.48	0.48	0.02	0.61	0.00	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Grp Volume(v), veh/h	0	638	153	15	726	0	115	0	38	0	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Q Serve(g_s), s	0.0	10.2	2.1	0.3	9.3	0.0	2.3	0.0	0.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	10.2	2.1	0.3	9.3	0.0	2.3	0.0	0.8	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	5	887	754	41	1129	0	226	0	201	0	5	0
V/C Ratio(X)	0.00	0.72	0.20	0.37	0.64	0.00	0.51	0.00	0.19	0.00	0.00	0.00
Avail Cap(c_a), veh/h	308	2462	2092	308	2462	0	854	0	762	0	922	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	7.6	5.5	17.8	4.6	0.0	15.0	0.0	14.4	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	0.1	5.5	0.6	0.0	1.8	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.2	0.9	0.2	4.8	0.0	1.2	0.0	0.4	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	8.7	5.7	23.3	5.2	0.0	16.8	0.0	14.9	0.0	0.0	0.0
LnGrp LOS		A	A	C	A		B		B			
Approach Vol, veh/h		791			741			153			0	
Approach Delay, s/veh		8.1			5.6			16.3			0.0	
Approach LOS		A			A			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	22.8		0.0	0.0	27.7		9.4
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.6
Max Green Setting (Gmax), s	6.5	49.4		18.5	6.5	49.4		18.0
Max Q Clear Time (g_c+I1), s	2.3	12.2		0.0	0.0	11.3		4.3
Green Ext Time (p_c), s	0.0	5.6		0.0	0.0	6.2		0.4

Intersection Summary		
HCM 2010 Ctrl Delay		7.8
HCM 2010 LOS		A

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	54	110	19	70	94	74	73	93	120	123	1
Future Vol, veh/h	2	54	110	19	70	94	74	73	93	120	123	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	64	131	23	83	112	88	87	111	143	146	1
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11	10.7	14.6	16
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	31%	100%	0%	0%	100%	0%	0%	49%
Vol Thru, %	30%	0%	100%	14%	0%	100%	20%	50%
Vol Right, %	39%	0%	0%	86%	0%	0%	80%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	240	2	36	128	19	47	117	244
LT Vol	74	2	0	0	19	0	0	120
Through Vol	73	0	36	18	0	47	23	123
RT Vol	93	0	0	110	0	0	94	1
Lane Flow Rate	286	2	43	152	23	56	140	290
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.485	0.005	0.081	0.261	0.046	0.104	0.24	0.519
Departure Headway (Hd)	6.108	7.309	6.794	6.175	7.269	6.754	6.178	6.434
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	589	487	524	578	490	527	577	558
Service Time	3.876	5.094	4.579	3.96	5.052	4.538	3.96	4.203
HCM Lane V/C Ratio	0.486	0.004	0.082	0.263	0.047	0.106	0.243	0.52
HCM Control Delay	14.6	10.1	10.2	11.2	10.4	10.3	10.9	16
HCM Lane LOS	B	B	B	B	B	B	B	C
HCM 95th-tile Q	2.6	0	0.3	1	0.1	0.3	0.9	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	259	625	975	198	47	200
Future Volume (veh/h)	259	625	975	198	47	200
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	282	679	1060	215	51	217
Adj No. of Lanes	2	3	3	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	418	3049	1747	354	313	280
Arrive On Green	0.12	0.61	0.42	0.42	0.18	0.18
Sat Flow, veh/h	3408	5202	4367	851	1757	1568
Grp Volume(v), veh/h	282	679	847	428	51	217
Grp Sat Flow(s),veh/h/ln	1704	1679	1679	1694	1757	1568
Q Serve(g_s), s	4.7	3.7	11.8	11.8	1.5	7.9
Cycle Q Clear(g_c), s	4.7	3.7	11.8	11.8	1.5	7.9
Prop In Lane	1.00			0.50	1.00	1.00
Lane Grp Cap(c), veh/h	418	3049	1396	705	313	280
V/C Ratio(X)	0.67	0.22	0.61	0.61	0.16	0.78
Avail Cap(c_a), veh/h	914	5495	2538	1281	1237	1104
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	5.4	13.6	13.6	20.7	23.4
Incr Delay (d2), s/veh	1.9	0.0	0.4	0.9	0.2	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	1.7	5.5	5.6	0.7	6.9
LnGrp Delay(d),s/veh	26.9	5.4	14.0	14.5	21.0	28.0
LnGrp LOS	C	A	B	B	C	C
Approach Vol, veh/h		961	1275		268	
Approach Delay, s/veh		11.7	14.2		26.7	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		42.9		16.7	11.3	31.6		
Change Period (Y+Rc), s		6.8		6.1	4.0	6.8		
Max Green Setting (Gmax), s		65.1		42.0	16.0	45.1		
Max Q Clear Time (g_c+I1), s		5.7		9.9	6.7	13.8		
Green Ext Time (p_c), s		5.6		0.9	0.7	11.0		

Intersection Summary	
HCM 2010 Ctrl Delay	14.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	345	198	55	651	226	203	281	24	105	429	338
Future Volume (veh/h)	145	345	198	55	651	226	203	281	24	105	429	338
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	165	392	225	62	740	257	231	319	27	119	488	327
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1162	520	87	941	421	266	1072	90	149	915	410
Arrive On Green	0.11	0.33	0.33	0.05	0.27	0.27	0.15	0.33	0.33	0.08	0.26	0.26
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	3273	275	1757	3505	1568
Grp Volume(v), veh/h	165	392	225	62	740	257	231	170	176	119	488	327
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	1752	1796	1757	1752	1568
Q Serve(g_s), s	9.2	8.4	11.2	3.5	19.5	14.3	12.8	7.2	7.3	6.6	11.9	19.4
Cycle Q Clear(g_c), s	9.2	8.4	11.2	3.5	19.5	14.3	12.8	7.2	7.3	6.6	11.9	19.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	197	1162	520	87	941	421	266	574	588	149	915	410
V/C Ratio(X)	0.84	0.34	0.43	0.71	0.79	0.61	0.87	0.30	0.30	0.80	0.53	0.80
Avail Cap(c_a), veh/h	264	1431	640	185	1259	563	352	840	861	296	1582	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	25.1	26.0	46.7	33.8	31.9	41.3	25.0	25.0	44.8	31.6	34.4
Incr Delay (d2), s/veh	15.7	0.2	0.6	10.4	2.4	1.4	16.2	0.3	0.3	9.3	0.5	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	4.1	4.9	1.9	9.8	6.4	7.4	3.5	3.7	3.6	5.8	8.8
LnGrp Delay(d),s/veh	59.1	25.3	26.6	57.1	36.2	33.3	57.5	25.2	25.3	54.1	32.1	38.0
LnGrp LOS	E	C	C	E	D	C	E	C	C	D	C	D
Approach Vol, veh/h		782			1059			577			934	
Approach Delay, s/veh		32.8			36.8			38.2			37.0	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	39.8	19.1	31.8	15.2	33.6	12.5	38.5
Change Period (Y+Rc), s	4.0	* 6.8	4.0	* 5.8	4.0	6.8	4.0	5.8
Max Green Setting (Gmax), s	10.5	* 41	20.0	* 45	15.0	35.8	16.8	47.8
Max Q Clear Time (g_c+I1), s	5.5	13.2	14.8	21.4	11.2	21.5	8.6	9.3
Green Ext Time (p_c), s	0.0	3.5	0.3	4.6	0.1	5.2	0.2	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	36.1
HCM 2010 LOS	D

Notes

Intersection						
Int Delay, s/veh	0.7					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	0	44	30	0	28
Future Vol, veh/h	8	0	44	30	0	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	9	9	9	9	9
Mvmt Flow	9	0	48	33	0	30

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	95	65	0	0	81	0
Stage 1	65	-	-	-	-	-
Stage 2	30	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.19	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.281	-
Pot Cap-1 Maneuver	888	980	-	-	1473	-
Stage 1	940	-	-	-	-	-
Stage 2	975	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	888	980	-	-	1473	-
Mov Cap-2 Maneuver	888	-	-	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	975	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	888	1473	-
HCM Lane V/C Ratio	-	-	0.01	-	-
HCM Control Delay (s)	-	-	9.1	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	6	352	24	22	167
Future Vol, veh/h	7	6	352	24	22	167
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	9	9	9	9	9
Mvmt Flow	8	7	383	26	24	182

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	626	396	0	0	409	0
Stage 1	396	-	-	-	-	-
Stage 2	230	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.19	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.281	-
Pot Cap-1 Maneuver	437	638	-	-	1113	-
Stage 1	665	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	427	638	-	-	1113	-
Mov Cap-2 Maneuver	427	-	-	-	-	-
Stage 1	665	-	-	-	-	-
Stage 2	773	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	504	1113	-
HCM Lane V/C Ratio	-	-	0.028	0.021	-
HCM Control Delay (s)	-	-	12.3	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	5	59	16	13	32	103	299	12	25	337	81
Future Volume (veh/h)	48	5	59	16	13	32	103	299	12	25	337	81
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	60	0	69	19	15	37	120	348	14	29	392	94
Adj No. of Lanes	2	0	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	277	0	124	56	44	88	157	1085	44	49	715	170
Arrive On Green	0.08	0.00	0.08	0.06	0.06	0.06	0.09	0.32	0.32	0.03	0.25	0.25
Sat Flow, veh/h	3514	0	1568	1003	792	1568	1757	3435	138	1757	2812	668
Grp Volume(v), veh/h	60	0	69	34	0	37	120	177	185	29	243	243
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1795	0	1568	1757	1752	1820	1757	1752	1727
Q Serve(g_s), s	0.6	0.0	1.6	0.7	0.0	0.9	2.5	2.9	2.9	0.6	4.5	4.6
Cycle Q Clear(g_c), s	0.6	0.0	1.6	0.7	0.0	0.9	2.5	2.9	2.9	0.6	4.5	4.6
Prop In Lane	1.00		1.00	0.56		1.00	1.00		0.08	1.00		0.39
Lane Grp Cap(c), veh/h	277	0	124	100	0	88	157	553	575	49	446	439
V/C Ratio(X)	0.22	0.00	0.56	0.34	0.00	0.42	0.76	0.32	0.32	0.59	0.55	0.55
Avail Cap(c_a), veh/h	1635	0	730	1440	0	1258	710	1734	1802	287	1312	1293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.1	0.0	16.6	17.0	0.0	17.1	16.6	9.7	9.7	18.0	12.1	12.1
Incr Delay (d2), s/veh	0.4	0.0	3.9	2.0	0.0	3.2	7.5	0.3	0.3	11.0	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.8	0.4	0.0	0.4	1.5	1.4	1.5	0.4	2.3	2.3
LnGrp Delay(d),s/veh	16.5	0.0	20.5	19.0	0.0	20.3	24.1	10.1	10.1	28.9	13.1	13.2
LnGrp LOS	B		C	B		C	C	B	B	C	B	B
Approach Vol, veh/h		129			71			482			515	
Approach Delay, s/veh		18.6			19.7			13.6			14.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.0	18.2		8.1	7.3	15.9		6.1
Change Period (Y+Rc), s	4.0	6.4		5.1	4.0	6.4		4.0
Max Green Setting (Gmax), s	6.1	37.0		17.4	15.1	28.0		30.0
Max Q Clear Time (g_c+I1), s	2.6	4.9		3.6	4.5	6.6		2.9
Green Ext Time (p_c), s	0.0	2.2		0.3	0.2	2.9		0.2

Intersection Summary		
HCM 2010 Ctrl Delay		14.7
HCM 2010 LOS		B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	625	101	15	623	1	61	2	14	3	1	1
Future Volume (veh/h)	3	625	101	15	623	1	61	2	14	3	1	1
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	3	694	112	17	692	1	68	2	16	3	1	1
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	7	853	138	37	1044	2	96	3	22	7	2	2
Arrive On Green	0.00	0.55	0.55	0.02	0.57	0.57	0.07	0.07	0.07	0.01	0.01	0.01
Sat Flow, veh/h	1757	1550	250	1757	1842	3	1360	40	320	1039	346	346
Grp Volume(v), veh/h	3	0	806	17	0	693	86	0	0	5	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1801	1757	0	1844	1720	0	0	1732	0	0
Q Serve(g_s), s	0.1	0.0	17.9	0.5	0.0	12.8	2.4	0.0	0.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.0	17.9	0.5	0.0	12.8	2.4	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.00	0.79		0.19	0.60		0.20
Lane Grp Cap(c), veh/h	7	0	990	37	0	1046	121	0	0	12	0	0
V/C Ratio(X)	0.42	0.00	0.81	0.46	0.00	0.66	0.71	0.00	0.00	0.43	0.00	0.00
Avail Cap(c_a), veh/h	197	0	1857	197	0	1902	630	0	0	652	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.4	0.0	9.0	23.8	0.0	7.4	22.4	0.0	0.0	24.3	0.0	0.0
Incr Delay (d2), s/veh	34.5	0.0	1.7	8.6	0.0	0.7	7.5	0.0	0.0	23.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	9.2	0.3	0.0	6.6	1.4	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	58.9	0.0	10.7	32.4	0.0	8.1	29.9	0.0	0.0	47.5	0.0	0.0
LnGrp LOS	E		B	C		A	C			D		
Approach Vol, veh/h		809			710			86			5	
Approach Delay, s/veh		10.9			8.7			29.9			47.5	
Approach LOS		B			A			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.0	31.7		4.3	4.2	32.6		8.1
Change Period (Y+Rc), s	4.0	* 4.7		4.0	4.0	* 4.7		4.6
Max Green Setting (Gmax), s	5.5	* 51		18.5	5.5	* 51		18.0
Max Q Clear Time (g_c+I1), s	2.5	19.9		2.1	2.1	14.8		4.4
Green Ext Time (p_c), s	0.0	7.1		0.0	0.0	5.7		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	69	19	412	39	12	782
Future Vol, veh/h	69	19	412	39	12	782
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	74	20	443	42	13	841

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	911	243	0	0	485	0
Stage 1	464	-	-	-	-	-
Stage 2	447	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	272	755	-	-	1067	-
Stage 1	596	-	-	-	-	-
Stage 2	608	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	269	755	-	-	1067	-
Mov Cap-2 Maneuver	269	-	-	-	-	-
Stage 1	596	-	-	-	-	-
Stage 2	601	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.5	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	312	1067	-
HCM Lane V/C Ratio	-	-	0.303	0.012	-
HCM Control Delay (s)	-	-	21.5	8.4	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.2	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	179	9	0	314	120	21	35	1	62	12	142
Future Volume (veh/h)	121	179	9	0	314	120	21	35	1	62	12	142
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	133	197	10	0	345	132	23	38	1	68	13	156
Adj No. of Lanes	2	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	371	912	46	3	435	167	57	494	13	124	315	282
Arrive On Green	0.11	0.52	0.52	0.00	0.34	0.34	0.03	0.14	0.14	0.07	0.18	0.18
Sat Flow, veh/h	3408	1741	88	1757	1272	487	1757	3489	91	1757	1752	1568
Grp Volume(v), veh/h	133	0	207	0	0	477	23	19	20	68	13	156
Grp Sat Flow(s),veh/h/ln	1704	0	1829	1757	0	1759	1757	1752	1829	1757	1752	1568
Q Serve(g_s), s	2.0	0.0	3.3	0.0	0.0	13.4	0.7	0.5	0.5	2.1	0.3	5.0
Cycle Q Clear(g_c), s	2.0	0.0	3.3	0.0	0.0	13.4	0.7	0.5	0.5	2.1	0.3	5.0
Prop In Lane	1.00		0.05	1.00		0.28	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	371	0	958	3	0	602	57	248	259	124	315	282
V/C Ratio(X)	0.36	0.00	0.22	0.00	0.00	0.79	0.40	0.08	0.08	0.55	0.04	0.55
Avail Cap(c_a), veh/h	1155	0	1800	208	0	1343	211	987	1030	333	1098	983
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	0.0	7.0	0.0	0.0	16.3	26.0	20.4	20.4	24.7	18.6	20.5
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.0	0.0	2.4	4.6	0.1	0.1	3.7	0.1	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.7	0.0	0.0	6.9	0.4	0.3	0.3	1.1	0.2	2.3
LnGrp Delay(d),s/veh	23.3	0.0	7.1	0.0	0.0	18.7	30.6	20.6	20.6	28.4	18.7	22.2
LnGrp LOS	C		A			B	C	C	C	C	B	C
Approach Vol, veh/h		340			477			62			237	
Approach Delay, s/veh		13.4			18.7			24.3			23.8	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	13.2	0.0	33.8	5.8	15.3	10.0	23.9
Change Period (Y+Rc), s	4.0	* 5.4	4.0	5.1	4.0	5.4	4.0	5.1
Max Green Setting (Gmax), s	10.4	* 31	6.5	54.0	6.6	34.4	18.6	41.9
Max Q Clear Time (g_c+I1), s	4.1	2.5	0.0	5.3	2.7	7.0	4.0	15.4
Green Ext Time (p_c), s	0.1	0.1	0.0	1.3	0.0	1.0	0.3	3.3

Intersection Summary		
HCM 2010 Ctrl Delay		18.5
HCM 2010 LOS		B

Notes

Intersection						
Int Delay, s/veh	1.3					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	289	40	28	144	24	13
Future Vol, veh/h	289	40	28	144	24	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	328	45	32	164	27	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	373	0	579	351
Stage 1	-	-	-	-	351	-
Stage 2	-	-	-	-	228	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1180	-	475	690
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	808	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1180	-	462	690
Mov Cap-2 Maneuver	-	-	-	-	462	-
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	786	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	523	-	-	1180	-
HCM Lane V/C Ratio	0.08	-	-	0.027	-
HCM Control Delay (s)	12.5	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	314	172	0	2	1
Future Vol, veh/h	0	314	172	0	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	361	198	0	2	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	198	0	-	0	559	198
Stage 1	-	-	-	-	198	-
Stage 2	-	-	-	-	361	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1369	-	-	-	488	841
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	703	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1369	-	-	-	488	841
Mov Cap-2 Maneuver	-	-	-	-	488	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	703	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1369	-	-	-	567
HCM Lane V/C Ratio	-	-	-	-	0.006
HCM Control Delay (s)	0	-	-	-	11.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	3.5											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	244	121	145	176	0	0	0	0	47	1	40
Future Vol, veh/h	0	244	121	145	176	0	0	0	0	47	1	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	75	-	-	-	-	-	-	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	271	134	161	196	0	0	0	0	52	1	44

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	405	0	0				856	923	98
Stage 1	-	-	-	-	-	-				518	518	-
Stage 2	-	-	-	-	-	-				338	405	-
Critical Hdwy	-	-	-	4.235	-	-				6.735	6.635	7.035
Critical Hdwy Stg 1	-	-	-	-	-	-				5.935	5.635	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.535	5.635	-
Follow-up Hdwy	-	-	-	2.2855	-	-				3.5855	4.0855	3.3855
Pot Cap-1 Maneuver	0	-	-	1109	-	0				301	259	919
Stage 1	0	-	-	-	-	0				547	518	-
Stage 2	0	-	-	-	-	0				703	583	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1109	-	-				257	0	919
Mov Cap-2 Maneuver	-	-	-	-	-	-				257	0	-
Stage 1	-	-	-	-	-	-				547	0	-
Stage 2	-	-	-	-	-	-				601	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1109	-	257	919
HCM Lane V/C Ratio	-	-	0.145	-	0.208	0.048
HCM Control Delay (s)	-	-	8.8	-	22.6	9.1
HCM Lane LOS	-	-	A	-	C	A
HCM 95th %tile Q(veh)	-	-	0.5	-	0.8	0.2

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	54	233	0	0	268	82	56	3	62	0	0	0
Future Vol, veh/h	54	233	0	0	268	82	56	3	62	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	75	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	61	262	0	0	301	92	63	3	70	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	393	0	-	-	-	0	535	777	131
Stage 1	-	-	-	-	-	-	384	384	-
Stage 2	-	-	-	-	-	-	151	393	-
Critical Hdwy	4.28	-	-	-	-	-	6.98	6.68	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	5.98	5.68	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.98	5.68	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.59	4.09	3.39
Pot Cap-1 Maneuver	1114	-	0	0	-	-	459	313	872
Stage 1	-	-	0	0	-	-	638	593	-
Stage 2	-	-	0	0	-	-	841	587	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1114	-	-	-	-	-	434	0	872
Mov Cap-2 Maneuver	-	-	-	-	-	-	434	0	-
Stage 1	-	-	-	-	-	-	603	0	-
Stage 2	-	-	-	-	-	-	841	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.6	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	434	872	1114	-	-	-
HCM Lane V/C Ratio	0.153	0.08	0.054	-	-	-
HCM Control Delay (s)	14.8	9.5	8.4	-	-	-
HCM Lane LOS	B	A	A	-	-	-
HCM 95th %tile Q(veh)	0.5	0.3	0.2	-	-	-

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	50	226	150	137	0	136	16	56	0	42	48
Future Vol, veh/h	19	50	226	150	137	0	136	16	56	0	42	48
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	22	57	260	172	157	0	156	18	64	0	48	55
Number of Lanes	1	1	0	1	2	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	3	2
HCM Control Delay	16.5	12.1	13.6	11.9
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	89%	0%	100%	0%	100%	0%	0%	0%
Vol Thru, %	11%	0%	0%	18%	0%	100%	100%	47%
Vol Right, %	0%	100%	0%	82%	0%	0%	0%	53%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	152	56	19	276	150	69	69	90
LT Vol	136	0	19	0	150	0	0	0
Through Vol	16	0	0	50	0	69	69	42
RT Vol	0	56	0	226	0	0	0	48
Lane Flow Rate	175	64	22	317	172	79	79	103
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.371	0.116	0.045	0.56	0.358	0.153	0.111	0.208
Departure Headway (Hd)	7.65	6.488	7.453	6.359	7.484	6.975	5.087	7.243
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	472	553	482	571	483	517	707	496
Service Time	5.387	4.225	5.166	4.072	5.198	4.689	2.801	4.986
HCM Lane V/C Ratio	0.371	0.116	0.046	0.555	0.356	0.153	0.112	0.208
HCM Control Delay	14.9	10.1	10.5	16.9	14.3	10.9	8.4	11.9
HCM Lane LOS	B	B	B	C	B	B	A	B
HCM 95th-tile Q	1.7	0.4	0.1	3.4	1.6	0.5	0.4	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	405	40	5	324	25	46	4	6	43	21	58
Future Volume (veh/h)	47	405	40	5	324	25	46	4	6	43	21	58
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	49	426	42	5	341	26	48	4	6	45	22	61
Adj No. of Lanes	1	2	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	1207	540	12	504	38	99	8	95	62	30	84
Arrive On Green	0.05	0.34	0.34	0.01	0.30	0.30	0.06	0.06	0.06	0.11	0.11	0.11
Sat Flow, veh/h	1757	3505	1568	1757	1693	129	1628	136	1568	589	288	798
Grp Volume(v), veh/h	49	426	42	5	0	367	52	0	6	128	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	0	1822	1763	0	1568	1674	0	0
Q Serve(g_s), s	1.0	3.4	0.7	0.1	0.0	6.6	1.1	0.0	0.1	2.8	0.0	0.0
Cycle Q Clear(g_c), s	1.0	3.4	0.7	0.1	0.0	6.6	1.1	0.0	0.1	2.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.07	0.92		1.00	0.35		0.48
Lane Grp Cap(c), veh/h	94	1207	540	12	0	542	107	0	95	177	0	0
V/C Ratio(X)	0.52	0.35	0.08	0.42	0.00	0.68	0.49	0.00	0.06	0.73	0.00	0.00
Avail Cap(c_a), veh/h	542	4937	2209	306	0	2322	970	0	862	1011	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.2	9.1	8.2	18.4	0.0	11.5	16.9	0.0	16.5	16.1	0.0	0.0
Incr Delay (d2), s/veh	4.4	0.2	0.1	21.9	0.0	1.5	3.4	0.0	0.3	5.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.6	0.3	0.1	0.0	3.5	0.6	0.0	0.1	1.6	0.0	0.0
LnGrp Delay(d),s/veh	21.6	9.3	8.3	40.3	0.0	13.0	20.4	0.0	16.8	21.7	0.0	0.0
LnGrp LOS	C	A	A	D		B	C		B	C		
Approach Vol, veh/h		517			372			58			128	
Approach Delay, s/veh		10.4			13.4			20.0			21.7	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	17.3		8.4	6.5	15.6		6.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	6.5	52.5		22.5	11.5	47.5		20.5
Max Q Clear Time (g_c+I1), s	2.1	5.4		4.8	3.0	8.6		3.1
Green Ext Time (p_c), s	0.0	3.3		0.6	0.0	2.5		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	13.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	373	133	407	315	36	27	11	44	28	31	15
Future Volume (veh/h)	14	373	133	407	315	36	27	11	44	28	31	15
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	15	405	145	442	342	39	29	12	48	30	34	16
Adj No. of Lanes	1	2	0	2	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	33	683	242	680	1575	705	59	30	119	61	111	52
Arrive On Green	0.02	0.27	0.27	0.20	0.45	0.45	0.03	0.09	0.09	0.03	0.09	0.09
Sat Flow, veh/h	1757	2539	899	3408	3505	1568	1757	323	1293	1757	1187	559
Grp Volume(v), veh/h	15	278	272	442	342	39	29	0	60	30	0	50
Grp Sat Flow(s),veh/h/ln	1757	1752	1686	1704	1752	1568	1757	0	1616	1757	0	1746
Q Serve(g_s), s	0.4	6.1	6.3	5.3	2.6	0.6	0.7	0.0	1.6	0.7	0.0	1.2
Cycle Q Clear(g_c), s	0.4	6.1	6.3	5.3	2.6	0.6	0.7	0.0	1.6	0.7	0.0	1.2
Prop In Lane	1.00		0.53	1.00		1.00	1.00		0.80	1.00		0.32
Lane Grp Cap(c), veh/h	33	472	454	680	1575	705	59	0	149	61	0	163
V/C Ratio(X)	0.45	0.59	0.60	0.65	0.22	0.06	0.49	0.00	0.40	0.49	0.00	0.31
Avail Cap(c_a), veh/h	336	1556	1497	2413	4923	2202	375	0	781	375	0	844
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	14.1	14.2	16.4	7.5	6.9	21.1	0.0	19.0	21.1	0.0	18.8
Incr Delay (d2), s/veh	9.1	1.2	1.3	1.1	0.1	0.0	6.1	0.0	1.7	6.0	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.1	3.0	2.6	1.3	0.3	0.4	0.0	0.8	0.5	0.0	0.6
LnGrp Delay(d),s/veh	30.7	15.3	15.4	17.4	7.5	6.9	27.2	0.0	20.8	27.1	0.0	19.9
LnGrp LOS	C	B	B	B	A	A	C		C	C		B
Approach Vol, veh/h		565			823			89			80	
Approach Delay, s/veh		15.8			12.8			22.9			22.6	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	16.5	6.0	8.6	5.3	24.5	6.0	8.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	31.5	39.5	9.5	21.5	8.5	62.5	9.5	21.5
Max Q Clear Time (g_c+I1), s	7.3	8.3	2.7	3.2	2.4	4.6	2.7	3.6
Green Ext Time (p_c), s	1.6	3.7	0.0	0.2	0.0	2.6	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	15.0
HCM 2010 LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	491	31	48	603	113	614
Future Volume (veh/h)	491	31	48	603	113	614
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1900	1743	1743	1743	1743
Adj Flow Rate, veh/h	606	38	59	744	140	758
Adj No. of Lanes	2	0	1	2	1	2
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	939	59	93	1467	626	983
Arrive On Green	0.30	0.30	0.06	0.44	0.38	0.38
Sat Flow, veh/h	3253	198	1660	3399	1660	2608
Grp Volume(v), veh/h	317	327	59	744	140	758
Grp Sat Flow(s),veh/h/ln	1656	1708	1660	1656	1660	1304
Q Serve(g_s), s	8.3	8.3	1.7	8.1	2.9	12.7
Cycle Q Clear(g_c), s	8.3	8.3	1.7	8.1	2.9	12.7
Prop In Lane		0.12	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	491	507	93	1467	626	983
V/C Ratio(X)	0.64	0.65	0.63	0.51	0.22	0.77
Avail Cap(c_a), veh/h	1510	1557	482	4281	1547	2430
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	15.3	23.1	10.0	10.6	13.7
Incr Delay (d2), s/veh	1.4	1.4	7.0	0.3	0.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	4.1	1.0	3.7	1.3	4.7
LnGrp Delay(d),s/veh	16.7	16.7	30.0	10.3	10.8	15.0
LnGrp LOS	B	B	C	B	B	B
Approach Vol, veh/h	644			803	898	
Approach Delay, s/veh	16.7			11.7	14.3	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	7.3	19.3				26.6		23.3
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	14.5	45.5				64.5		46.5
Max Q Clear Time (g_c+I1), s	3.7	10.3				10.1		14.7
Green Ext Time (p_c), s	0.1	4.5				6.3		4.1

Intersection Summary	
HCM 2010 Ctrl Delay	14.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	877	111	45	463	130	86	51	35	270	113	52
Future Volume (veh/h)	117	877	111	45	463	130	86	51	35	270	113	52
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	124	933	118	48	493	138	91	54	37	204	237	55
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	153	1115	141	86	1115	499	151	88	60	290	304	259
Arrive On Green	0.09	0.38	0.38	0.05	0.34	0.34	0.09	0.09	0.09	0.17	0.17	0.17
Sat Flow, veh/h	1660	2959	374	1660	3312	1482	1660	965	661	1660	1743	1482
Grp Volume(v), veh/h	124	522	529	48	493	138	91	0	91	204	237	55
Grp Sat Flow(s),veh/h/ln	1660	1656	1677	1660	1656	1482	1660	0	1626	1660	1743	1482
Q Serve(g_s), s	5.2	20.3	20.3	2.0	8.2	4.8	3.7	0.0	3.8	8.2	9.2	2.2
Cycle Q Clear(g_c), s	5.2	20.3	20.3	2.0	8.2	4.8	3.7	0.0	3.8	8.2	9.2	2.2
Prop In Lane	1.00		0.22	1.00		1.00	1.00		0.41	1.00		1.00
Lane Grp Cap(c), veh/h	153	624	632	86	1115	499	151	0	148	290	304	259
V/C Ratio(X)	0.81	0.84	0.84	0.56	0.44	0.28	0.60	0.00	0.62	0.70	0.78	0.21
Avail Cap(c_a), veh/h	153	722	731	153	1443	646	1034	0	1013	402	422	359
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	20.0	20.0	32.7	18.3	17.1	30.9	0.0	30.9	27.4	27.9	25.0
Incr Delay (d2), s/veh	27.2	7.6	7.5	5.6	0.3	0.3	3.8	0.0	4.1	3.3	6.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	10.5	10.6	1.1	3.7	2.0	1.9	0.0	1.9	4.0	4.9	1.0
LnGrp Delay(d),s/veh	58.7	27.6	27.5	38.3	18.5	17.4	34.7	0.0	35.0	30.7	34.0	25.4
LnGrp LOS	E	C	C	D	B	B	C		D	C	C	C
Approach Vol, veh/h		1175			679			182			496	
Approach Delay, s/veh		30.9			19.7			34.9			31.7	
Approach LOS		C			B			C			C	
Timer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	33.4		17.7	10.5	30.6		11.8				
Change Period (Y+Rc), s	4.0	6.8		5.4	4.0	6.8		5.4				
Max Green Setting (Gmax), s	6.5	30.8		17.1	6.5	30.8		44.0				
Max Q Clear Time (g_c+I1), s	4.0	22.3		11.2	7.2	10.2		5.8				
Green Ext Time (p_c), s	0.0	4.4		1.2	0.0	3.8		0.8				

Intersection Summary	
HCM 2010 Ctrl Delay	28.3
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1120	135	22	669	52	34
Future Volume (veh/h)	1120	135	22	669	52	34
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1743
Adj Flow Rate, veh/h	1167	141	23	697	54	35
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1767	790	54	2239	181	161
Arrive On Green	0.53	0.53	0.03	0.68	0.11	0.11
Sat Flow, veh/h	3399	1482	1660	3399	1660	1482
Grp Volume(v), veh/h	1167	141	23	697	54	35
Grp Sat Flow(s),veh/h/ln	1656	1482	1660	1656	1660	1482
Q Serve(g_s), s	13.8	2.7	0.7	4.7	1.6	1.2
Cycle Q Clear(g_c), s	13.8	2.7	0.7	4.7	1.6	1.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1767	790	54	2239	181	161
V/C Ratio(X)	0.66	0.18	0.43	0.31	0.30	0.22
Avail Cap(c_a), veh/h	4507	2016	244	5359	620	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.1	6.5	25.8	3.6	22.3	22.1
Incr Delay (d2), s/veh	0.4	0.1	5.3	0.1	0.9	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	1.1	0.4	2.2	0.8	0.5
LnGrp Delay(d),s/veh	9.6	6.6	31.1	3.7	23.2	22.8
LnGrp LOS	A	A	C	A	C	C
Approach Vol, veh/h	1308			720	89	
Approach Delay, s/veh	9.3			4.6	23.1	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	7.8	35.0				42.8		11.6
Change Period (Y+Rc), s	6.0	6.0				6.0		5.7
Max Green Setting (Gmax), s	8.0	74.0				88.0		20.3
Max Q Clear Time (g_c+I1), s	2.7	15.8				6.7		3.6
Green Ext Time (p_c), s	0.0	13.2				5.9		0.2

Intersection Summary		
HCM 2010 Ctrl Delay		8.2
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	258	747	98	70	395	57	62	57	70	51	35	112
Future Volume (veh/h)	258	747	98	70	395	57	62	57	70	51	35	112
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	272	786	103	74	416	60	65	60	74	54	37	118
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	326	1193	534	130	802	359	218	93	115	127	87	188
Arrive On Green	0.19	0.34	0.34	0.07	0.23	0.23	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	753	928	1063	728	1568
Grp Volume(v), veh/h	272	786	103	74	416	60	65	0	134	91	0	118
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	0	1681	1792	0	1568
Q Serve(g_s), s	8.2	10.4	2.5	2.2	5.7	1.7	1.8	0.0	4.2	2.6	0.0	3.9
Cycle Q Clear(g_c), s	8.2	10.4	2.5	2.2	5.7	1.7	1.8	0.0	4.2	2.6	0.0	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.55	0.59		1.00
Lane Grp Cap(c), veh/h	326	1193	534	130	802	359	218	0	209	215	0	188
V/C Ratio(X)	0.83	0.66	0.19	0.57	0.52	0.17	0.30	0.00	0.64	0.42	0.00	0.63
Avail Cap(c_a), veh/h	385	2267	1014	222	1941	868	1220	0	1167	1342	0	1175
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	15.4	12.7	24.5	18.5	16.9	21.8	0.0	22.8	22.3	0.0	22.9
Incr Delay (d2), s/veh	12.8	0.6	0.2	3.9	0.5	0.2	0.8	0.0	3.3	1.3	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	5.1	1.1	1.2	2.8	0.7	0.9	0.0	2.1	1.3	0.0	1.9
LnGrp Delay(d),s/veh	34.2	16.0	12.9	28.4	19.0	17.1	22.5	0.0	26.1	23.7	0.0	26.4
LnGrp LOS	C	B	B	C	B	B	C		C	C		C
Approach Vol, veh/h		1161			550			199			209	
Approach Delay, s/veh		20.0			20.0			24.9			25.2	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.1	24.6		11.3	14.2	18.5		10.8
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	6.9	35.4		* 41	12.0	30.3		38.0
Max Q Clear Time (g_c+I1), s	4.2	12.4		5.9	10.2	7.7		6.2
Green Ext Time (p_c), s	0.0	6.2		0.9	0.2	3.0		1.0

Intersection Summary		
HCM 2010 Ctrl Delay		21.0
HCM 2010 LOS		C

Notes

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	59	35	7	44	44	27	67	0	95	177	16
Future Vol, veh/h	8	59	35	7	44	44	27	67	0	95	177	16
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	66	39	8	49	49	30	75	0	107	199	18
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	8.8	8.8	11
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	8%	7%	33%
Vol Thru, %	71%	58%	46%	61%
Vol Right, %	0%	34%	46%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	94	102	95	288
LT Vol	27	8	7	95
Through Vol	67	59	44	177
RT Vol	0	35	44	16
Lane Flow Rate	106	115	107	324
Geometry Grp	1	1	1	1
Degree of Util (X)	0.145	0.157	0.144	0.418
Departure Headway (Hd)	4.934	4.924	4.864	4.653
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	722	724	732	770
Service Time	2.996	2.985	2.925	2.701
HCM Lane V/C Ratio	0.147	0.159	0.146	0.421
HCM Control Delay	8.8	8.9	8.8	11
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.5	0.6	0.5	2.1

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	3	124	41	40	89	19	10	58	46	37	76	5
Future Vol, veh/h	3	124	41	40	89	19	10	58	46	37	76	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	3	131	43	42	94	20	11	61	48	39	80	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	9	8.6	9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	2%	27%	31%
Vol Thru, %	51%	74%	60%	64%
Vol Right, %	40%	24%	13%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	168	148	118
LT Vol	10	3	40	37
Through Vol	58	124	89	76
RT Vol	46	41	19	5
Lane Flow Rate	120	177	156	124
Geometry Grp	1	1	1	1
Degree of Util (X)	0.156	0.225	0.205	0.17
Departure Headway (Hd)	4.665	4.587	4.727	4.914
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	764	780	757	727
Service Time	2.717	2.633	2.774	2.966
HCM Lane V/C Ratio	0.157	0.227	0.206	0.171
HCM Control Delay	8.6	9	9	9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.9	0.8	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	901	331	186	407	11	256	36	129	10	16	15
Future Volume (veh/h)	61	901	331	186	407	11	256	36	129	10	16	15
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	64	948	0	196	428	12	269	38	136	11	17	16
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	81	1296	580	246	1615	45	458	248	211	24	38	54
Arrive On Green	0.05	0.37	0.00	0.14	0.46	0.46	0.13	0.13	0.13	0.03	0.03	0.03
Sat Flow, veh/h	1757	3505	1568	1757	3482	97	3408	1845	1568	711	1098	1568
Grp Volume(v), veh/h	64	948	0	196	215	225	269	38	136	28	0	16
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1827	1704	1845	1568	1809	0	1568
Q Serve(g_s), s	2.2	14.4	0.0	6.7	4.6	4.6	4.6	1.1	5.1	0.9	0.0	0.6
Cycle Q Clear(g_c), s	2.2	14.4	0.0	6.7	4.6	4.6	4.6	1.1	5.1	0.9	0.0	0.6
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	0.39		1.00
Lane Grp Cap(c), veh/h	81	1296	580	246	813	847	458	248	211	62	0	54
V/C Ratio(X)	0.79	0.73	0.00	0.80	0.26	0.27	0.59	0.15	0.65	0.45	0.00	0.30
Avail Cap(c_a), veh/h	274	1907	853	428	1096	1143	947	512	435	735	0	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.1	16.8	0.0	25.6	10.1	10.1	25.0	23.6	25.3	29.2	0.0	29.0
Incr Delay (d2), s/veh	15.5	0.8	0.0	5.9	0.2	0.2	1.2	0.3	3.3	5.0	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	7.0	0.0	3.6	2.2	2.4	2.2	0.6	2.4	0.6	0.0	0.3
LnGrp Delay(d),s/veh	44.6	17.6	0.0	31.5	10.3	10.3	26.3	23.8	28.6	34.2	0.0	32.0
LnGrp LOS	D	B		C	B	B	C	C	C	C		C
Approach Vol, veh/h		1012			636			443			44	
Approach Delay, s/veh		19.3			16.8			26.8			33.4	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.6	28.6		6.7	6.8	34.3		13.7
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	15.0	* 34		25.0	9.6	38.5		17.1
Max Q Clear Time (g_c+I1), s	8.7	16.4		2.9	4.2	6.6		7.1
Green Ext Time (p_c), s	0.3	6.4		0.1	0.0	2.8		1.2

Intersection Summary			
HCM 2010 Ctrl Delay			20.4
HCM 2010 LOS			C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	769	7	21	496	104	21	9	4	177	11	116
Future Volume (veh/h)	169	769	7	21	496	104	21	9	4	177	11	116
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	176	801	7	22	517	108	22	9	4	184	11	121
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	220	953	810	35	610	127	55	23	10	250	15	236
Arrive On Green	0.13	0.52	0.52	0.02	0.41	0.41	0.05	0.05	0.05	0.15	0.15	0.15
Sat Flow, veh/h	1757	1845	1568	1757	1481	309	1103	451	200	1662	99	1568
Grp Volume(v), veh/h	176	801	7	22	0	625	35	0	0	195	0	121
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1790	1754	0	0	1762	0	1568
Q Serve(g_s), s	6.5	24.6	0.1	0.8	0.0	20.9	1.3	0.0	0.0	7.0	0.0	4.7
Cycle Q Clear(g_c), s	6.5	24.6	0.1	0.8	0.0	20.9	1.3	0.0	0.0	7.0	0.0	4.7
Prop In Lane	1.00		1.00	1.00		0.17	0.63		0.11	0.94		1.00
Lane Grp Cap(c), veh/h	220	953	810	35	0	737	88	0	0	265	0	236
V/C Ratio(X)	0.80	0.84	0.01	0.62	0.00	0.85	0.40	0.00	0.00	0.74	0.00	0.51
Avail Cap(c_a), veh/h	345	1414	1202	146	0	1170	490	0	0	473	0	421
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.2	13.7	7.8	32.2	0.0	17.6	30.5	0.0	0.0	26.9	0.0	25.9
Incr Delay (d2), s/veh	7.1	3.1	0.0	16.6	0.0	3.5	2.9	0.0	0.0	4.0	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	13.0	0.1	0.6	0.0	11.0	0.7	0.0	0.0	3.7	0.0	2.1
LnGrp Delay(d),s/veh	35.2	16.7	7.8	48.8	0.0	21.1	33.4	0.0	0.0	30.9	0.0	27.6
LnGrp LOS	D	B	A	D		C	C			C		C
Approach Vol, veh/h		984			647			35			316	
Approach Delay, s/veh		20.0			22.1			33.4			29.6	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	38.9		14.7	12.3	32.0		7.3
Change Period (Y+Rc), s	4.0	* 4.7		* 4.7	4.0	* 4.7		4.0
Max Green Setting (Gmax), s	5.5	* 51		* 18	13.0	* 43		18.5
Max Q Clear Time (g_c+I1), s	2.8	26.6		9.0	8.5	22.9		3.3
Green Ext Time (p_c), s	0.0	6.5		1.0	0.2	4.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	22.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	535	129	12	579	0	90	0	31	0	0	0
Future Volume (veh/h)	0	535	129	12	579	0	90	0	31	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	0	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	0	660	159	15	715	0	111	0	38	0	0	0
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	0	3	3	3	3	3	3
Cap, veh/h	5	908	772	41	1146	0	220	0	197	0	5	0
Arrive On Green	0.00	0.49	0.49	0.02	0.62	0.00	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Grp Volume(v), veh/h	0	660	159	15	715	0	111	0	38	0	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Q Serve(g_s), s	0.0	10.7	2.2	0.3	9.1	0.0	2.2	0.0	0.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	10.7	2.2	0.3	9.1	0.0	2.2	0.0	0.8	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	5	908	772	41	1146	0	220	0	197	0	5	0
V/C Ratio(X)	0.00	0.73	0.21	0.37	0.62	0.00	0.50	0.00	0.19	0.00	0.00	0.00
Avail Cap(c_a), veh/h	302	2407	2046	302	2407	0	835	0	745	0	901	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	7.6	5.4	18.2	4.4	0.0	15.5	0.0	14.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	0.1	5.5	0.6	0.0	1.8	0.0	0.5	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.6	1.0	0.2	4.5	0.0	1.2	0.0	0.4	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	8.7	5.6	23.7	5.0	0.0	17.2	0.0	15.3	0.0	0.0	0.0
LnGrp LOS		A	A	C	A		B		B			
Approach Vol, veh/h		819			730			149			0	
Approach Delay, s/veh		8.1			5.4			16.7			0.0	
Approach LOS		A			A			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	23.6		0.0	0.0	28.5		9.3
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.6
Max Green Setting (Gmax), s	6.5	49.4		18.5	6.5	49.4		18.0
Max Q Clear Time (g_c+I1), s	2.3	12.7		0.0	0.0	11.1		4.2
Green Ext Time (p_c), s	0.0	5.9		0.0	0.0	6.0		0.4

Intersection Summary		
HCM 2010 Ctrl Delay		7.7
HCM 2010 LOS		A

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	40	78	37	65	134	68	85	40	86	63	4
Future Vol, veh/h	2	40	78	37	65	134	68	85	40	86	63	4
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	46	90	43	75	154	78	98	46	99	72	5
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.4	9.9	12	11.6
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	35%	100%	0%	0%	100%	0%	0%	56%
Vol Thru, %	44%	0%	100%	15%	0%	100%	14%	41%
Vol Right, %	21%	0%	0%	85%	0%	0%	86%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	193	2	27	91	37	43	156	153
LT Vol	68	2	0	0	37	0	0	86
Through Vol	85	0	27	13	0	43	22	63
RT Vol	40	0	0	78	0	0	134	4
Lane Flow Rate	222	2	31	105	43	50	179	176
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.364	0.004	0.053	0.163	0.077	0.083	0.268	0.303
Departure Headway (Hd)	5.909	6.714	6.204	5.594	6.518	6.009	5.395	6.201
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	610	533	577	640	550	597	666	580
Service Time	3.64	4.454	3.944	3.333	4.253	3.743	3.129	3.933
HCM Lane V/C Ratio	0.364	0.004	0.054	0.164	0.078	0.084	0.269	0.303
HCM Control Delay	12	9.5	9.3	9.4	9.8	9.3	10.1	11.6
HCM Lane LOS	B	A	A	A	A	A	B	B
HCM 95th-tile Q	1.7	0	0.2	0.6	0.2	0.3	1.1	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	233	1267	690	70	94	174
Future Volume (veh/h)	233	1267	690	70	94	174
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	253	1377	750	76	102	189
Adj No. of Lanes	2	3	3	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	416	2740	1555	157	305	272
Arrive On Green	0.12	0.54	0.33	0.33	0.17	0.17
Sat Flow, veh/h	3408	5202	4817	468	1757	1568
Grp Volume(v), veh/h	253	1377	540	286	102	189
Grp Sat Flow(s),veh/h/ln	1704	1679	1679	1762	1757	1568
Q Serve(g_s), s	3.2	7.8	5.8	5.9	2.3	5.2
Cycle Q Clear(g_c), s	3.2	7.8	5.8	5.9	2.3	5.2
Prop In Lane	1.00			0.27	1.00	1.00
Lane Grp Cap(c), veh/h	416	2740	1122	589	305	272
V/C Ratio(X)	0.61	0.50	0.48	0.49	0.33	0.70
Avail Cap(c_a), veh/h	1120	7082	3324	1745	1651	1474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.0	6.5	12.1	12.1	16.6	17.7
Incr Delay (d2), s/veh	1.4	0.1	0.3	0.6	0.6	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.6	2.8	3.0	1.2	4.6
LnGrp Delay(d),s/veh	20.4	6.7	12.4	12.7	17.2	20.9
LnGrp LOS	C	A	B	B	B	C
Approach Vol, veh/h		1630	826		291	
Approach Delay, s/veh		8.8	12.5		19.6	
Approach LOS		A	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		31.6		14.0	9.6	22.1		
Change Period (Y+Rc), s		6.8		6.1	4.0	6.8		
Max Green Setting (Gmax), s		64.2		42.9	15.0	45.2		
Max Q Clear Time (g_c+I1), s		9.8		7.2	5.2	7.9		
Green Ext Time (p_c), s		15.0		0.9	0.6	6.4		

Intersection Summary	
HCM 2010 Ctrl Delay	11.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	424	735	260	78	381	108	120	358	90	83	303	273
Future Volume (veh/h)	424	735	260	78	381	108	120	358	90	83	303	273
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	482	835	295	89	433	123	136	407	102	94	344	253
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	508	1401	627	115	616	275	167	662	164	120	739	331
Arrive On Green	0.29	0.40	0.40	0.07	0.18	0.18	0.09	0.24	0.24	0.07	0.21	0.21
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	2784	691	1757	3505	1568
Grp Volume(v), veh/h	482	835	295	89	433	123	136	255	254	94	344	253
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	1752	1723	1757	1752	1568
Q Serve(g_s), s	24.2	16.9	12.5	4.5	10.4	6.3	6.8	11.7	11.9	4.7	7.7	13.6
Cycle Q Clear(g_c), s	24.2	16.9	12.5	4.5	10.4	6.3	6.8	11.7	11.9	4.7	7.7	13.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	508	1401	627	115	616	275	167	417	410	120	739	331
V/C Ratio(X)	0.95	0.60	0.47	0.78	0.70	0.45	0.82	0.61	0.62	0.79	0.47	0.77
Avail Cap(c_a), veh/h	508	1899	850	264	1396	625	176	883	868	162	1755	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	21.3	19.9	41.4	34.8	33.1	39.9	30.5	30.6	41.2	31.0	33.4
Incr Delay (d2), s/veh	27.4	0.4	0.6	10.7	1.5	1.1	23.8	1.5	1.5	16.2	0.5	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.5	8.2	5.5	2.5	5.2	2.8	4.4	5.8	5.8	2.8	3.8	6.2
LnGrp Delay(d),s/veh	58.7	21.7	20.5	52.0	36.3	34.3	63.7	32.0	32.2	57.4	31.5	37.1
LnGrp LOS	E	C	C	D	D	C	E	C	C	E	C	D
Approach Vol, veh/h		1612			645			645			691	
Approach Delay, s/veh		32.5			38.1			38.8			37.1	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	42.7	12.5	24.8	30.0	22.6	10.1	27.2
Change Period (Y+Rc), s	4.0	* 6.8	4.0	* 5.8	4.0	6.8	4.0	5.8
Max Green Setting (Gmax), s	13.5	* 49	9.0	* 45	26.0	35.8	8.3	45.3
Max Q Clear Time (g_c+I1), s	6.5	18.9	8.8	15.6	26.2	12.4	6.7	13.9
Green Ext Time (p_c), s	0.1	8.1	0.0	3.3	0.0	3.3	0.0	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	35.5
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	0	20	15	0	53
Future Vol, veh/h	37	0	20	15	0	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	9	9	9	9	9
Mvmt Flow	40	0	22	16	0	58

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	88	30	0	0	38	0
Stage 1	30	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.19	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.281	-
Pot Cap-1 Maneuver	896	1025	-	-	1528	-
Stage 1	975	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	896	1025	-	-	1528	-
Mov Cap-2 Maneuver	896	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	947	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	896	1528	-
HCM Lane V/C Ratio	-	-	0.045	-	-
HCM Control Delay (s)	-	-	9.2	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	27	181	11	10	408
Future Vol, veh/h	30	27	181	11	10	408
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	9	9	9	9	9
Mvmt Flow	33	29	197	12	11	443

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	668	203	0	0	209	0
Stage 1	203	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.19	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.281	-
Pot Cap-1 Maneuver	413	820	-	-	1321	-
Stage 1	815	-	-	-	-	-
Stage 2	618	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	408	820	-	-	1321	-
Mov Cap-2 Maneuver	408	-	-	-	-	-
Stage 1	815	-	-	-	-	-
Stage 2	611	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	535	1321	-
HCM Lane V/C Ratio	-	-	0.116	0.008	-
HCM Control Delay (s)	-	-	12.6	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	38	90	68	32	54	88	335	12	71	367	60
Future Volume (veh/h)	64	38	90	68	32	54	88	335	12	71	367	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	56	61	98	74	35	59	96	364	13	77	399	65
Adj No. of Lanes	1	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	207	176	130	61	168	123	856	31	100	710	115
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.07	0.25	0.25	0.06	0.23	0.23
Sat Flow, veh/h	1757	1845	1568	1211	573	1568	1757	3452	123	1757	3022	489
Grp Volume(v), veh/h	56	61	98	109	0	59	96	184	193	77	230	234
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1784	0	1568	1757	1752	1823	1757	1752	1758
Q Serve(g_s), s	1.2	1.2	2.4	2.4	0.0	1.4	2.2	3.6	3.6	1.8	4.7	4.8
Cycle Q Clear(g_c), s	1.2	1.2	2.4	2.4	0.0	1.4	2.2	3.6	3.6	1.8	4.7	4.8
Prop In Lane	1.00		1.00	0.68		1.00	1.00		0.07	1.00		0.28
Lane Grp Cap(c), veh/h	197	207	176	191	0	168	123	435	452	100	411	413
V/C Ratio(X)	0.28	0.29	0.56	0.57	0.00	0.35	0.78	0.42	0.43	0.77	0.56	0.57
Avail Cap(c_a), veh/h	767	806	685	1306	0	1148	557	1377	1432	446	1265	1270
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	16.7	17.2	17.4	0.0	17.0	18.7	13.0	13.0	19.1	13.8	13.8
Incr Delay (d2), s/veh	0.8	0.8	2.7	2.7	0.0	1.3	10.1	0.7	0.6	11.6	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.7	1.2	1.3	0.0	0.7	1.4	1.8	1.9	1.2	2.4	2.5
LnGrp Delay(d),s/veh	17.5	17.5	20.0	20.1	0.0	18.2	28.8	13.6	13.6	30.7	15.0	15.1
LnGrp LOS	B	B	B	C		B	C	B	B	C	B	B
Approach Vol, veh/h		215			168			473			541	
Approach Delay, s/veh		18.6			19.4			16.7			17.3	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	16.6		9.7	6.9	16.0		8.4				
Change Period (Y+Rc), s	4.0	6.4		5.1	4.0	6.4		4.0				
Max Green Setting (Gmax), s	10.4	32.2		17.9	13.0	29.6		30.0				
Max Q Clear Time (g_c+I1), s	3.8	5.6		4.4	4.2	6.8		4.4				
Green Ext Time (p_c), s	0.1	2.3		0.6	0.1	2.8		0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			17.5									
HCM 2010 LOS			B									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	783	41	13	615	3	32	1	13	10	3	14
Future Volume (veh/h)	13	783	41	13	615	3	32	1	13	10	3	14
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	14	833	44	14	654	3	34	1	14	11	3	15
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	31	1000	53	31	1057	5	57	2	24	21	6	28
Arrive On Green	0.02	0.58	0.58	0.02	0.58	0.58	0.05	0.05	0.05	0.03	0.03	0.03
Sat Flow, veh/h	1757	1737	92	1757	1835	8	1180	35	486	630	172	859
Grp Volume(v), veh/h	14	0	877	14	0	657	49	0	0	29	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1828	1757	0	1843	1700	0	0	1661	0	0
Q Serve(g_s), s	0.4	0.0	20.8	0.4	0.0	12.5	1.5	0.0	0.0	0.9	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	20.8	0.4	0.0	12.5	1.5	0.0	0.0	0.9	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.00	0.69		0.29	0.38		0.52
Lane Grp Cap(c), veh/h	31	0	1053	31	0	1062	82	0	0	54	0	0
V/C Ratio(X)	0.45	0.00	0.83	0.45	0.00	0.62	0.60	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	182	0	1743	182	0	1757	575	0	0	578	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.9	0.0	9.2	25.9	0.0	7.4	24.8	0.0	0.0	25.3	0.0	0.0
Incr Delay (d2), s/veh	10.1	0.0	1.8	10.1	0.0	0.6	6.7	0.0	0.0	7.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	10.8	0.3	0.0	6.4	0.9	0.0	0.0	0.5	0.0	0.0
LnGrp Delay(d),s/veh	35.9	0.0	11.0	35.9	0.0	8.0	31.5	0.0	0.0	33.2	0.0	0.0
LnGrp LOS	D		B	D		A	C			C		
Approach Vol, veh/h		891			671			49			29	
Approach Delay, s/veh		11.4			8.6			31.5			33.2	
Approach LOS		B			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	35.3		5.7	4.9	35.3		7.2
Change Period (Y+Rc), s	4.0	* 4.7		4.0	4.0	* 4.7		4.6
Max Green Setting (Gmax), s	5.5	* 51		18.5	5.5	* 51		18.0
Max Q Clear Time (g_c+I1), s	2.4	22.8		2.9	2.4	14.5		3.5
Green Ext Time (p_c), s	0.0	7.9		0.1	0.0	5.3		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	22	807	114	31	668
Future Vol, veh/h	44	22	807	114	31	668
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	48	24	877	124	34	726

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1370	501	0	0	1001	0
Stage 1	939	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	136	513	-	-	681	-
Stage 1	338	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	129	513	-	-	681	-
Mov Cap-2 Maneuver	129	-	-	-	-	-
Stage 1	338	-	-	-	-	-
Stage 2	589	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	40.1	0	0.5
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	172	681	-
HCM Lane V/C Ratio	-	-	0.417	0.049	-
HCM Control Delay (s)	-	-	40.1	10.6	-
HCM Lane LOS	-	-	E	B	-
HCM 95th %tile Q(veh)	-	-	1.9	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	258	28	2	244	115	18	16	4	109	21	188
Future Volume (veh/h)	141	258	28	2	244	115	18	16	4	109	21	188
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	150	274	30	2	260	122	19	17	4	116	22	200
Adj No. of Lanes	2	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	391	652	71	6	341	160	49	426	96	164	378	338
Arrive On Green	0.11	0.40	0.40	0.00	0.29	0.29	0.03	0.15	0.15	0.09	0.22	0.22
Sat Flow, veh/h	3408	1634	179	1757	1189	558	1757	2840	644	1757	1752	1568
Grp Volume(v), veh/h	150	0	304	2	0	382	19	10	11	116	22	200
Grp Sat Flow(s),veh/h/ln	1704	0	1813	1757	0	1746	1757	1752	1731	1757	1752	1568
Q Serve(g_s), s	2.1	0.0	6.3	0.1	0.0	10.4	0.6	0.3	0.3	3.3	0.5	6.0
Cycle Q Clear(g_c), s	2.1	0.0	6.3	0.1	0.0	10.4	0.6	0.3	0.3	3.3	0.5	6.0
Prop In Lane	1.00		0.10	1.00		0.32	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	391	0	723	6	0	501	49	263	259	164	378	338
V/C Ratio(X)	0.38	0.00	0.42	0.35	0.00	0.76	0.39	0.04	0.04	0.71	0.06	0.59
Avail Cap(c_a), veh/h	1241	0	1817	222	0	1335	236	903	892	539	1196	1070
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	11.3	25.9	0.0	17.0	24.9	19.0	19.0	23.0	16.2	18.4
Incr Delay (d2), s/veh	0.6	0.0	0.4	32.2	0.0	2.4	5.0	0.1	0.1	5.4	0.1	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	3.2	0.1	0.0	5.3	0.3	0.1	0.1	1.9	0.3	2.7
LnGrp Delay(d),s/veh	22.0	0.0	11.7	58.1	0.0	19.4	30.0	19.0	19.0	28.4	16.3	20.0
LnGrp LOS	C		B	E		B	C	B	B	C	B	C
Approach Vol, veh/h		454			384			40			338	
Approach Delay, s/veh		15.1			19.6			24.2			22.7	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	13.2	4.2	25.9	5.4	16.7	10.0	20.1
Change Period (Y+Rc), s	4.0	* 5.4	4.0	5.1	4.0	5.4	4.0	5.1
Max Green Setting (Gmax), s	16.0	* 27	6.6	52.3	7.0	35.6	19.0	39.9
Max Q Clear Time (g_c+I1), s	5.3	2.3	2.1	8.3	2.6	8.0	4.1	12.4
Green Ext Time (p_c), s	0.2	0.1	0.0	2.0	0.0	1.4	0.4	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	188	24	20	267	48	16
Future Vol, veh/h	188	24	20	267	48	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	216	28	23	307	55	18

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	244	0	583	230
Stage 1	-	-	-	-	230	-
Stage 2	-	-	-	-	353	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1316	-	473	807
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	709	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1316	-	465	807
Mov Cap-2 Maneuver	-	-	-	-	465	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	697	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	520	-	-	1316	-
HCM Lane V/C Ratio	0.141	-	-	0.017	-
HCM Control Delay (s)	13.1	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection						
Int Delay, s/veh	0					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	206	302	3	0	1
Future Vol, veh/h	1	206	302	3	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	237	347	3	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	350	0	-	0	588	349
Stage 1	-	-	-	-	349	-
Stage 2	-	-	-	-	239	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1203	-	-	-	470	692
Stage 1	-	-	-	-	712	-
Stage 2	-	-	-	-	798	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1203	-	-	-	470	692
Mov Cap-2 Maneuver	-	-	-	-	470	-
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	798	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1203	-	-	-	692
HCM Lane V/C Ratio	0.001	-	-	-	0.002
HCM Control Delay (s)	8	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	1.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	137	86	12	263	0	0	0	0	26	0	60
Future Vol, veh/h	0	137	86	12	263	0	0	0	0	26	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	75	-	-	-	-	-	-	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	140	88	12	268	0	0	0	0	27	0	61

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	228	0	0				476	520	134
Stage 1	-	-	-	-	-	-				292	292	-
Stage 2	-	-	-	-	-	-				184	228	-
Critical Hdwy	-	-	-	4.235	-	-				6.735	6.635	7.035
Critical Hdwy Stg 1	-	-	-	-	-	-				5.935	5.635	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.535	5.635	-
Follow-up Hdwy	-	-	-	2.2855	-	-				3.5855	4.0855	3.3855
Pot Cap-1 Maneuver	0	-	-	1294	-	0				517	447	871
Stage 1	0	-	-	-	-	0				715	655	-
Stage 2	0	-	-	-	-	0				828	700	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1294	-	-				512	0	871
Mov Cap-2 Maneuver	-	-	-	-	-	-				512	0	-
Stage 1	-	-	-	-	-	-				715	0	-
Stage 2	-	-	-	-	-	-				821	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.3	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1294	-	512	871
HCM Lane V/C Ratio	-	-	0.009	-	0.052	0.07
HCM Control Delay (s)	-	-	7.8	-	12.4	9.4
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0	-	0.2	0.2

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	144	0	0	192	37	102	0	21	0	0	0
Future Vol, veh/h	20	144	0	0	192	37	102	0	21	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	75	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	24	169	0	0	226	44	120	0	25	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	270	0	-	-	-	0	330	487	85
Stage 1	-	-	-	-	-	-	217	217	-
Stage 2	-	-	-	-	-	-	113	270	-
Critical Hdwy	4.28	-	-	-	-	-	6.98	6.68	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	5.98	5.68	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.98	5.68	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.59	4.09	3.39
Pot Cap-1 Maneuver	1241	-	0	0	-	-	621	464	935
Stage 1	-	-	0	0	-	-	778	705	-
Stage 2	-	-	0	0	-	-	879	668	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1241	-	-	-	-	-	609	0	935
Mov Cap-2 Maneuver	-	-	-	-	-	-	609	0	-
Stage 1	-	-	-	-	-	-	763	0	-
Stage 2	-	-	-	-	-	-	879	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	609	935	1241	-	-	-
HCM Lane V/C Ratio	0.197	0.026	0.019	-	-	-
HCM Control Delay (s)	12.4	9	8	-	-	-
HCM Lane LOS	B	A	A	-	-	-
HCM 95th %tile Q(veh)	0.7	0.1	0.1	-	-	-

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	1	122	0	1	0	205	24	1	0	12	18
Future Vol, veh/h	22	1	122	0	1	0	205	24	1	0	12	18
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	29	1	158	0	1	0	266	31	1	0	16	23
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	8.8	8.3	10.8	7.8
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	89%	100%	0%	0%	0%
Vol Thru, %	10%	0%	1%	100%	40%
Vol Right, %	0%	0%	99%	0%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	230	22	123	1	30
LT Vol	205	22	0	0	0
Through Vol	24	0	1	1	12
RT Vol	1	0	122	0	18
Lane Flow Rate	299	29	160	1	39
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.393	0.048	0.212	0.002	0.049
Departure Headway (Hd)	4.739	5.987	4.783	5.23	4.515
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	762	599	751	683	792
Service Time	2.763	3.717	2.514	3.274	2.551
HCM Lane V/C Ratio	0.392	0.048	0.213	0.001	0.049
HCM Control Delay	10.8	9	8.8	8.3	7.8
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	1.9	0.2	0.8	0	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	317	28	8	406	27	67	4	6	35	7	40
Future Volume (veh/h)	22	317	28	8	406	27	67	4	6	35	7	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	31	453	40	11	580	39	96	6	9	50	10	57
Adj No. of Lanes	1	2	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	61	1582	708	25	736	49	136	8	128	67	13	76
Arrive On Green	0.03	0.45	0.45	0.01	0.43	0.43	0.08	0.08	0.08	0.09	0.09	0.09
Sat Flow, veh/h	1757	3505	1568	1757	1709	115	1658	104	1568	712	142	812
Grp Volume(v), veh/h	31	453	40	11	0	619	102	0	9	117	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	0	1824	1762	0	1568	1666	0	0
Q Serve(g_s), s	0.9	4.1	0.7	0.3	0.0	14.7	2.8	0.0	0.3	3.4	0.0	0.0
Cycle Q Clear(g_c), s	0.9	4.1	0.7	0.3	0.0	14.7	2.8	0.0	0.3	3.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.06	0.94		1.00	0.43		0.49
Lane Grp Cap(c), veh/h	61	1582	708	25	0	786	144	0	128	157	0	0
V/C Ratio(X)	0.50	0.29	0.06	0.44	0.00	0.79	0.71	0.00	0.07	0.75	0.00	0.00
Avail Cap(c_a), veh/h	227	4180	1870	178	0	2125	649	0	578	614	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.8	8.7	7.8	24.6	0.0	12.3	22.5	0.0	21.3	22.2	0.0	0.0
Incr Delay (d2), s/veh	6.3	0.1	0.0	11.8	0.0	1.8	6.2	0.0	0.2	6.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.0	0.3	0.2	0.0	7.6	1.6	0.0	0.1	1.9	0.0	0.0
LnGrp Delay(d),s/veh	30.1	8.8	7.8	36.4	0.0	14.1	28.7	0.0	21.5	29.0	0.0	0.0
LnGrp LOS	C	A	A	D		B	C		C	C		
Approach Vol, veh/h		524			630			111			117	
Approach Delay, s/veh		10.0			14.5			28.1			29.0	
Approach LOS		A			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	27.2		9.2	6.3	26.1		8.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.1	59.9		18.5	6.5	58.5		18.5
Max Q Clear Time (g_c+I1), s	2.3	6.1		5.4	2.9	16.7		4.8
Green Ext Time (p_c), s	0.0	3.6		0.4	0.0	4.9		0.4

Intersection Summary		
HCM 2010 Ctrl Delay		15.1
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	255	143	728	410	44	11	6	97	16	24	11
Future Volume (veh/h)	17	255	143	728	410	44	11	6	97	16	24	11
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	20	297	166	847	477	51	13	7	113	19	28	13
Adj No. of Lanes	1	2	0	2	2	1	1	1	0	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	42	468	255	1106	1802	806	29	10	164	40	139	65
Arrive On Green	0.02	0.21	0.21	0.32	0.51	0.51	0.02	0.11	0.11	0.02	0.12	0.12
Sat Flow, veh/h	1757	2192	1194	3408	3505	1568	1757	92	1490	1757	1193	554
Grp Volume(v), veh/h	20	236	227	847	477	51	13	0	120	19	0	41
Grp Sat Flow(s),veh/h/ln	1757	1752	1634	1704	1752	1568	1757	0	1582	1757	0	1747
Q Serve(g_s), s	0.6	6.7	7.0	12.2	4.2	0.9	0.4	0.0	4.0	0.6	0.0	1.2
Cycle Q Clear(g_c), s	0.6	6.7	7.0	12.2	4.2	0.9	0.4	0.0	4.0	0.6	0.0	1.2
Prop In Lane	1.00		0.73	1.00		1.00	1.00		0.94	1.00		0.32
Lane Grp Cap(c), veh/h	42	374	349	1106	1802	806	29	0	175	40	0	204
V/C Ratio(X)	0.48	0.63	0.65	0.77	0.26	0.06	0.45	0.00	0.69	0.47	0.00	0.20
Avail Cap(c_a), veh/h	208	911	850	2892	4382	1960	176	0	592	208	0	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.4	19.6	19.7	16.6	7.5	6.7	26.7	0.0	23.5	26.4	0.0	21.9
Incr Delay (d2), s/veh	8.1	1.7	2.0	1.1	0.1	0.0	10.7	0.0	4.7	8.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.4	3.3	5.9	2.0	0.4	0.3	0.0	2.0	0.4	0.0	0.6
LnGrp Delay(d),s/veh	34.5	21.3	21.7	17.8	7.6	6.7	37.4	0.0	28.2	34.8	0.0	22.4
LnGrp LOS	C	C	C	B	A	A	D		C	C		C
Approach Vol, veh/h		483			1375			133			60	
Approach Delay, s/veh		22.1			13.8			29.1			26.3	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.3	16.2	5.4	10.9	5.8	32.7	5.8	10.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	46.5	28.5	5.5	21.5	6.5	68.5	6.5	20.5
Max Q Clear Time (g_c+I1), s	14.2	9.0	2.4	3.2	2.6	6.2	2.6	6.0
Green Ext Time (p_c), s	3.5	2.8	0.0	0.1	0.0	3.8	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	17.1
HCM 2010 LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	314	12	115	1054	128	514
Future Volume (veh/h)	314	12	115	1054	128	514
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1900	1743	1743	1743	1743
Adj Flow Rate, veh/h	374	14	137	1255	152	612
Adj No. of Lanes	2	0	1	2	1	2
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1184	44	178	1812	498	782
Arrive On Green	0.36	0.36	0.11	0.55	0.30	0.30
Sat Flow, veh/h	3343	122	1660	3399	1660	2608
Grp Volume(v), veh/h	190	198	137	1255	152	612
Grp Sat Flow(s),veh/h/ln	1656	1722	1660	1656	1660	1304
Q Serve(g_s), s	4.8	4.9	4.7	16.2	4.1	12.6
Cycle Q Clear(g_c), s	4.8	4.9	4.7	16.2	4.1	12.6
Prop In Lane		0.07	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	602	626	178	1812	498	782
V/C Ratio(X)	0.32	0.32	0.77	0.69	0.31	0.78
Avail Cap(c_a), veh/h	1366	1420	692	4366	946	1486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	13.5	25.6	9.7	15.9	18.8
Incr Delay (d2), s/veh	0.3	0.3	6.9	0.5	0.3	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.4	2.5	7.4	1.9	4.7
LnGrp Delay(d),s/veh	13.7	13.7	32.5	10.2	16.2	20.6
LnGrp LOS	B	B	C	B	B	C
Approach Vol, veh/h	388			1392	764	
Approach Delay, s/veh	13.7			12.4	19.7	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.8	25.9				36.7		22.1
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	24.5	48.5				77.5		33.5
Max Q Clear Time (g_c+I1), s	6.7	6.9				18.2		14.6
Green Ext Time (p_c), s	0.3	2.5				13.9		3.0

Intersection Summary		
HCM 2010 Ctrl Delay		14.8
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	701	96	66	1071	159	178	77	31	150	54	95
Future Volume (veh/h)	91	701	96	66	1071	159	178	77	31	150	54	95
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	103	797	109	75	1217	181	202	88	35	116	137	108
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	128	1170	160	101	1269	568	263	188	75	187	197	167
Arrive On Green	0.08	0.40	0.40	0.06	0.38	0.38	0.16	0.16	0.16	0.11	0.11	0.11
Sat Flow, veh/h	1660	2928	400	1660	3312	1482	1660	1187	472	1660	1743	1482
Grp Volume(v), veh/h	103	451	455	75	1217	181	202	0	123	116	137	108
Grp Sat Flow(s),veh/h/ln	1660	1656	1672	1660	1656	1482	1660	0	1660	1660	1743	1482
Q Serve(g_s), s	4.9	18.1	18.1	3.6	28.8	6.9	9.4	0.0	5.4	5.4	6.1	5.6
Cycle Q Clear(g_c), s	4.9	18.1	18.1	3.6	28.8	6.9	9.4	0.0	5.4	5.4	6.1	5.6
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	128	662	668	101	1269	568	263	0	263	187	197	167
V/C Ratio(X)	0.80	0.68	0.68	0.74	0.96	0.32	0.77	0.00	0.47	0.62	0.70	0.65
Avail Cap(c_a), veh/h	134	662	668	134	1269	568	908	0	908	353	371	315
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	19.9	19.9	37.2	24.2	17.4	32.4	0.0	30.8	34.0	34.3	34.1
Incr Delay (d2), s/veh	27.6	2.8	2.8	14.3	16.5	0.3	4.7	0.0	1.3	3.3	4.4	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	8.7	8.7	2.0	15.9	2.9	4.6	0.0	2.6	2.6	3.2	2.5
LnGrp Delay(d),s/veh	64.1	22.8	22.7	51.5	40.7	17.8	37.2	0.0	32.1	37.3	38.7	38.3
LnGrp LOS	E	C	C	D	D	B	D		C	D	D	D
Approach Vol, veh/h		1009			1473			325			361	
Approach Delay, s/veh		27.0			38.4			35.2			38.1	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.9	38.9		14.5	10.2	37.6		18.1
Change Period (Y+Rc), s	4.0	6.8		5.4	4.0	6.8		5.4
Max Green Setting (Gmax), s	6.5	30.8		17.1	6.5	30.8		44.0
Max Q Clear Time (g_c+I1), s	5.6	20.1		8.1	6.9	30.8		11.4
Green Ext Time (p_c), s	0.0	4.4		1.0	0.0	0.0		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	34.4
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	578	152	41	971	228	90
Future Volume (veh/h)	578	152	41	971	228	90
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1743
Adj Flow Rate, veh/h	642	169	46	1079	253	100
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1111	497	97	1750	348	310
Arrive On Green	0.34	0.34	0.06	0.53	0.21	0.21
Sat Flow, veh/h	3399	1482	1660	3399	1660	1482
Grp Volume(v), veh/h	642	169	46	1079	253	100
Grp Sat Flow(s),veh/h/ln	1656	1482	1660	1656	1660	1482
Q Serve(g_s), s	7.1	3.8	1.2	10.2	6.3	2.6
Cycle Q Clear(g_c), s	7.1	3.8	1.2	10.2	6.3	2.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1111	497	97	1750	348	310
V/C Ratio(X)	0.58	0.34	0.47	0.62	0.73	0.32
Avail Cap(c_a), veh/h	3712	1660	484	5122	1462	1305
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.2	11.1	20.3	7.4	16.5	15.0
Incr Delay (d2), s/veh	0.5	0.4	3.6	0.4	2.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	1.6	0.6	4.6	3.2	1.1
LnGrp Delay(d),s/veh	12.7	11.5	23.9	7.7	19.4	15.5
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	811			1125	353	
Approach Delay, s/veh	12.5			8.4	18.3	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.6	21.0				29.6		15.0
Change Period (Y+Rc), s	6.0	6.0				6.0		5.7
Max Green Setting (Gmax), s	13.0	50.0				69.0		39.3
Max Q Clear Time (g_c+I1), s	3.2	9.1				12.2		8.3
Green Ext Time (p_c), s	0.0	5.8				10.8		1.1

Intersection Summary		
HCM 2010 Ctrl Delay		11.4
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	506	67	49	724	83	68	17	22	122	19	281
Future Volume (veh/h)	150	506	67	49	724	83	68	17	22	122	19	281
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	161	544	72	53	778	89	73	18	24	131	20	302
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	202	1257	562	97	1048	469	136	55	74	366	56	375
Arrive On Green	0.11	0.36	0.36	0.06	0.30	0.30	0.08	0.08	0.08	0.24	0.24	0.24
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	718	958	1534	234	1568
Grp Volume(v), veh/h	161	544	72	53	778	89	73	0	42	151	0	302
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	0	1676	1768	0	1568
Q Serve(g_s), s	6.2	8.2	2.1	2.0	13.9	2.9	2.8	0.0	1.6	4.9	0.0	12.6
Cycle Q Clear(g_c), s	6.2	8.2	2.1	2.0	13.9	2.9	2.8	0.0	1.6	4.9	0.0	12.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.57	0.87		1.00
Lane Grp Cap(c), veh/h	202	1257	562	97	1048	469	136	0	129	422	0	375
V/C Ratio(X)	0.80	0.43	0.13	0.54	0.74	0.19	0.54	0.00	0.32	0.36	0.00	0.81
Avail Cap(c_a), veh/h	319	1639	733	251	1502	672	964	0	919	1046	0	928
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.9	16.9	14.9	31.9	21.9	18.0	30.8	0.0	30.3	21.9	0.0	24.9
Incr Delay (d2), s/veh	7.2	0.2	0.1	4.7	1.2	0.2	3.3	0.0	1.4	0.5	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	4.0	0.9	1.1	6.9	1.3	1.5	0.0	0.8	2.5	0.0	5.9
LnGrp Delay(d),s/veh	37.1	17.1	15.0	36.6	23.1	18.2	34.1	0.0	31.7	22.5	0.0	29.0
LnGrp LOS	D	B	B	D	C	B	C		C	C		C
Approach Vol, veh/h		777			920			115			453	
Approach Delay, s/veh		21.0			23.4			33.2			26.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	30.9		21.3	12.0	26.7		9.3
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	9.9	32.4		* 41	12.6	29.7		38.0
Max Q Clear Time (g_c+I1), s	4.0	10.2		14.6	8.2	15.9		4.8
Green Ext Time (p_c), s	0.0	4.0		2.0	0.2	4.9		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

Notes

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	4	91	48	3	68	67	48	96	6	62	100	8
Future Vol, veh/h	4	91	48	3	68	67	48	96	6	62	100	8
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	5	123	65	4	92	91	65	130	8	84	135	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.3	10.1	10.7	11.1
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	3%	2%	36%
Vol Thru, %	64%	64%	49%	59%
Vol Right, %	4%	34%	49%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	143	138	170
LT Vol	48	4	3	62
Through Vol	96	91	68	100
RT Vol	6	48	67	8
Lane Flow Rate	203	193	186	230
Geometry Grp	1	1	1	1
Degree of Util (X)	0.302	0.281	0.267	0.34
Departure Headway (Hd)	5.369	5.23	5.153	5.331
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	669	686	697	675
Service Time	3.403	3.264	3.188	3.365
HCM Lane V/C Ratio	0.303	0.281	0.267	0.341
HCM Control Delay	10.7	10.3	10.1	11.1
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.3	1.2	1.1	1.5

Intersection	
Intersection Delay, s/veh	31.4
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	108	57	18	42	94	94	19	167	26	32	82	23
Future Vol, veh/h	108	57	18	42	94	94	19	167	26	32	82	23
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	193	102	32	75	168	168	34	298	46	57	146	41
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	27.9	37.7	34.6	20.7
HCM LOS	D	E	D	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	59%	18%	23%
Vol Thru, %	79%	31%	41%	60%
Vol Right, %	12%	10%	41%	17%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	212	183	230	137
LT Vol	19	108	42	32
Through Vol	167	57	94	82
RT Vol	26	18	94	23
Lane Flow Rate	379	327	411	245
Geometry Grp	1	1	1	1
Degree of Util (X)	0.798	0.709	0.835	0.55
Departure Headway (Hd)	7.587	7.816	7.316	8.09
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	477	461	493	445
Service Time	5.653	5.89	5.382	6.169
HCM Lane V/C Ratio	0.795	0.709	0.834	0.551
HCM Control Delay	34.6	27.9	37.7	20.7
HCM Lane LOS	D	D	E	C
HCM 95th-tile Q	7.3	5.5	8.3	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	572	267	204	600	20	275	26	183	14	35	26
Future Volume (veh/h)	25	572	267	204	600	20	275	26	183	14	35	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	31	706	0	252	741	25	340	32	226	17	43	32
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	0	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	46	981	439	306	1479	50	638	345	293	28	72	86
Arrive On Green	0.03	0.28	0.00	0.17	0.43	0.43	0.19	0.19	0.19	0.06	0.06	0.06
Sat Flow, veh/h	1757	3505	1568	1757	3460	117	3408	1845	1568	515	1304	1568
Grp Volume(v), veh/h	31	706	0	252	375	391	340	32	226	60	0	32
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1824	1704	1845	1568	1819	0	1568
Q Serve(g_s), s	1.1	11.8	0.0	9.0	10.2	10.2	5.9	0.9	8.9	2.1	0.0	1.3
Cycle Q Clear(g_c), s	1.1	11.8	0.0	9.0	10.2	10.2	5.9	0.9	8.9	2.1	0.0	1.3
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.28		1.00
Lane Grp Cap(c), veh/h	46	981	439	306	749	780	638	345	293	100	0	86
V/C Ratio(X)	0.67	0.72	0.00	0.82	0.50	0.50	0.53	0.09	0.77	0.60	0.00	0.37
Avail Cap(c_a), veh/h	167	1587	710	512	1127	1173	894	484	411	698	0	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.4	21.2	0.0	25.9	13.6	13.6	23.9	21.9	25.2	30.1	0.0	29.7
Incr Delay (d2), s/veh	15.4	1.0	0.0	5.6	0.5	0.5	0.7	0.1	5.7	5.6	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.8	0.0	4.8	5.0	5.2	2.8	0.5	4.3	1.2	0.0	0.6
LnGrp Delay(d),s/veh	46.9	22.2	0.0	31.5	14.1	14.1	24.6	22.0	30.9	35.7	0.0	32.3
LnGrp LOS	D	C		C	B	B	C	C	C	D		C
Approach Vol, veh/h		737			1018			598			92	
Approach Delay, s/veh		23.2			18.4			26.8			34.5	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.3	24.0		8.2	5.7	33.7		17.6
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	19.0	* 30		25.0	6.2	41.9		17.1
Max Q Clear Time (g_c+I1), s	11.0	13.8		4.1	3.1	12.2		10.9
Green Ext Time (p_c), s	0.5	4.4		0.3	0.0	5.4		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	558	26	7	626	94	24	13	3	254	0	144
Future Volume (veh/h)	152	558	26	7	626	94	24	13	3	254	0	144
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	179	656	31	8	736	111	28	15	4	299	0	169
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	182	1061	902	14	752	113	55	29	8	324	0	289
Arrive On Green	0.10	0.58	0.58	0.01	0.48	0.48	0.05	0.05	0.05	0.18	0.00	0.18
Sat Flow, veh/h	1757	1845	1568	1757	1567	236	1052	563	150	1757	0	1568
Grp Volume(v), veh/h	179	656	31	8	0	847	47	0	0	299	0	169
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1803	1766	0	0	1757	0	1568
Q Serve(g_s), s	9.8	22.6	0.8	0.4	0.0	44.5	2.5	0.0	0.0	16.1	0.0	9.5
Cycle Q Clear(g_c), s	9.8	22.6	0.8	0.4	0.0	44.5	2.5	0.0	0.0	16.1	0.0	9.5
Prop In Lane	1.00		1.00	1.00		0.13	0.60		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	182	1061	902	14	0	865	92	0	0	324	0	289
V/C Ratio(X)	0.98	0.62	0.03	0.57	0.00	0.98	0.51	0.00	0.00	0.92	0.00	0.58
Avail Cap(c_a), veh/h	182	1061	902	100	0	865	338	0	0	324	0	289
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	13.5	8.9	47.7	0.0	24.6	44.6	0.0	0.0	38.7	0.0	36.0
Incr Delay (d2), s/veh	61.6	1.1	0.0	31.5	0.0	25.5	4.4	0.0	0.0	30.9	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	11.8	0.4	0.3	0.0	28.0	1.3	0.0	0.0	10.6	0.0	4.4
LnGrp Delay(d),s/veh	104.8	14.6	8.9	79.2	0.0	50.1	48.9	0.0	0.0	69.6	0.0	39.0
LnGrp LOS	F	B	A	E		D	D			E		D
Approach Vol, veh/h		866			855			47			468	
Approach Delay, s/veh		33.0			50.4			48.9			58.5	
Approach LOS		C			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	60.2		22.5	14.0	51.0		9.0
Change Period (Y+Rc), s	4.0	* 4.7		* 4.7	4.0	* 4.7		4.0
Max Green Setting (Gmax), s	5.5	* 51		* 18	10.0	* 46		18.5
Max Q Clear Time (g_c+I1), s	2.4	24.6		18.1	11.8	46.5		4.5
Green Ext Time (p_c), s	0.0	5.0		0.0	0.0	0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	45.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	582	144	26	665	0	112	0	57	0	0	0
Future Volume (veh/h)	0	582	144	26	665	0	112	0	57	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	0	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	0	719	178	32	821	0	138	0	70	0	0	0
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	0	3	3	3	3	3	3
Cap, veh/h	4	946	804	78	1199	0	224	0	200	0	4	0
Arrive On Green	0.00	0.51	0.51	0.04	0.65	0.00	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Grp Volume(v), veh/h	0	719	178	32	821	0	138	0	70	0	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Q Serve(g_s), s	0.0	13.4	2.7	0.8	12.1	0.0	3.2	0.0	1.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	13.4	2.7	0.8	12.1	0.0	3.2	0.0	1.8	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	4	946	804	78	1199	0	224	0	200	0	4	0
V/C Ratio(X)	0.00	0.76	0.22	0.41	0.68	0.00	0.62	0.00	0.35	0.00	0.00	0.00
Avail Cap(c_a), veh/h	265	2113	1796	265	2113	0	733	0	655	0	791	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	8.4	5.8	20.1	4.8	0.0	17.8	0.0	17.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	0.1	3.4	0.7	0.0	2.7	0.0	1.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.9	1.2	0.4	6.2	0.0	1.7	0.0	0.8	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	9.7	5.9	23.5	5.5	0.0	20.5	0.0	18.2	0.0	0.0	0.0
LnGrp LOS		A	A	C	A		C		B			
Approach Vol, veh/h		897			853			208			0	
Approach Delay, s/veh		8.9			6.1			19.8			0.0	
Approach LOS		A			A			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.9	27.1		0.0	0.0	33.0		10.1
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.6
Max Green Setting (Gmax), s	6.5	49.4		18.5	6.5	49.4		18.0
Max Q Clear Time (g_c+I1), s	2.8	15.4		0.0	0.0	14.1		5.2
Green Ext Time (p_c), s	0.0	6.7		0.0	0.0	7.4		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	54	118	28	48	87	80	67	122	124	126	1
Future Vol, veh/h	2	54	118	28	48	87	80	67	122	124	126	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	64	140	33	57	104	95	80	145	148	150	1
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.2	10.7	15.7	16.6
HCM LOS	B	B	C	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	30%	100%	0%	0%	100%	0%	0%	49%
Vol Thru, %	25%	0%	100%	13%	0%	100%	16%	50%
Vol Right, %	45%	0%	0%	87%	0%	0%	84%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	269	2	36	136	28	32	103	251
LT Vol	80	2	0	0	28	0	0	124
Through Vol	67	0	36	18	0	32	16	126
RT Vol	122	0	0	118	0	0	87	1
Lane Flow Rate	320	2	43	162	33	38	123	299
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.538	0.005	0.082	0.281	0.069	0.073	0.215	0.537
Departure Headway (Hd)	6.051	7.399	6.884	6.258	7.423	6.908	6.299	6.467
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	592	481	517	570	479	515	565	556
Service Time	3.823	5.191	4.675	4.049	5.217	4.701	4.091	4.241
HCM Lane V/C Ratio	0.541	0.004	0.083	0.284	0.069	0.074	0.218	0.538
HCM Control Delay	15.7	10.2	10.3	11.5	10.8	10.3	10.8	16.6
HCM Lane LOS	C	B	B	B	B	B	B	C
HCM 95th-tile Q	3.2	0	0.3	1.1	0.2	0.2	0.8	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	239	830	1328	197	63	210
Future Volume (veh/h)	239	830	1328	197	63	210
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	260	902	1443	214	68	228
Adj No. of Lanes	2	3	3	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	364	3235	2130	316	316	282
Arrive On Green	0.11	0.64	0.48	0.48	0.18	0.18
Sat Flow, veh/h	3408	5202	4596	656	1757	1568
Grp Volume(v), veh/h	260	902	1093	564	68	228
Grp Sat Flow(s),veh/h/ln	1704	1679	1679	1729	1757	1568
Q Serve(g_s), s	5.4	5.7	18.2	18.3	2.4	10.1
Cycle Q Clear(g_c), s	5.4	5.7	18.2	18.3	2.4	10.1
Prop In Lane	1.00			0.38	1.00	1.00
Lane Grp Cap(c), veh/h	364	3235	1614	831	316	282
V/C Ratio(X)	0.72	0.28	0.68	0.68	0.22	0.81
Avail Cap(c_a), veh/h	610	4512	2223	1145	1016	906
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	5.7	14.5	14.5	25.4	28.6
Incr Delay (d2), s/veh	2.6	0.0	0.5	1.0	0.3	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	2.6	8.5	8.8	1.2	8.8
LnGrp Delay(d),s/veh	34.0	5.7	15.0	15.5	25.7	34.0
LnGrp LOS	C	A	B	B	C	C
Approach Vol, veh/h		1162	1657		296	
Approach Delay, s/veh		12.0	15.2		32.1	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		53.5		19.2	11.7	41.7		
Change Period (Y+Rc), s		6.8		6.1	4.0	6.8		
Max Green Setting (Gmax), s		65.1		42.0	13.0	48.1		
Max Q Clear Time (g_c+I1), s		7.7		12.1	7.4	20.3		
Green Ext Time (p_c), s		8.1		1.0	0.4	14.7		

Intersection Summary	
HCM 2010 Ctrl Delay	15.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	524	230	97	956	227	254	304	51	109	447	349
Future Volume (veh/h)	169	524	230	97	956	227	254	304	51	109	447	349
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	192	595	261	110	1086	258	289	345	58	124	508	283
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	194	1262	565	136	1146	513	284	906	151	152	793	355
Arrive On Green	0.11	0.36	0.36	0.08	0.33	0.33	0.16	0.30	0.30	0.09	0.23	0.23
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	3008	501	1757	3505	1568
Grp Volume(v), veh/h	192	595	261	110	1086	258	289	200	203	124	508	283
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	1752	1756	1757	1752	1568
Q Serve(g_s), s	12.8	15.4	15.0	7.3	35.6	15.6	19.0	10.6	10.8	8.2	15.4	20.1
Cycle Q Clear(g_c), s	12.8	15.4	15.0	7.3	35.6	15.6	19.0	10.6	10.8	8.2	15.4	20.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	194	1262	565	136	1146	513	284	528	529	152	793	355
V/C Ratio(X)	0.99	0.47	0.46	0.81	0.95	0.50	1.02	0.38	0.38	0.82	0.64	0.80
Avail Cap(c_a), veh/h	194	1262	565	221	1155	517	284	682	683	266	1340	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	29.0	28.9	53.5	38.6	31.9	49.4	32.4	32.5	52.9	41.2	43.0
Incr Delay (d2), s/veh	61.5	0.3	0.6	10.8	15.5	0.8	58.5	0.4	0.5	10.3	0.9	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	7.5	6.6	3.9	19.7	6.9	13.7	5.2	5.3	4.4	7.6	9.1
LnGrp Delay(d),s/veh	113.8	29.3	29.5	64.3	54.1	32.7	107.9	32.9	33.0	63.2	42.1	47.2
LnGrp LOS	F	C	C	E	D	C	F	C	C	E	D	D
Approach Vol, veh/h		1048			1454			692			915	
Approach Delay, s/veh		44.8			51.1			64.2			46.5	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	49.2	23.0	32.4	17.0	45.3	14.2	41.3
Change Period (Y+Rc), s	4.0	* 6.8	4.0	* 5.8	4.0	6.8	4.0	5.8
Max Green Setting (Gmax), s	14.8	* 37	19.0	* 45	13.0	38.8	17.8	45.8
Max Q Clear Time (g_c+I1), s	9.3	17.4	21.0	22.1	14.8	37.6	10.2	12.8
Green Ext Time (p_c), s	0.1	5.0	0.0	4.6	0.0	0.9	0.2	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	50.7
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	5	62	17	14	34	108	339	13	26	369	85
Future Volume (veh/h)	50	5	62	17	14	34	108	339	13	26	369	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	62	0	72	20	16	40	126	394	15	30	429	99
Adj No. of Lanes	2	0	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	278	0	124	57	46	90	166	1144	43	50	755	173
Arrive On Green	0.08	0.00	0.08	0.06	0.06	0.06	0.09	0.33	0.33	0.03	0.27	0.27
Sat Flow, veh/h	3514	0	1568	997	798	1568	1757	3443	131	1757	2834	649
Grp Volume(v), veh/h	62	0	72	36	0	40	126	200	209	30	264	264
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1795	0	1568	1757	1752	1822	1757	1752	1730
Q Serve(g_s), s	0.6	0.0	1.7	0.7	0.0	1.0	2.7	3.3	3.4	0.7	5.0	5.1
Cycle Q Clear(g_c), s	0.6	0.0	1.7	0.7	0.0	1.0	2.7	3.3	3.4	0.7	5.0	5.1
Prop In Lane	1.00		1.00	0.56		1.00	1.00		0.07	1.00		0.37
Lane Grp Cap(c), veh/h	278	0	124	103	0	90	166	582	605	50	467	461
V/C Ratio(X)	0.22	0.00	0.58	0.35	0.00	0.44	0.76	0.34	0.35	0.60	0.57	0.57
Avail Cap(c_a), veh/h	1576	0	703	1388	0	1212	679	1671	1737	276	1269	1253
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	17.2	17.6	0.0	17.7	17.1	9.8	9.8	18.6	12.3	12.3
Incr Delay (d2), s/veh	0.4	0.0	4.2	2.0	0.0	3.4	7.0	0.3	0.3	11.0	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.9	0.4	0.0	0.5	1.6	1.7	1.7	0.5	2.6	2.6
LnGrp Delay(d),s/veh	17.1	0.0	21.5	19.6	0.0	21.1	24.2	10.1	10.1	29.6	13.4	13.4
LnGrp LOS	B		C	B		C	C	B	B	C	B	B
Approach Vol, veh/h		134			76			535			558	
Approach Delay, s/veh		19.5			20.4			13.4			14.3	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.1	19.3		8.2	7.7	16.7		6.2
Change Period (Y+Rc), s	4.0	6.4		5.1	4.0	6.4		4.0
Max Green Setting (Gmax), s	6.1	37.0		17.4	15.0	28.1		30.0
Max Q Clear Time (g_c+I1), s	2.7	5.4		3.7	4.7	7.1		3.0
Green Ext Time (p_c), s	0.0	2.6		0.3	0.2	3.2		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	709	106	16	714	4	64	2	15	4	1	10
Future Volume (veh/h)	32	709	106	16	714	4	64	2	15	4	1	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	36	788	118	18	793	4	71	2	17	4	1	11
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	67	924	138	38	1050	5	94	3	23	8	2	22
Arrive On Green	0.04	0.59	0.59	0.02	0.57	0.57	0.07	0.07	0.07	0.02	0.02	0.02
Sat Flow, veh/h	1757	1568	235	1757	1834	9	1357	38	325	407	102	1119
Grp Volume(v), veh/h	36	0	906	18	0	797	90	0	0	16	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1803	1757	0	1843	1720	0	0	1627	0	0
Q Serve(g_s), s	1.2	0.0	23.9	0.6	0.0	18.8	3.0	0.0	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	1.2	0.0	23.9	0.6	0.0	18.8	3.0	0.0	0.0	0.6	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.01	0.79		0.19	0.25		0.69
Lane Grp Cap(c), veh/h	67	0	1062	38	0	1055	120	0	0	32	0	0
V/C Ratio(X)	0.54	0.00	0.85	0.47	0.00	0.76	0.75	0.00	0.00	0.50	0.00	0.00
Avail Cap(c_a), veh/h	168	0	1586	168	0	1621	537	0	0	522	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.2	0.0	9.8	27.9	0.0	9.3	26.3	0.0	0.0	28.0	0.0	0.0
Incr Delay (d2), s/veh	6.6	0.0	3.1	8.8	0.0	1.1	9.1	0.0	0.0	11.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	12.5	0.4	0.0	9.6	1.7	0.0	0.0	0.4	0.0	0.0
LnGrp Delay(d),s/veh	33.8	0.0	12.9	36.7	0.0	10.4	35.4	0.0	0.0	39.7	0.0	0.0
LnGrp LOS	C		B	D		B	D			D		
Approach Vol, veh/h		942			815			90			16	
Approach Delay, s/veh		13.7			11.0			35.4			39.7	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	38.7		5.1	6.2	37.7		8.6
Change Period (Y+Rc), s	4.0	* 4.7		4.0	4.0	* 4.7		4.6
Max Green Setting (Gmax), s	5.5	* 51		18.5	5.5	* 51		18.0
Max Q Clear Time (g_c+I1), s	2.6	25.9		2.6	3.2	20.8		5.0
Green Ext Time (p_c), s	0.0	8.0		0.0	0.0	6.8		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	73	20	458	41	13	837
Future Vol, veh/h	73	20	458	41	13	837
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	78	22	492	44	14	900

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	992	268	0	0	536	0
Stage 1	514	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	241	727	-	-	1021	-
Stage 1	562	-	-	-	-	-
Stage 2	587	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	238	727	-	-	1021	-
Mov Cap-2 Maneuver	238	-	-	-	-	-
Stage 1	562	-	-	-	-	-
Stage 2	579	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.1	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	278	1021	-
HCM Lane V/C Ratio	-	-	0.36	0.014	-
HCM Control Delay (s)	-	-	25.1	8.6	-
HCM Lane LOS	-	-	D	A	-
HCM 95th %tile Q(veh)	-	-	1.6	0	-

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	868	1539	34	44	24
Future Volume (veh/h)	34	868	1539	34	44	24
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	39	986	1749	39	50	27
Adj No. of Lanes	1	3	3	0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	72	3868	3259	73	112	100
Arrive On Green	0.04	0.77	0.64	0.64	0.06	0.06
Sat Flow, veh/h	1757	5202	5235	113	1757	1568
Grp Volume(v), veh/h	39	986	1158	630	50	27
Grp Sat Flow(s),veh/h/ln	1757	1679	1679	1825	1757	1568
Q Serve(g_s), s	1.2	3.0	10.1	10.1	1.5	0.9
Cycle Q Clear(g_c), s	1.2	3.0	10.1	10.1	1.5	0.9
Prop In Lane	1.00			0.06	1.00	1.00
Lane Grp Cap(c), veh/h	72	3868	2158	1173	112	100
V/C Ratio(X)	0.54	0.25	0.54	0.54	0.45	0.27
Avail Cap(c_a), veh/h	345	8141	4486	2438	804	718
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	1.8	5.2	5.2	24.1	23.9
Incr Delay (d2), s/veh	6.1	0.0	0.2	0.4	2.8	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.4	4.6	5.0	0.8	0.8
LnGrp Delay(d),s/veh	31.3	1.8	5.4	5.6	26.9	25.3
LnGrp LOS	C	A	A	A	C	C
Approach Vol, veh/h		1025	1788		77	
Approach Delay, s/veh		2.9	5.5		26.4	
Approach LOS		A	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				45.6		7.9	6.7	38.9
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				86.5		24.5	10.5	71.5
Max Q Clear Time (g_c+I1), s				5.0		3.5	3.2	12.1
Green Ext Time (p_c), s				9.2		0.2	0.0	22.3

Intersection Summary	
HCM 2010 Ctrl Delay	5.1
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	188	7	0	330	126	16	30	1	65	11	149
Future Volume (veh/h)	127	188	7	0	330	126	16	30	1	65	11	149
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	140	207	8	0	363	138	18	33	1	71	12	164
Adj No. of Lanes	2	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	362	940	36	3	453	172	46	480	14	126	322	288
Arrive On Green	0.11	0.53	0.53	0.00	0.36	0.36	0.03	0.14	0.14	0.07	0.18	0.18
Sat Flow, veh/h	3408	1764	68	1757	1275	485	1757	3474	105	1757	1752	1568
Grp Volume(v), veh/h	140	0	215	0	0	501	18	17	17	71	12	164
Grp Sat Flow(s),veh/h/ln	1704	0	1833	1757	0	1759	1757	1752	1826	1757	1752	1568
Q Serve(g_s), s	2.2	0.0	3.5	0.0	0.0	14.4	0.6	0.5	0.5	2.2	0.3	5.4
Cycle Q Clear(g_c), s	2.2	0.0	3.5	0.0	0.0	14.4	0.6	0.5	0.5	2.2	0.3	5.4
Prop In Lane	1.00		0.04	1.00		0.28	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	362	0	976	3	0	625	46	242	252	126	322	288
V/C Ratio(X)	0.39	0.00	0.22	0.00	0.00	0.80	0.39	0.07	0.07	0.57	0.04	0.57
Avail Cap(c_a), veh/h	1127	0	1760	203	0	1311	206	957	997	331	1072	959
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	0.0	7.0	0.0	0.0	16.4	26.9	21.1	21.1	25.3	18.9	20.9
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.0	0.0	2.5	5.3	0.1	0.1	3.9	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.8	0.0	0.0	7.4	0.3	0.2	0.2	1.2	0.2	2.5
LnGrp Delay(d),s/veh	24.1	0.0	7.1	0.0	0.0	18.8	32.3	21.2	21.2	29.2	18.9	22.7
LnGrp LOS	C		A			B	C	C	C	C	B	C
Approach Vol, veh/h		355			501			52			247	
Approach Delay, s/veh		13.8			18.8			25.0			24.4	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	13.2	0.0	35.0	5.5	15.7	10.0	25.1
Change Period (Y+Rc), s	4.0	* 5.4	4.0	5.1	4.0	5.4	4.0	5.1
Max Green Setting (Gmax), s	10.6	* 31	6.5	54.0	6.6	34.4	18.6	41.9
Max Q Clear Time (g_c+I1), s	4.2	2.5	0.0	5.5	2.6	7.4	4.2	16.4
Green Ext Time (p_c), s	0.1	0.1	0.0	1.4	0.0	1.1	0.3	3.5

Intersection Summary	
HCM 2010 Ctrl Delay	18.7
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	296	42	14	131	25	7
Future Vol, veh/h	296	42	14	131	25	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	336	48	16	149	28	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	384	0	541	360
Stage 1	-	-	-	-	360	-
Stage 2	-	-	-	-	181	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1169	-	500	682
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	848	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1169	-	493	682
Mov Cap-2 Maneuver	-	-	-	-	493	-
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	836	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	525	-	-	1169	-
HCM Lane V/C Ratio	0.069	-	-	0.014	-
HCM Control Delay (s)	12.4	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	316	145	0	2	1
Future Vol, veh/h	0	316	145	0	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	363	167	0	2	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	167	0	-	0	530	167
Stage 1	-	-	-	-	167	-
Stage 2	-	-	-	-	363	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1405	-	-	-	508	875
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	702	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1405	-	-	-	508	875
Mov Cap-2 Maneuver	-	-	-	-	508	-
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	702	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1405	-	-	-	591
HCM Lane V/C Ratio	-	-	-	-	0.006
HCM Control Delay (s)	0	-	-	-	11.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	1.8											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	243	127	26	149	0	0	0	0	39	1	42
Future Vol, veh/h	0	243	127	26	149	0	0	0	0	39	1	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	75	-	-	-	-	-	-	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	270	141	29	166	0	0	0	0	43	1	47

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	411	0	0				565	635	83
Stage 1	-	-	-	-	-	-				224	224	-
Stage 2	-	-	-	-	-	-				341	411	-
Critical Hdwy	-	-	-	4.235	-	-				6.735	6.635	7.035
Critical Hdwy Stg 1	-	-	-	-	-	-				5.935	5.635	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.535	5.635	-
Follow-up Hdwy	-	-	-	2.2855	-	-				3.5855	4.0855	3.3855
Pot Cap-1 Maneuver	0	-	-	1103	-	0				456	384	940
Stage 1	0	-	-	-	-	0				774	703	-
Stage 2	0	-	-	-	-	0				701	579	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1103	-	-				444	0	940
Mov Cap-2 Maneuver	-	-	-	-	-	-				444	0	-
Stage 1	-	-	-	-	-	-				774	0	-
Stage 2	-	-	-	-	-	-				683	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.2	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1103	-	444	940
HCM Lane V/C Ratio	-	-	0.026	-	0.1	0.05
HCM Control Delay (s)	-	-	8.4	-	14	9
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	-	0.3	0.2

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	57	221	0	0	120	59	59	3	19	0	0	0
Future Vol, veh/h	57	221	0	0	120	59	59	3	19	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	75	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	64	248	0	0	135	66	66	3	21	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	201	0	-	-	-	0	444	577	124
Stage 1	-	-	-	-	-	-	376	376	-
Stage 2	-	-	-	-	-	-	68	201	-
Critical Hdwy	4.28	-	-	-	-	-	6.98	6.68	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	5.98	5.68	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.98	5.68	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.59	4.09	3.39
Pot Cap-1 Maneuver	1319	-	0	0	-	-	525	411	882
Stage 1	-	-	0	0	-	-	644	598	-
Stage 2	-	-	0	0	-	-	926	717	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1319	-	-	-	-	-	499	0	882
Mov Cap-2 Maneuver	-	-	-	-	-	-	499	0	-
Stage 1	-	-	-	-	-	-	612	0	-
Stage 2	-	-	-	-	-	-	926	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.6	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	499	882	1319	-	-	-
HCM Lane V/C Ratio	0.14	0.024	0.049	-	-	-
HCM Control Delay (s)	13.4	9.2	7.9	-	-	-
HCM Lane LOS	B	A	A	-	-	-
HCM 95th %tile Q(veh)	0.5	0.1	0.2	-	-	-

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	0	227	1	3	0	115	8	0	0	24	32
Future Vol, veh/h	13	0	227	1	3	0	115	8	0	0	24	32
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	15	0	261	1	3	0	132	9	0	0	28	37
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	9.3	8.1	9.2	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	93%	100%	0%	25%	0%
Vol Thru, %	7%	0%	0%	75%	43%
Vol Right, %	0%	0%	100%	0%	57%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	123	13	227	4	56
LT Vol	115	13	0	1	0
Through Vol	8	0	0	3	24
RT Vol	0	0	227	0	32
Lane Flow Rate	141	15	261	5	64
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.195	0.024	0.324	0.006	0.081
Departure Headway (Hd)	4.963	5.67	4.465	5.028	4.538
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	724	633	806	711	789
Service Time	2.991	3.393	2.188	3.065	2.571
HCM Lane V/C Ratio	0.195	0.024	0.324	0.007	0.081
HCM Control Delay	9.2	8.5	9.3	8.1	8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.7	0.1	1.4	0	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	426	42	5	341	26	48	4	6	45	22	45
Future Volume (veh/h)	43	426	42	5	341	26	48	4	6	45	22	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	45	448	44	5	359	27	51	4	6	47	23	47
Adj No. of Lanes	1	2	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	88	1238	554	12	526	40	103	8	98	64	31	64
Arrive On Green	0.05	0.35	0.35	0.01	0.31	0.31	0.06	0.06	0.06	0.09	0.09	0.09
Sat Flow, veh/h	1757	3505	1568	1757	1695	127	1635	128	1568	679	332	679
Grp Volume(v), veh/h	45	448	44	5	0	386	55	0	6	117	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	0	1822	1763	0	1568	1691	0	0
Q Serve(g_s), s	0.9	3.5	0.7	0.1	0.0	6.9	1.1	0.0	0.1	2.5	0.0	0.0
Cycle Q Clear(g_c), s	0.9	3.5	0.7	0.1	0.0	6.9	1.1	0.0	0.1	2.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.07	0.93		1.00	0.40		0.40
Lane Grp Cap(c), veh/h	88	1238	554	12	0	565	111	0	98	160	0	0
V/C Ratio(X)	0.51	0.36	0.08	0.42	0.00	0.68	0.50	0.00	0.06	0.73	0.00	0.00
Avail Cap(c_a), veh/h	542	5121	2291	259	0	2369	969	0	862	975	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.3	8.9	8.0	18.5	0.0	11.3	16.9	0.0	16.4	16.4	0.0	0.0
Incr Delay (d2), s/veh	4.6	0.2	0.1	21.9	0.0	1.5	3.4	0.0	0.3	6.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.7	0.3	0.1	0.0	3.7	0.7	0.0	0.1	1.5	0.0	0.0
LnGrp Delay(d),s/veh	21.8	9.1	8.1	40.4	0.0	12.7	20.3	0.0	16.7	22.7	0.0	0.0
LnGrp LOS	C	A	A	D		B	C		B	C		
Approach Vol, veh/h		537			391			61			117	
Approach Delay, s/veh		10.1			13.1			20.0			22.7	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	17.7		8.0	6.4	16.1		6.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.5	54.5		21.5	11.5	48.5		20.5
Max Q Clear Time (g_c+I1), s	2.1	5.5		4.5	2.9	8.9		3.1
Green Ext Time (p_c), s	0.0	3.5		0.5	0.0	2.7		0.2

Intersection Summary			
HCM 2010 Ctrl Delay			13.0
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	394	140	468	333	38	28	12	130	29	33	16
Future Volume (veh/h)	15	394	140	468	333	38	28	12	130	29	33	16
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	16	428	152	509	362	41	30	13	141	32	36	17
Adj No. of Lanes	1	2	0	2	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	35	673	237	725	1602	717	59	19	204	63	168	80
Arrive On Green	0.02	0.26	0.26	0.21	0.46	0.46	0.03	0.14	0.14	0.04	0.14	0.14
Sat Flow, veh/h	1757	2544	895	3408	3505	1568	1757	134	1454	1757	1186	560
Grp Volume(v), veh/h	16	294	286	509	362	41	30	0	154	32	0	53
Grp Sat Flow(s),veh/h/ln	1757	1752	1687	1704	1752	1568	1757	0	1588	1757	0	1746
Q Serve(g_s), s	0.5	7.7	7.8	7.2	3.2	0.8	0.9	0.0	4.8	0.9	0.0	1.4
Cycle Q Clear(g_c), s	0.5	7.7	7.8	7.2	3.2	0.8	0.9	0.0	4.8	0.9	0.0	1.4
Prop In Lane	1.00		0.53	1.00		1.00	1.00		0.92	1.00		0.32
Lane Grp Cap(c), veh/h	35	463	446	725	1602	717	59	0	223	63	0	248
V/C Ratio(X)	0.46	0.63	0.64	0.70	0.23	0.06	0.50	0.00	0.69	0.51	0.00	0.21
Avail Cap(c_a), veh/h	254	1301	1252	2136	4291	1920	288	0	689	288	0	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.1	16.9	16.9	18.9	8.5	7.8	24.6	0.0	21.2	24.6	0.0	19.7
Incr Delay (d2), s/veh	9.1	1.4	1.6	1.3	0.1	0.0	6.5	0.0	3.8	6.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.9	3.8	3.4	1.6	0.3	0.5	0.0	2.3	0.6	0.0	0.7
LnGrp Delay(d),s/veh	34.3	18.3	18.5	20.2	8.6	7.9	31.1	0.0	25.0	30.9	0.0	20.1
LnGrp LOS	C	B	B	C	A	A	C		C	C		C
Approach Vol, veh/h		596			912			184			85	
Approach Delay, s/veh		18.8			15.0			26.0			24.2	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	18.2	6.3	11.9	5.5	28.2	6.3	11.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	32.5	38.5	8.5	22.5	7.5	63.5	8.5	22.5
Max Q Clear Time (g_c+I1), s	9.2	9.8	2.9	3.4	2.5	5.2	2.9	6.8
Green Ext Time (p_c), s	1.9	3.9	0.0	0.2	0.0	2.8	0.0	0.7

Intersection Summary		
HCM 2010 Ctrl Delay		17.9
HCM 2010 LOS		B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	602	33	116	676	119	699
Future Volume (veh/h)	602	33	116	676	119	699
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1900	1743	1743	1743	1743
Adj Flow Rate, veh/h	743	41	143	835	147	863
Adj No. of Lanes	2	0	1	2	1	2
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1000	55	181	1608	645	1013
Arrive On Green	0.31	0.31	0.11	0.49	0.39	0.39
Sat Flow, veh/h	3279	176	1660	3399	1660	2608
Grp Volume(v), veh/h	385	399	143	835	147	863
Grp Sat Flow(s),veh/h/ln	1656	1712	1660	1656	1660	1304
Q Serve(g_s), s	14.9	14.9	6.0	12.4	4.2	21.6
Cycle Q Clear(g_c), s	14.9	14.9	6.0	12.4	4.2	21.6
Prop In Lane		0.10	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	519	536	181	1608	645	1013
V/C Ratio(X)	0.74	0.74	0.79	0.52	0.23	0.85
Avail Cap(c_a), veh/h	1031	1066	500	3268	941	1478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.0	22.0	31.0	12.6	14.7	20.0
Incr Delay (d2), s/veh	2.1	2.1	7.4	0.3	0.2	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	7.3	3.1	5.6	2.0	8.2
LnGrp Delay(d),s/veh	24.1	24.0	38.4	12.9	14.8	23.4
LnGrp LOS	C	C	D	B	B	C
Approach Vol, veh/h	784			978	1010	
Approach Delay, s/veh	24.0			16.6	22.1	
Approach LOS	C			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.3	26.9				39.2		32.3
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	21.5	44.5				70.5		40.5
Max Q Clear Time (g_c+I1), s	8.0	16.9				14.4		23.6
Green Ext Time (p_c), s	0.3	5.5				7.4		4.1

Intersection Summary	
HCM 2010 Ctrl Delay	20.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↱		↰	↰↑	↱
Traffic Volume (veh/h)	116	1050	136	50	595	104	107	37	40	197	75	38
Future Volume (veh/h)	116	1050	136	50	595	104	107	37	40	197	75	38
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	123	1117	145	53	633	111	114	39	43	145	171	40
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	148	1216	158	90	1249	559	171	78	86	224	235	200
Arrive On Green	0.09	0.41	0.41	0.05	0.38	0.38	0.10	0.10	0.10	0.13	0.13	0.13
Sat Flow, veh/h	1660	2949	382	1660	3312	1482	1660	759	837	1660	1743	1482
Grp Volume(v), veh/h	123	626	636	53	633	111	114	0	82	145	171	40
Grp Sat Flow(s),veh/h/ln	1660	1656	1676	1660	1656	1482	1660	0	1595	1660	1743	1482
Q Serve(g_s), s	5.3	26.1	26.2	2.3	10.7	3.7	4.8	0.0	3.5	6.0	6.9	1.8
Cycle Q Clear(g_c), s	5.3	26.1	26.2	2.3	10.7	3.7	4.8	0.0	3.5	6.0	6.9	1.8
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	148	683	691	90	1249	559	171	0	164	224	235	200
V/C Ratio(X)	0.83	0.92	0.92	0.59	0.51	0.20	0.67	0.00	0.50	0.65	0.73	0.20
Avail Cap(c_a), veh/h	148	699	707	148	1398	625	1001	0	962	389	409	347
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	20.3	20.3	33.7	17.5	15.3	31.5	0.0	31.0	29.9	30.3	28.1
Incr Delay (d2), s/veh	31.3	16.9	17.2	6.0	0.3	0.2	4.4	0.0	2.3	3.1	4.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	15.0	15.3	1.2	5.0	1.5	2.4	0.0	1.7	3.0	3.6	0.7
LnGrp Delay(d),s/veh	64.0	37.1	37.5	39.7	17.8	15.5	36.0	0.0	33.3	33.1	34.6	28.6
LnGrp LOS	E	D	D	D	B	B	D		C	C	C	C
Approach Vol, veh/h		1385			797			196			356	
Approach Delay, s/veh		39.7			18.9			34.8			33.3	
Approach LOS		D			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	36.9		15.2	10.5	34.3		12.9
Change Period (Y+Rc), s	4.0	6.8		5.4	4.0	6.8		5.4
Max Green Setting (Gmax), s	6.5	30.8		17.1	6.5	30.8		44.0
Max Q Clear Time (g_c+I1), s	4.3	28.2		8.9	7.3	12.7		6.8
Green Ext Time (p_c), s	0.0	1.9		1.0	0.0	4.5		0.8

Intersection Summary		
HCM 2010 Ctrl Delay		32.5
HCM 2010 LOS		C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1260	103	24	796	40	38
Future Volume (veh/h)	1260	103	24	796	40	38
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1743
Adj Flow Rate, veh/h	1312	107	25	829	42	40
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1899	850	57	2341	164	147
Arrive On Green	0.57	0.57	0.03	0.71	0.10	0.10
Sat Flow, veh/h	3399	1482	1660	3399	1660	1482
Grp Volume(v), veh/h	1312	107	25	829	42	40
Grp Sat Flow(s),veh/h/ln	1656	1482	1660	1656	1660	1482
Q Serve(g_s), s	16.9	2.0	0.9	5.9	1.4	1.5
Cycle Q Clear(g_c), s	16.9	2.0	0.9	5.9	1.4	1.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1899	850	57	2341	164	147
V/C Ratio(X)	0.69	0.13	0.44	0.35	0.26	0.27
Avail Cap(c_a), veh/h	4173	1867	220	4942	504	450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.1	5.9	28.6	3.5	25.1	25.2
Incr Delay (d2), s/veh	0.5	0.1	5.3	0.1	0.8	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.8	0.5	2.7	0.7	0.7
LnGrp Delay(d),s/veh	9.5	6.0	33.9	3.5	25.9	26.1
LnGrp LOS	A	A	C	A	C	C
Approach Vol, veh/h	1419			854	82	
Approach Delay, s/veh	9.3			4.4	26.0	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.1	40.6				48.6		11.7
Change Period (Y+Rc), s	6.0	6.0				6.0		5.7
Max Green Setting (Gmax), s	8.0	76.0				90.0		18.3
Max Q Clear Time (g_c+I1), s	2.9	18.9				7.9		3.5
Green Ext Time (p_c), s	0.0	15.7				7.4		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.1
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	263	866	103	74	516	60	65	60	74	54	37	115
Future Volume (veh/h)	263	866	103	74	516	60	65	60	74	54	37	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	277	912	108	78	543	63	68	63	78	57	39	121
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	325	1300	582	128	905	405	222	95	118	127	87	187
Arrive On Green	0.19	0.37	0.37	0.07	0.26	0.26	0.13	0.13	0.13	0.12	0.12	0.12
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	751	930	1064	728	1568
Grp Volume(v), veh/h	277	912	108	78	543	63	68	0	141	96	0	121
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	0	1681	1791	0	1568
Q Serve(g_s), s	9.2	13.3	2.8	2.6	8.2	1.9	2.1	0.0	4.8	3.0	0.0	4.4
Cycle Q Clear(g_c), s	9.2	13.3	2.8	2.6	8.2	1.9	2.1	0.0	4.8	3.0	0.0	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.55	0.59		1.00
Lane Grp Cap(c), veh/h	325	1300	582	128	905	405	222	0	213	214	0	187
V/C Ratio(X)	0.85	0.70	0.19	0.61	0.60	0.16	0.31	0.00	0.66	0.45	0.00	0.65
Avail Cap(c_a), veh/h	350	2077	929	192	1763	789	1108	0	1060	1219	0	1067
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.7	16.1	12.8	27.1	19.6	17.3	23.9	0.0	25.1	24.7	0.0	25.3
Incr Delay (d2), s/veh	17.0	0.7	0.2	4.7	0.6	0.2	0.8	0.0	3.5	1.5	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	6.5	1.2	1.4	4.0	0.8	1.1	0.0	2.4	1.6	0.0	2.1
LnGrp Delay(d),s/veh	40.8	16.8	13.0	31.8	20.2	17.4	24.7	0.0	28.6	26.1	0.0	29.0
LnGrp LOS	D	B	B	C	C	B	C		C	C		C
Approach Vol, veh/h		1297			684			209			217	
Approach Delay, s/veh		21.6			21.3			27.3			27.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.4	28.3		11.9	15.2	21.6		11.6
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	6.6	35.7		* 41	12.0	30.3		38.0
Max Q Clear Time (g_c+I1), s	4.6	15.3		6.4	11.2	10.2		6.8
Green Ext Time (p_c), s	0.0	7.0		1.0	0.1	3.8		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.6
HCM 2010 LOS	C

Notes

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	6	62	37	7	46	46	28	60	0	100	151	13
Future Vol, veh/h	6	62	37	7	46	46	28	60	0	100	151	13
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	7	70	42	8	52	52	31	67	0	112	170	15
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.8	8.7	8.8	10.6
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	6%	7%	38%
Vol Thru, %	68%	59%	46%	57%
Vol Right, %	0%	35%	46%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	88	105	99	264
LT Vol	28	6	7	100
Through Vol	60	62	46	151
RT Vol	0	37	46	13
Lane Flow Rate	99	118	111	297
Geometry Grp	1	1	1	1
Degree of Util (X)	0.135	0.159	0.148	0.385
Departure Headway (Hd)	4.922	4.84	4.786	4.669
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	724	737	745	768
Service Time	2.982	2.897	2.844	2.717
HCM Lane V/C Ratio	0.137	0.16	0.149	0.387
HCM Control Delay	8.8	8.8	8.7	10.6
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.5	0.6	0.5	1.8

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	3	130	43	42	94	20	11	48	48	39	42	5
Future Vol, veh/h	3	130	43	42	94	20	11	48	48	39	42	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	3	137	45	44	99	21	12	51	51	41	44	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	8.9	8.5	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	2%	27%	45%
Vol Thru, %	45%	74%	60%	49%
Vol Right, %	45%	24%	13%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	107	176	156	86
LT Vol	11	3	42	39
Through Vol	48	130	94	42
RT Vol	48	43	20	5
Lane Flow Rate	113	185	164	91
Geometry Grp	1	1	1	1
Degree of Util (X)	0.145	0.231	0.211	0.124
Departure Headway (Hd)	4.624	4.49	4.629	4.951
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	774	798	773	721
Service Time	2.666	2.526	2.666	2.996
HCM Lane V/C Ratio	0.146	0.232	0.212	0.126
HCM Control Delay	8.5	8.9	8.9	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.9	0.8	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	1021	355	218	517	12	281	38	146	11	17	16
Future Volume (veh/h)	64	1021	355	218	517	12	281	38	146	11	17	16
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	67	1075	0	229	544	13	296	40	154	12	18	17
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	86	1358	608	275	1733	41	477	258	219	25	37	54
Arrive On Green	0.05	0.39	0.00	0.16	0.50	0.50	0.14	0.14	0.14	0.03	0.03	0.03
Sat Flow, veh/h	1757	3505	1568	1757	3499	84	3408	1845	1568	723	1085	1568
Grp Volume(v), veh/h	67	1075	0	229	272	285	296	40	154	30	0	17
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1830	1704	1845	1568	1808	0	1568
Q Serve(g_s), s	2.6	19.0	0.0	8.9	6.5	6.5	5.7	1.3	6.6	1.1	0.0	0.7
Cycle Q Clear(g_c), s	2.6	19.0	0.0	8.9	6.5	6.5	5.7	1.3	6.6	1.1	0.0	0.7
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	86	1358	608	275	868	906	477	258	219	62	0	54
V/C Ratio(X)	0.78	0.79	0.00	0.83	0.31	0.31	0.62	0.16	0.70	0.49	0.00	0.32
Avail Cap(c_a), veh/h	245	1687	755	368	956	998	830	449	382	644	0	558
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.0	19.0	0.0	28.7	10.6	10.6	28.4	26.6	28.8	33.3	0.0	33.1
Incr Delay (d2), s/veh	14.2	2.1	0.0	11.6	0.2	0.2	1.3	0.3	4.1	5.8	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	9.5	0.0	5.2	3.2	3.3	2.8	0.7	3.1	0.7	0.0	0.4
LnGrp Delay(d),s/veh	47.3	21.1	0.0	40.3	10.8	10.8	29.8	26.8	32.9	39.1	0.0	36.4
LnGrp LOS	D	C		D	B	B	C	C	C	D		D
Approach Vol, veh/h		1142			786			490			47	
Approach Delay, s/veh		22.7			19.4			30.5			38.1	
Approach LOS		C			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	33.0		7.0	7.4	40.6		15.2
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	14.7	* 34		25.0	9.8	38.3		17.1
Max Q Clear Time (g_c+I1), s	10.9	21.0		3.1	4.6	8.5		8.6
Green Ext Time (p_c), s	0.2	6.2		0.1	0.0	3.6		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	23.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	897	7	21	635	104	21	9	4	177	11	115
Future Volume (veh/h)	165	897	7	21	635	104	21	9	4	177	11	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	172	934	7	22	661	108	22	9	4	184	11	120
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	209	1056	898	34	732	120	52	21	9	237	14	224
Arrive On Green	0.12	0.57	0.57	0.02	0.47	0.47	0.05	0.05	0.05	0.14	0.14	0.14
Sat Flow, veh/h	1757	1845	1568	1757	1547	253	1103	451	200	1662	99	1568
Grp Volume(v), veh/h	172	934	7	22	0	769	35	0	0	195	0	120
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1800	1754	0	0	1762	0	1568
Q Serve(g_s), s	7.6	35.0	0.2	1.0	0.0	31.4	1.5	0.0	0.0	8.5	0.0	5.7
Cycle Q Clear(g_c), s	7.6	35.0	0.2	1.0	0.0	31.4	1.5	0.0	0.0	8.5	0.0	5.7
Prop In Lane	1.00		1.00	1.00		0.14	0.63		0.11	0.94		1.00
Lane Grp Cap(c), veh/h	209	1056	898	34	0	851	83	0	0	251	0	224
V/C Ratio(X)	0.82	0.88	0.01	0.65	0.00	0.90	0.42	0.00	0.00	0.78	0.00	0.54
Avail Cap(c_a), veh/h	247	1175	999	121	0	1018	407	0	0	393	0	350
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.3	14.8	7.3	38.8	0.0	19.3	36.9	0.0	0.0	33.0	0.0	31.7
Incr Delay (d2), s/veh	17.3	7.7	0.0	18.8	0.0	9.9	3.4	0.0	0.0	5.1	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	19.9	0.1	0.7	0.0	17.7	0.8	0.0	0.0	4.5	0.0	2.6
LnGrp Delay(d),s/veh	51.7	22.5	7.3	57.6	0.0	29.2	40.3	0.0	0.0	38.1	0.0	33.7
LnGrp LOS	D	C	A	E		C	D			D		C
Approach Vol, veh/h		1113			791			35			315	
Approach Delay, s/veh		26.9			30.0			40.3			36.4	
Approach LOS		C			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	50.4		16.1	13.5	42.4		7.8				
Change Period (Y+Rc), s	4.0	* 4.7		* 4.7	4.0	* 4.7		4.0				
Max Green Setting (Gmax), s	5.5	* 51		* 18	11.2	* 45		18.5				
Max Q Clear Time (g_c+I1), s	3.0	37.0		10.5	9.6	33.4		3.5				
Green Ext Time (p_c), s	0.0	6.2		0.9	0.1	4.4		0.1				

Intersection Summary		
HCM 2010 Ctrl Delay		29.5
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	621	156	47	668	0	115	0	57	0	0	0
Future Volume (veh/h)	0	621	156	47	668	0	115	0	57	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	0	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	0	767	193	58	825	0	142	0	70	0	0	0
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	0	3	3	3	3	3	3
Cap, veh/h	4	974	828	118	1251	0	217	0	193	0	4	0
Arrive On Green	0.00	0.53	0.53	0.07	0.68	0.00	0.12	0.00	0.12	0.00	0.00	0.00
Sat Flow, veh/h	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Grp Volume(v), veh/h	0	767	193	58	825	0	142	0	70	0	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Q Serve(g_s), s	0.0	16.2	3.2	1.5	12.6	0.0	3.7	0.0	2.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	16.2	3.2	1.5	12.6	0.0	3.7	0.0	2.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	4	974	828	118	1251	0	217	0	193	0	4	0
V/C Ratio(X)	0.00	0.79	0.23	0.49	0.66	0.00	0.66	0.00	0.36	0.00	0.00	0.00
Avail Cap(c_a), veh/h	236	1886	1603	236	1886	0	655	0	584	0	706	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	9.2	6.1	21.7	4.5	0.0	20.2	0.0	19.4	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.5	0.1	3.1	0.6	0.0	3.3	0.0	1.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.5	1.4	0.8	6.4	0.0	2.0	0.0	0.9	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	10.7	6.3	24.9	5.1	0.0	23.5	0.0	20.6	0.0	0.0	0.0
LnGrp LOS		B	A	C	A		C		C			
Approach Vol, veh/h		960			883			212			0	
Approach Delay, s/veh		9.8			6.4			22.6			0.0	
Approach LOS		A			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.2	30.5		0.0	0.0	37.8		10.6
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.6
Max Green Setting (Gmax), s	6.5	49.4		18.5	6.5	49.4		18.0
Max Q Clear Time (g_c+I1), s	3.5	18.2		0.0	0.0	14.6		5.7
Green Ext Time (p_c), s	0.0	7.3		0.0	0.0	7.5		0.6

Intersection Summary		
HCM 2010 Ctrl Delay		9.7
HCM 2010 LOS		A

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	6	83	66	57	137	72	85	58	76	55	4
Future Vol, veh/h	2	6	83	66	57	137	72	85	58	76	55	4
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	7	95	76	66	157	83	98	67	87	63	5
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.3	9.9	12.3	11.2
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	33%	100%	0%	0%	100%	0%	0%	56%
Vol Thru, %	40%	0%	100%	2%	0%	100%	12%	41%
Vol Right, %	27%	0%	0%	98%	0%	0%	88%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	215	2	4	85	66	38	156	135
LT Vol	72	2	0	0	66	0	0	76
Through Vol	85	0	4	2	0	38	19	55
RT Vol	58	0	0	83	0	0	137	4
Lane Flow Rate	247	2	5	98	76	44	179	155
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.398	0.004	0.008	0.151	0.136	0.072	0.266	0.268
Departure Headway (Hd)	5.8	6.758	6.248	5.55	6.466	5.957	5.331	6.206
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	620	530	573	646	555	602	674	580
Service Time	3.527	4.496	3.985	3.287	4.197	3.688	3.062	3.936
HCM Lane V/C Ratio	0.398	0.004	0.009	0.152	0.137	0.073	0.266	0.267
HCM Control Delay	12.3	9.5	9	9.3	10.2	9.2	10	11.2
HCM Lane LOS	B	A	A	A	B	A	A	B
HCM 95th-tile Q	1.9	0	0	0.5	0.5	0.2	1.1	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	240	1691	1018	83	94	151
Future Volume (veh/h)	240	1691	1018	83	94	151
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	261	1838	1107	90	102	164
Adj No. of Lanes	2	3	3	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	394	3215	2164	176	256	228
Arrive On Green	0.12	0.64	0.46	0.46	0.15	0.15
Sat Flow, veh/h	3408	5202	4914	386	1757	1568
Grp Volume(v), veh/h	261	1838	782	415	102	164
Grp Sat Flow(s),veh/h/ln	1704	1679	1679	1777	1757	1568
Q Serve(g_s), s	4.4	12.4	9.9	9.9	3.1	6.0
Cycle Q Clear(g_c), s	4.4	12.4	9.9	9.9	3.1	6.0
Prop In Lane	1.00			0.22	1.00	1.00
Lane Grp Cap(c), veh/h	394	3215	1530	810	256	228
V/C Ratio(X)	0.66	0.57	0.51	0.51	0.40	0.72
Avail Cap(c_a), veh/h	913	5487	2534	1341	1235	1102
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.3	6.2	11.5	11.5	23.1	24.3
Incr Delay (d2), s/veh	1.9	0.2	0.3	0.5	1.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	5.7	4.6	4.9	1.6	5.3
LnGrp Delay(d),s/veh	27.2	6.3	11.8	12.0	24.1	28.5
LnGrp LOS	C	A	B	B	C	C
Approach Vol, veh/h		2099	1197		266	
Approach Delay, s/veh		8.9	11.9		26.9	
Approach LOS		A	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.9		14.8	10.9	34.0		
Change Period (Y+Rc), s		6.8		6.1	4.0	6.8		
Max Green Setting (Gmax), s		65.1		42.0	16.0	45.1		
Max Q Clear Time (g_c+I1), s		14.4		8.0	6.4	11.9		
Green Ext Time (p_c), s		23.7		0.9	0.6	10.2		

Intersection Summary		
HCM 2010 Ctrl Delay		11.3
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	460	1120	302	123	670	113	170	374	134	86	339	291
Future Volume (veh/h)	460	1120	302	123	670	113	170	374	134	86	339	291
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	523	1273	343	140	761	128	193	425	152	98	385	217
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	398	1483	663	168	1025	458	182	551	195	123	641	287
Arrive On Green	0.23	0.42	0.42	0.10	0.29	0.29	0.10	0.22	0.22	0.07	0.18	0.18
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	2539	899	1757	3505	1568
Grp Volume(v), veh/h	523	1273	343	140	761	128	193	292	285	98	385	217
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	1752	1686	1757	1752	1568
Q Serve(g_s), s	24.0	34.9	17.1	8.3	20.8	6.7	11.0	16.6	16.9	5.8	10.7	13.9
Cycle Q Clear(g_c), s	24.0	34.9	17.1	8.3	20.8	6.7	11.0	16.6	16.9	5.8	10.7	13.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	398	1483	663	168	1025	458	182	380	366	123	641	287
V/C Ratio(X)	1.31	0.86	0.52	0.83	0.74	0.28	1.06	0.77	0.78	0.80	0.60	0.76
Avail Cap(c_a), veh/h	398	1627	728	182	1184	530	182	777	748	143	1488	666
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	27.7	22.6	47.1	33.9	28.9	47.5	39.0	39.1	48.6	39.7	41.1
Incr Delay (d2), s/veh	158.5	4.5	0.6	25.2	2.2	0.3	83.0	3.3	3.6	23.6	0.9	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.1	17.7	7.5	5.2	10.4	2.9	9.5	8.4	8.2	3.6	5.3	6.3
LnGrp Delay(d),s/veh	199.4	32.2	23.2	72.3	36.1	29.2	130.5	42.3	42.7	72.1	40.6	45.1
LnGrp LOS	F	C	C	E	D	C	F	D	D	E	D	D
Approach Vol, veh/h		2139			1029			770			700	
Approach Delay, s/veh		71.7			40.2			64.5			46.4	
Approach LOS		E			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.2	51.6	15.0	25.2	28.0	37.8	11.4	28.8
Change Period (Y+Rc), s	4.0	* 6.8	4.0	* 5.8	4.0	6.8	4.0	5.8
Max Green Setting (Gmax), s	11.0	* 49	11.0	* 45	24.0	35.8	8.6	47.0
Max Q Clear Time (g_c+I1), s	10.3	36.9	13.0	15.9	26.0	22.8	7.8	18.9
Green Ext Time (p_c), s	0.0	8.0	0.0	3.5	0.0	4.7	0.0	3.9

Intersection Summary		
HCM 2010 Ctrl Delay		59.7
HCM 2010 LOS		E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	40	95	71	34	57	92	374	13	75	416	63
Future Volume (veh/h)	67	40	95	71	34	57	92	374	13	75	416	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	58	64	103	77	37	62	100	407	14	82	452	68
Adj No. of Lanes	1	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	202	212	180	133	64	173	129	917	31	104	767	115
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.07	0.27	0.27	0.06	0.25	0.25
Sat Flow, veh/h	1757	1845	1568	1205	579	1568	1757	3457	119	1757	3059	458
Grp Volume(v), veh/h	58	64	103	114	0	62	100	206	215	82	258	262
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1784	0	1568	1757	1752	1824	1757	1752	1764
Q Serve(g_s), s	1.3	1.4	2.7	2.6	0.0	1.6	2.4	4.2	4.3	2.0	5.6	5.7
Cycle Q Clear(g_c), s	1.3	1.4	2.7	2.6	0.0	1.6	2.4	4.2	4.3	2.0	5.6	5.7
Prop In Lane	1.00		1.00	0.68		1.00	1.00		0.07	1.00		0.26
Lane Grp Cap(c), veh/h	202	212	180	197	0	173	129	465	483	104	439	442
V/C Ratio(X)	0.29	0.30	0.57	0.58	0.00	0.36	0.77	0.44	0.44	0.79	0.59	0.59
Avail Cap(c_a), veh/h	706	742	630	1237	0	1087	528	1259	1311	487	1219	1227
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	17.6	18.1	18.3	0.0	17.8	19.7	13.2	13.2	20.1	14.2	14.3
Incr Delay (d2), s/veh	0.8	0.8	2.8	2.7	0.0	1.3	9.4	0.7	0.6	12.4	1.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.7	1.3	1.4	0.0	0.7	1.5	2.1	2.2	1.3	2.8	2.8
LnGrp Delay(d),s/veh	18.3	18.4	21.0	21.0	0.0	19.1	29.1	13.9	13.9	32.5	15.5	15.5
LnGrp LOS	B	B	C	C		B	C	B	B	C	B	B
Approach Vol, veh/h		225			176			521			602	
Approach Delay, s/veh		19.5			20.3			16.8			17.8	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	17.9		10.1	7.2	17.3		8.8
Change Period (Y+Rc), s	4.0	6.4		5.1	4.0	6.4		4.0
Max Green Setting (Gmax), s	12.0	31.1		17.4	13.0	30.1		30.0
Max Q Clear Time (g_c+I1), s	4.0	6.3		4.7	4.4	7.7		4.6
Green Ext Time (p_c), s	0.1	2.5		0.6	0.1	3.2		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	18.0
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	898	43	14	726	4	34	1	14	15	3	49
Future Volume (veh/h)	27	898	43	14	726	4	34	1	14	15	3	49
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	29	955	46	15	772	4	36	1	15	16	3	52
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	55	1076	52	32	1106	6	55	2	23	20	4	66
Arrive On Green	0.03	0.62	0.62	0.02	0.60	0.60	0.05	0.05	0.05	0.06	0.06	0.06
Sat Flow, veh/h	1757	1746	84	1757	1833	9	1176	33	490	364	68	1185
Grp Volume(v), veh/h	29	0	1001	15	0	776	52	0	0	71	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1830	1757	0	1843	1699	0	0	1617	0	0
Q Serve(g_s), s	1.1	0.0	30.5	0.6	0.0	19.0	2.0	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear(g_c), s	1.1	0.0	30.5	0.6	0.0	19.0	2.0	0.0	0.0	2.9	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.01	0.69		0.29	0.23		0.73
Lane Grp Cap(c), veh/h	55	0	1127	32	0	1112	79	0	0	91	0	0
V/C Ratio(X)	0.53	0.00	0.89	0.47	0.00	0.70	0.66	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	147	0	1410	147	0	1420	465	0	0	455	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	31.4	0.0	10.7	32.0	0.0	9.0	30.9	0.0	0.0	30.7	0.0	0.0
Incr Delay (d2), s/veh	7.6	0.0	6.1	10.3	0.0	1.1	8.9	0.0	0.0	13.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	16.9	0.4	0.0	9.8	1.1	0.0	0.0	1.6	0.0	0.0
LnGrp Delay(d),s/veh	39.0	0.0	16.8	42.3	0.0	10.0	39.7	0.0	0.0	44.2	0.0	0.0
LnGrp LOS	D		B	D		B	D			D		
Approach Vol, veh/h		1030			791			52			71	
Approach Delay, s/veh		17.5			10.6			39.7			44.2	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	45.3		7.7	6.1	44.4		7.7
Change Period (Y+Rc), s	4.0	* 4.7		4.0	4.0	* 4.7		4.6
Max Green Setting (Gmax), s	5.5	* 51		18.5	5.5	* 51		18.0
Max Q Clear Time (g_c+I1), s	2.6	32.5		4.9	3.1	21.0		4.0
Green Ext Time (p_c), s	0.0	8.0		0.2	0.0	6.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	23	870	120	33	732
Future Vol, veh/h	46	23	870	120	33	732
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	50	25	946	130	36	796

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1481	538	0	0	1076	0
Stage 1	1011	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	115	485	-	-	638	-
Stage 1	310	-	-	-	-	-
Stage 2	592	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	109	485	-	-	638	-
Mov Cap-2 Maneuver	109	-	-	-	-	-
Stage 1	310	-	-	-	-	-
Stage 2	559	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	52.6	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	147	638	-
HCM Lane V/C Ratio	-	-	0.51	0.056	-
HCM Control Delay (s)	-	-	52.6	11	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	2.5	0.2	-

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	58	1777	1099	57	71	19
Future Volume (veh/h)	58	1777	1099	57	71	19
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	66	2019	1249	65	81	22
Adj No. of Lanes	1	3	3	0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	100	3875	3101	161	125	111
Arrive On Green	0.06	0.77	0.63	0.63	0.07	0.07
Sat Flow, veh/h	1757	5202	5068	255	1757	1568
Grp Volume(v), veh/h	66	2019	855	459	81	22
Grp Sat Flow(s),veh/h/ln	1757	1679	1679	1800	1757	1568
Q Serve(g_s), s	2.1	8.7	7.1	7.1	2.5	0.7
Cycle Q Clear(g_c), s	2.1	8.7	7.1	7.1	2.5	0.7
Prop In Lane	1.00			0.14	1.00	1.00
Lane Grp Cap(c), veh/h	100	3875	2124	1139	125	111
V/C Ratio(X)	0.66	0.52	0.40	0.40	0.65	0.20
Avail Cap(c_a), veh/h	514	7629	3837	2057	794	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	2.5	5.1	5.1	25.5	24.7
Incr Delay (d2), s/veh	7.1	0.1	0.1	0.2	5.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	4.0	3.2	3.5	1.4	0.7
LnGrp Delay(d),s/veh	33.2	2.6	5.2	5.3	31.1	25.6
LnGrp LOS	C	A	A	A	C	C
Approach Vol, veh/h		2085	1314		103	
Approach Delay, s/veh		3.6	5.3		29.9	
Approach LOS		A	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				47.9		8.5	7.7	40.2
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				85.5		25.5	16.5	64.5
Max Q Clear Time (g_c+I1), s				10.7		4.5	4.1	9.1
Green Ext Time (p_c), s				32.7		0.2	0.1	12.9

Intersection Summary	
HCM 2010 Ctrl Delay	5.0
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	271	22	2	256	121	16	14	4	115	15	198
Future Volume (veh/h)	148	271	22	2	256	121	16	14	4	115	15	198
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	157	288	23	2	272	129	17	15	4	122	16	211
Adj No. of Lanes	2	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	384	687	55	6	353	167	44	407	104	166	379	339
Arrive On Green	0.11	0.41	0.41	0.00	0.30	0.30	0.03	0.15	0.15	0.09	0.22	0.22
Sat Flow, veh/h	3408	1686	135	1757	1184	562	1757	2765	707	1757	1752	1568
Grp Volume(v), veh/h	157	0	311	2	0	401	17	9	10	122	16	211
Grp Sat Flow(s),veh/h/ln	1704	0	1821	1757	0	1746	1757	1752	1720	1757	1752	1568
Q Serve(g_s), s	2.3	0.0	6.5	0.1	0.0	11.1	0.5	0.2	0.3	3.6	0.4	6.5
Cycle Q Clear(g_c), s	2.3	0.0	6.5	0.1	0.0	11.1	0.5	0.2	0.3	3.6	0.4	6.5
Prop In Lane	1.00		0.07	1.00		0.32	1.00		0.41	1.00		1.00
Lane Grp Cap(c), veh/h	384	0	742	6	0	520	44	258	253	166	379	339
V/C Ratio(X)	0.41	0.00	0.42	0.35	0.00	0.77	0.39	0.04	0.04	0.74	0.04	0.62
Avail Cap(c_a), veh/h	1217	0	1790	218	0	1309	231	880	863	535	1173	1049
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	11.3	26.5	0.0	17.0	25.5	19.4	19.4	23.4	16.5	18.9
Incr Delay (d2), s/veh	0.7	0.0	0.4	32.2	0.0	2.5	5.5	0.1	0.1	6.3	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	3.3	0.1	0.0	5.7	0.3	0.1	0.1	2.0	0.2	3.0
LnGrp Delay(d),s/veh	22.6	0.0	11.6	58.7	0.0	19.5	31.0	19.5	19.5	29.7	16.5	20.7
LnGrp LOS	C		B	E		B	C	B	B	C	B	C
Approach Vol, veh/h		468			403			36			349	
Approach Delay, s/veh		15.3			19.7			24.9			23.7	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	13.2	4.2	26.8	5.3	16.9	10.0	20.9
Change Period (Y+Rc), s	4.0	* 5.4	4.0	5.1	4.0	5.4	4.0	5.1
Max Green Setting (Gmax), s	16.2	* 27	6.6	52.3	7.0	35.6	19.0	39.9
Max Q Clear Time (g_c+I1), s	5.6	2.3	2.1	8.5	2.5	8.5	4.3	13.1
Green Ext Time (p_c), s	0.2	0.0	0.0	2.1	0.0	1.5	0.4	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	203	24	24	272	48	28
Future Vol, veh/h	203	24	24	272	48	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	233	28	28	313	55	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	261	0	616	247
Stage 1	-	-	-	-	247	-
Stage 2	-	-	-	-	369	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1298	-	452	789
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	697	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1298	-	442	789
Mov Cap-2 Maneuver	-	-	-	-	442	-
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	682	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	527	-	-	1298	-
HCM Lane V/C Ratio	0.166	-	-	0.021	-
HCM Control Delay (s)	13.2	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	233	311	3	0	1
Future Vol, veh/h	1	233	311	3	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	259	346	3	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	349	0	-	0	609	348
Stage 1	-	-	-	-	348	-
Stage 2	-	-	-	-	261	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1204	-	-	-	457	693
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	780	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1204	-	-	-	457	693
Mov Cap-2 Maneuver	-	-	-	-	457	-
Stage 1	-	-	-	-	712	-
Stage 2	-	-	-	-	780	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1204	-	-	-	693
HCM Lane V/C Ratio	0.001	-	-	-	0.002
HCM Control Delay (s)	8	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	164	86	40	272	0	0	0	0	47	0	60
Future Vol, veh/h	0	164	86	40	272	0	0	0	0	47	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	75	-	-	-	-	-	-	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	167	88	41	278	0	0	0	0	48	0	61

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	255	0	0				571	615	139
Stage 1	-	-	-	-	-	-				360	360	-
Stage 2	-	-	-	-	-	-				211	255	-
Critical Hdwy	-	-	-	4.235	-	-				6.735	6.635	7.035
Critical Hdwy Stg 1	-	-	-	-	-	-				5.935	5.635	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.535	5.635	-
Follow-up Hdwy	-	-	-	2.2855	-	-				3.5855	4.0855	3.3855
Pot Cap-1 Maneuver	0	-	-	1264	-	0				452	394	865
Stage 1	0	-	-	-	-	0				660	611	-
Stage 2	0	-	-	-	-	0				805	681	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1264	-	-				438	0	865
Mov Cap-2 Maneuver	-	-	-	-	-	-				438	0	-
Stage 1	-	-	-	-	-	-				660	0	-
Stage 2	-	-	-	-	-	-				779	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1264	-	438	865
HCM Lane V/C Ratio	-	-	0.032	-	0.109	0.071
HCM Control Delay (s)	-	-	7.9	-	14.2	9.5
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	-	0.4	0.2

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	192	0	0	229	43	102	0	117	0	0	0
Future Vol, veh/h	20	192	0	0	229	43	102	0	117	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	75	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	24	226	0	0	269	51	120	0	138	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	320	0	-	-	-	0	409	594	113
Stage 1	-	-	-	-	-	-	274	274	-
Stage 2	-	-	-	-	-	-	135	320	-
Critical Hdwy	4.28	-	-	-	-	-	6.98	6.68	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	5.98	5.68	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.98	5.68	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.59	4.09	3.39
Pot Cap-1 Maneuver	1188	-	0	0	-	-	553	402	896
Stage 1	-	-	0	0	-	-	727	665	-
Stage 2	-	-	0	0	-	-	856	634	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1188	-	-	-	-	-	542	0	896
Mov Cap-2 Maneuver	-	-	-	-	-	-	542	0	-
Stage 1	-	-	-	-	-	-	712	0	-
Stage 2	-	-	-	-	-	-	856	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.8	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	542	896	1188	-	-	-
HCM Lane V/C Ratio	0.221	0.154	0.02	-	-	-
HCM Control Delay (s)	13.5	9.7	8.1	-	-	-
HCM Lane LOS	B	A	A	-	-	-
HCM 95th %tile Q(veh)	0.8	0.5	0.1	-	-	-

Intersection	
Intersection Delay, s/veh	15.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	109	144	35	33	0	211	40	119	0	16	22
Future Vol, veh/h	36	109	144	35	33	0	211	40	119	0	16	22
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	47	142	187	45	43	0	274	52	155	0	21	29
Number of Lanes	1	1	0	1	2	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	3	2
HCM Control Delay	16.5	10.6	16.7	10.6
HCM LOS	C	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	84%	0%	100%	0%	100%	0%	0%	0%
Vol Thru, %	16%	0%	0%	43%	0%	100%	100%	42%
Vol Right, %	0%	100%	0%	57%	0%	0%	0%	58%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	251	119	36	253	35	17	17	38
LT Vol	211	0	36	0	35	0	0	0
Through Vol	40	0	0	109	0	17	17	16
RT Vol	0	119	0	144	0	0	0	22
Lane Flow Rate	326	155	47	329	45	21	21	49
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.614	0.243	0.093	0.574	0.1	0.044	0.033	0.096
Departure Headway (Hd)	6.78	5.654	7.199	6.284	7.904	7.393	5.499	7.012
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	531	632	496	572	451	482	645	508
Service Time	4.537	3.411	4.965	4.049	5.687	5.176	3.281	4.801
HCM Lane V/C Ratio	0.614	0.245	0.095	0.575	0.1	0.044	0.033	0.096
HCM Control Delay	19.8	10.2	10.7	17.3	11.6	10.5	8.5	10.6
HCM Lane LOS	C	B	B	C	B	B	A	B
HCM 95th-tile Q	4.1	0.9	0.3	3.6	0.3	0.1	0.1	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	317	28	8	406	27	67	4	6	35	7	44
Future Volume (veh/h)	34	317	28	8	406	27	67	4	6	35	7	44
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	49	453	40	11	580	39	96	6	9	50	10	63
Adj No. of Lanes	1	2	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	86	1616	723	25	729	49	135	8	128	67	13	84
Arrive On Green	0.05	0.46	0.46	0.01	0.43	0.43	0.08	0.08	0.08	0.10	0.10	0.10
Sat Flow, veh/h	1757	3505	1568	1757	1709	115	1658	104	1568	675	135	851
Grp Volume(v), veh/h	49	453	40	11	0	619	102	0	9	123	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	0	1824	1762	0	1568	1661	0	0
Q Serve(g_s), s	1.4	4.2	0.7	0.3	0.0	15.4	3.0	0.0	0.3	3.8	0.0	0.0
Cycle Q Clear(g_c), s	1.4	4.2	0.7	0.3	0.0	15.4	3.0	0.0	0.3	3.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.06	0.94		1.00	0.41		0.51
Lane Grp Cap(c), veh/h	86	1616	723	25	0	778	144	0	128	165	0	0
V/C Ratio(X)	0.57	0.28	0.06	0.44	0.00	0.80	0.71	0.00	0.07	0.75	0.00	0.00
Avail Cap(c_a), veh/h	306	4039	1807	171	0	1963	616	0	548	581	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.4	8.7	7.8	25.6	0.0	13.0	23.4	0.0	22.2	22.9	0.0	0.0
Incr Delay (d2), s/veh	5.9	0.1	0.0	11.9	0.0	1.9	6.3	0.0	0.2	6.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.0	0.3	0.2	0.0	8.1	1.7	0.0	0.1	2.0	0.0	0.0
LnGrp Delay(d),s/veh	30.3	8.8	7.8	37.5	0.0	14.9	29.7	0.0	22.4	29.5	0.0	0.0
LnGrp LOS	C	A	A	D		B	C		C	C		
Approach Vol, veh/h		542			630			111			123	
Approach Delay, s/veh		10.7			15.3			29.1			29.5	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	28.6		9.7	7.0	26.8		8.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.1	60.3		18.3	9.1	56.3		18.3
Max Q Clear Time (g_c+I1), s	2.3	6.2		5.8	3.4	17.4		5.0
Green Ext Time (p_c), s	0.0	3.6		0.5	0.0	4.9		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	15.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	255	143	732	410	44	11	6	97	16	24	11
Future Volume (veh/h)	17	255	143	732	410	44	11	6	97	16	24	11
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	20	297	166	851	477	51	13	7	113	19	28	13
Adj No. of Lanes	1	2	0	2	2	1	1	1	0	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	42	468	255	1110	1806	808	29	10	164	40	139	65
Arrive On Green	0.02	0.21	0.21	0.33	0.52	0.52	0.02	0.11	0.11	0.02	0.12	0.12
Sat Flow, veh/h	1757	2192	1194	3408	3505	1568	1757	92	1490	1757	1193	554
Grp Volume(v), veh/h	20	236	227	851	477	51	13	0	120	19	0	41
Grp Sat Flow(s),veh/h/ln	1757	1752	1634	1704	1752	1568	1757	0	1582	1757	0	1747
Q Serve(g_s), s	0.6	6.7	7.0	12.3	4.2	0.9	0.4	0.0	4.0	0.6	0.0	1.2
Cycle Q Clear(g_c), s	0.6	6.7	7.0	12.3	4.2	0.9	0.4	0.0	4.0	0.6	0.0	1.2
Prop In Lane	1.00		0.73	1.00		1.00	1.00		0.94	1.00		0.32
Lane Grp Cap(c), veh/h	42	374	349	1110	1806	808	29	0	174	40	0	204
V/C Ratio(X)	0.48	0.63	0.65	0.77	0.26	0.06	0.45	0.00	0.69	0.47	0.00	0.20
Avail Cap(c_a), veh/h	208	909	848	2885	4370	1955	176	0	590	208	0	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.5	19.6	19.7	16.6	7.5	6.7	26.8	0.0	23.5	26.5	0.0	21.9
Incr Delay (d2), s/veh	8.1	1.8	2.1	1.1	0.1	0.0	10.7	0.0	4.7	8.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.4	3.4	6.0	2.0	0.4	0.3	0.0	2.0	0.4	0.0	0.6
LnGrp Delay(d),s/veh	34.6	21.4	21.8	17.8	7.6	6.7	37.5	0.0	28.3	34.9	0.0	22.4
LnGrp LOS	C	C	C	B	A	A	D		C	C		C
Approach Vol, veh/h		483			1379			133			60	
Approach Delay, s/veh		22.1			13.8			29.2			26.4	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.4	16.2	5.4	10.9	5.8	32.8	5.8	10.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	46.5	28.5	5.5	21.5	6.5	68.5	6.5	20.5
Max Q Clear Time (g_c+I1), s	14.3	9.0	2.4	3.2	2.6	6.2	2.6	6.0
Green Ext Time (p_c), s	3.6	2.8	0.0	0.1	0.0	3.8	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	17.1
HCM 2010 LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	314	12	115	1058	128	527
Future Volume (veh/h)	314	12	115	1058	128	527
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1900	1743	1743	1743	1743
Adj Flow Rate, veh/h	374	14	137	1260	152	627
Adj No. of Lanes	2	0	1	2	1	2
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1184	44	177	1807	505	794
Arrive On Green	0.36	0.36	0.11	0.55	0.30	0.30
Sat Flow, veh/h	3343	122	1660	3399	1660	2608
Grp Volume(v), veh/h	190	198	137	1260	152	627
Grp Sat Flow(s),veh/h/ln	1656	1722	1660	1656	1660	1304
Q Serve(g_s), s	4.9	5.0	4.8	16.7	4.2	13.2
Cycle Q Clear(g_c), s	4.9	5.0	4.8	16.7	4.2	13.2
Prop In Lane		0.07	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	602	626	177	1807	505	794
V/C Ratio(X)	0.32	0.32	0.77	0.70	0.30	0.79
Avail Cap(c_a), veh/h	1339	1392	678	4278	927	1456
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.7	13.7	26.1	10.0	16.0	19.1
Incr Delay (d2), s/veh	0.3	0.3	7.0	0.5	0.3	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.4	2.6	7.6	1.9	4.9
LnGrp Delay(d),s/veh	14.0	14.0	33.1	10.5	16.3	20.9
LnGrp LOS	B	B	C	B	B	C
Approach Vol, veh/h	388			1397	779	
Approach Delay, s/veh	14.0			12.7	20.0	
Approach LOS	B			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.9	26.3				37.2		22.8
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	24.5	48.5				77.5		33.5
Max Q Clear Time (g_c+I1), s	6.8	7.0				18.7		15.2
Green Ext Time (p_c), s	0.3	2.5				14.0		3.1

Intersection Summary	
HCM 2010 Ctrl Delay	15.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	701	96	66	1071	225	178	110	31	171	63	99
Future Volume (veh/h)	104	701	96	66	1071	225	178	110	31	171	63	99
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	118	797	109	75	1217	256	202	125	35	133	157	112
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	131	1153	158	99	1240	555	266	210	59	206	216	184
Arrive On Green	0.08	0.39	0.39	0.06	0.37	0.37	0.16	0.16	0.16	0.12	0.12	0.12
Sat Flow, veh/h	1660	2928	400	1660	3312	1482	1660	1311	367	1660	1743	1482
Grp Volume(v), veh/h	118	451	455	75	1217	256	202	0	160	133	157	112
Grp Sat Flow(s),veh/h/ln	1660	1656	1672	1660	1656	1482	1660	0	1678	1660	1743	1482
Q Serve(g_s), s	5.8	18.6	18.7	3.7	29.9	10.7	9.6	0.0	7.3	6.3	7.1	5.9
Cycle Q Clear(g_c), s	5.8	18.6	18.7	3.7	29.9	10.7	9.6	0.0	7.3	6.3	7.1	5.9
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	131	652	659	99	1240	555	266	0	268	206	216	184
V/C Ratio(X)	0.90	0.69	0.69	0.76	0.98	0.46	0.76	0.00	0.60	0.65	0.73	0.61
Avail Cap(c_a), veh/h	131	652	659	131	1240	555	888	0	898	345	362	308
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	20.8	20.8	38.1	25.4	19.4	33.0	0.0	32.1	34.3	34.7	34.1
Incr Delay (d2), s/veh	49.4	3.1	3.1	16.0	21.1	0.6	4.5	0.0	2.1	3.4	4.6	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	9.1	9.2	2.1	17.2	4.5	4.7	0.0	3.5	3.1	3.7	2.6
LnGrp Delay(d),s/veh	86.9	23.9	23.9	54.1	46.5	20.0	37.5	0.0	34.2	37.7	39.3	37.4
LnGrp LOS	F	C	C	D	D	C	D		C	D	D	D
Approach Vol, veh/h		1024			1548			362			402	
Approach Delay, s/veh		31.1			42.5			36.0			38.2	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.9	39.2		15.6	10.5	37.6		18.6
Change Period (Y+Rc), s	4.0	6.8		5.4	4.0	6.8		5.4
Max Green Setting (Gmax), s	6.5	30.8		17.1	6.5	30.8		44.0
Max Q Clear Time (g_c+I1), s	5.7	20.7		9.1	7.8	31.9		11.6
Green Ext Time (p_c), s	0.0	4.2		1.1	0.0	0.0		1.6

Intersection Summary		
HCM 2010 Ctrl Delay		37.8
HCM 2010 LOS		D

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	589	162	41	1007	258	90
Future Volume (veh/h)	589	162	41	1007	258	90
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1743
Adj Flow Rate, veh/h	654	180	46	1119	287	100
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1128	505	95	1738	379	338
Arrive On Green	0.34	0.34	0.06	0.52	0.23	0.23
Sat Flow, veh/h	3399	1482	1660	3399	1660	1482
Grp Volume(v), veh/h	654	180	46	1119	287	100
Grp Sat Flow(s),veh/h/ln	1656	1482	1660	1656	1660	1482
Q Serve(g_s), s	7.7	4.3	1.3	11.5	7.6	2.6
Cycle Q Clear(g_c), s	7.7	4.3	1.3	11.5	7.6	2.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1128	505	95	1738	379	338
V/C Ratio(X)	0.58	0.36	0.48	0.64	0.76	0.30
Avail Cap(c_a), veh/h	3496	1564	386	4684	1447	1292
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.8	11.7	21.6	8.1	17.1	15.1
Incr Delay (d2), s/veh	0.5	0.4	3.7	0.4	3.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	1.8	0.7	5.2	3.8	1.1
LnGrp Delay(d),s/veh	13.3	12.2	25.4	8.5	20.2	15.6
LnGrp LOS	B	B	C	A	C	B
Approach Vol, veh/h	834			1165	387	
Approach Delay, s/veh	13.1			9.2	19.0	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.7	22.1				30.9		16.5
Change Period (Y+Rc), s	6.0	6.0				6.0		5.7
Max Green Setting (Gmax), s	11.0	50.0				67.0		41.3
Max Q Clear Time (g_c+I1), s	3.3	9.7				13.5		9.6
Green Ext Time (p_c), s	0.0	6.0				11.4		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	12.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	515	67	49	754	83	68	17	22	122	19	287
Future Volume (veh/h)	152	515	67	49	754	83	68	17	22	122	19	287
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	163	554	72	53	811	89	73	18	24	131	20	309
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	203	1287	576	96	1073	480	132	54	72	371	57	379
Arrive On Green	0.12	0.37	0.37	0.05	0.31	0.31	0.08	0.08	0.08	0.24	0.24	0.24
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	718	958	1534	234	1568
Grp Volume(v), veh/h	163	554	72	53	811	89	73	0	42	151	0	309
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	0	1676	1768	0	1568
Q Serve(g_s), s	6.5	8.5	2.2	2.1	15.0	3.0	2.9	0.0	1.7	5.1	0.0	13.3
Cycle Q Clear(g_c), s	6.5	8.5	2.2	2.1	15.0	3.0	2.9	0.0	1.7	5.1	0.0	13.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.57	0.87		1.00
Lane Grp Cap(c), veh/h	203	1287	576	96	1073	480	132	0	126	428	0	379
V/C Ratio(X)	0.80	0.43	0.13	0.55	0.76	0.19	0.55	0.00	0.33	0.35	0.00	0.81
Avail Cap(c_a), veh/h	294	1585	709	243	1483	663	932	0	889	1012	0	898
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.9	17.0	15.0	33.0	22.4	18.3	32.0	0.0	31.4	22.5	0.0	25.6
Incr Delay (d2), s/veh	9.8	0.2	0.1	4.9	1.5	0.2	3.6	0.0	1.5	0.5	0.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	4.1	1.0	1.1	7.4	1.3	1.5	0.0	0.8	2.5	0.0	6.2
LnGrp Delay(d),s/veh	40.7	17.3	15.1	37.9	23.9	18.5	35.5	0.0	32.9	23.0	0.0	29.9
LnGrp LOS	D	B	B	D	C	B	D		C	C		C
Approach Vol, veh/h		789			953			115			460	
Approach Delay, s/veh		21.9			24.2			34.6			27.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.9	32.3		22.0	12.3	27.9		9.4
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	9.9	32.4		* 41	12.0	30.3		38.0
Max Q Clear Time (g_c+I1), s	4.1	10.5		15.3	8.5	17.0		4.9
Green Ext Time (p_c), s	0.0	4.0		2.0	0.1	5.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Notes

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	91	48	3	68	67	48	126	6	62	108	9
Future Vol, veh/h	7	91	48	3	68	67	48	126	6	62	108	9
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	123	65	4	92	91	65	170	8	84	146	12
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.7	10.4	11.6	11.6
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	5%	2%	35%
Vol Thru, %	70%	62%	49%	60%
Vol Right, %	3%	33%	49%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	146	138	179
LT Vol	48	7	3	62
Through Vol	126	91	68	108
RT Vol	6	48	67	9
Lane Flow Rate	243	197	186	242
Geometry Grp	1	1	1	1
Degree of Util (X)	0.367	0.297	0.276	0.366
Departure Headway (Hd)	5.433	5.411	5.335	5.44
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	662	663	671	660
Service Time	3.477	3.459	3.385	3.484
HCM Lane V/C Ratio	0.367	0.297	0.277	0.367
HCM Control Delay	11.6	10.7	10.4	11.6
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.7	1.2	1.1	1.7

Intersection	
Intersection Delay, s/veh	48.8
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	108	57	18	42	94	94	19	197	26	32	92	23
Future Vol, veh/h	108	57	18	42	94	94	19	197	26	32	92	23
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	193	102	32	75	168	168	34	352	46	57	164	41
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	36.9	54.2	66.1	26.9
HCM LOS	E	F	F	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	59%	18%	22%
Vol Thru, %	81%	31%	41%	63%
Vol Right, %	11%	10%	41%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	242	183	230	147
LT Vol	19	108	42	32
Through Vol	197	57	94	92
RT Vol	26	18	94	23
Lane Flow Rate	432	327	411	262
Geometry Grp	1	1	1	1
Degree of Util (X)	0.976	0.784	0.921	0.646
Departure Headway (Hd)	8.131	8.642	8.077	8.861
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	445	418	448	407
Service Time	6.211	6.733	6.161	6.957
HCM Lane V/C Ratio	0.971	0.782	0.917	0.644
HCM Control Delay	66.1	36.9	54.2	26.9
HCM Lane LOS	F	E	F	D
HCM 95th-tile Q	12	6.8	10.4	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	580	268	204	627	20	278	26	183	14	35	26
Future Volume (veh/h)	25	580	268	204	627	20	278	26	183	14	35	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	31	716	0	252	774	25	343	32	226	17	43	32
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	0	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	46	989	443	306	1490	48	637	345	293	28	72	86
Arrive On Green	0.03	0.28	0.00	0.17	0.43	0.43	0.19	0.19	0.19	0.06	0.06	0.06
Sat Flow, veh/h	1757	3505	1568	1757	3465	112	3408	1845	1568	515	1304	1568
Grp Volume(v), veh/h	31	716	0	252	391	408	343	32	226	60	0	32
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1825	1704	1845	1568	1819	0	1568
Q Serve(g_s), s	1.1	12.1	0.0	9.1	10.8	10.8	6.0	0.9	9.0	2.1	0.0	1.3
Cycle Q Clear(g_c), s	1.1	12.1	0.0	9.1	10.8	10.8	6.0	0.9	9.0	2.1	0.0	1.3
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.28		1.00
Lane Grp Cap(c), veh/h	46	989	443	306	753	785	637	345	293	100	0	86
V/C Ratio(X)	0.67	0.72	0.00	0.82	0.52	0.52	0.54	0.09	0.77	0.60	0.00	0.37
Avail Cap(c_a), veh/h	166	1576	705	509	1119	1166	889	481	409	693	0	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.7	21.2	0.0	26.1	13.7	13.7	24.1	22.1	25.3	30.3	0.0	29.9
Incr Delay (d2), s/veh	15.5	1.0	0.0	5.6	0.6	0.5	0.7	0.1	5.9	5.6	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.9	0.0	4.9	5.2	5.4	2.9	0.5	4.3	1.2	0.0	0.6
LnGrp Delay(d),s/veh	47.1	22.3	0.0	31.7	14.3	14.3	24.8	22.2	31.2	35.9	0.0	32.5
LnGrp LOS	D	C		C	B	B	C	C	C	D		C
Approach Vol, veh/h		747			1051			601			92	
Approach Delay, s/veh		23.3			18.5			27.1			34.7	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.4	24.3		8.2	5.7	34.0		17.7
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	19.0	* 30		25.0	6.2	41.9		17.1
Max Q Clear Time (g_c+I1), s	11.1	14.1		4.1	3.1	12.8		11.0
Green Ext Time (p_c), s	0.5	4.4		0.3	0.0	5.6		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	22.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	565	26	7	650	94	24	13	3	254	0	147
Future Volume (veh/h)	153	565	26	7	650	94	24	13	3	254	0	147
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	180	665	31	8	765	111	28	15	4	299	0	173
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	182	1061	902	14	756	110	55	29	8	324	0	289
Arrive On Green	0.10	0.58	0.58	0.01	0.48	0.48	0.05	0.05	0.05	0.18	0.00	0.18
Sat Flow, veh/h	1757	1845	1568	1757	1576	229	1052	563	150	1757	0	1568
Grp Volume(v), veh/h	180	665	31	8	0	876	47	0	0	299	0	173
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1804	1766	0	0	1757	0	1568
Q Serve(g_s), s	9.9	23.1	0.8	0.4	0.0	46.3	2.5	0.0	0.0	16.1	0.0	9.8
Cycle Q Clear(g_c), s	9.9	23.1	0.8	0.4	0.0	46.3	2.5	0.0	0.0	16.1	0.0	9.8
Prop In Lane	1.00		1.00	1.00		0.13	0.60		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	182	1061	902	14	0	866	92	0	0	324	0	289
V/C Ratio(X)	0.99	0.63	0.03	0.57	0.00	1.01	0.51	0.00	0.00	0.92	0.00	0.60
Avail Cap(c_a), veh/h	182	1061	902	100	0	866	338	0	0	324	0	289
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	13.6	8.9	47.7	0.0	25.1	44.6	0.0	0.0	38.7	0.0	36.1
Incr Delay (d2), s/veh	63.3	1.2	0.0	31.5	0.0	33.6	4.4	0.0	0.0	30.9	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	12.0	0.4	0.3	0.0	30.9	1.3	0.0	0.0	10.6	0.0	4.5
LnGrp Delay(d),s/veh	106.5	14.8	8.9	79.2	0.0	58.7	48.9	0.0	0.0	69.6	0.0	39.4
LnGrp LOS	F	B	A	E		F	D			E		D
Approach Vol, veh/h		876			884			47			472	
Approach Delay, s/veh		33.4			58.9			48.9			58.5	
Approach LOS		C			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	60.2		22.5	14.0	51.0		9.0
Change Period (Y+Rc), s	4.0	* 4.7		* 4.7	4.0	* 4.7		4.0
Max Green Setting (Gmax), s	5.5	* 51		* 18	10.0	* 46		18.5
Max Q Clear Time (g_c+I1), s	2.4	25.1		18.1	11.9	48.3		4.5
Green Ext Time (p_c), s	0.0	5.1		0.0	0.0	0.0		0.1

Intersection Summary		
HCM 2010 Ctrl Delay	48.8	
HCM 2010 LOS	D	

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	587	146	26	683	0	118	0	57	0	0	0
Future Volume (veh/h)	0	587	146	26	683	0	118	0	57	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	0	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	0	725	180	32	843	0	146	0	70	0	0	0
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	0	3	3	3	3	3	3
Cap, veh/h	4	950	808	78	1201	0	226	0	202	0	4	0
Arrive On Green	0.00	0.52	0.52	0.04	0.65	0.00	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Grp Volume(v), veh/h	0	725	180	32	843	0	146	0	70	0	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Q Serve(g_s), s	0.0	13.7	2.7	0.8	12.8	0.0	3.4	0.0	1.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	13.7	2.7	0.8	12.8	0.0	3.4	0.0	1.8	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	4	950	808	78	1201	0	226	0	202	0	4	0
V/C Ratio(X)	0.00	0.76	0.22	0.41	0.70	0.00	0.64	0.00	0.35	0.00	0.00	0.00
Avail Cap(c_a), veh/h	262	2090	1776	262	2090	0	725	0	647	0	783	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	8.4	5.8	20.3	4.9	0.0	18.0	0.0	17.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	0.1	3.5	0.8	0.0	3.1	0.0	1.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.2	1.2	0.4	6.6	0.0	1.9	0.0	0.8	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	9.8	5.9	23.7	5.6	0.0	21.1	0.0	18.3	0.0	0.0	0.0
LnGrp LOS		A	A	C	A		C		B			
Approach Vol, veh/h		905			875			216			0	
Approach Delay, s/veh		9.0			6.3			20.2			0.0	
Approach LOS		A			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.9	27.5		0.0	0.0	33.4		10.2
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.6
Max Green Setting (Gmax), s	6.5	49.4		18.5	6.5	49.4		18.0
Max Q Clear Time (g_c+I1), s	2.8	15.7		0.0	0.0	14.8		5.4
Green Ext Time (p_c), s	0.0	6.8		0.0	0.0	7.7		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	15.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	62	118	28	78	99	80	76	122	128	129	1
Future Vol, veh/h	2	62	118	28	78	99	80	76	122	128	129	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	74	140	33	93	118	95	90	145	152	154	1
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.9	11.5	18	18.7
HCM LOS	B	B	C	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	29%	100%	0%	0%	100%	0%	0%	50%
Vol Thru, %	27%	0%	100%	15%	0%	100%	21%	50%
Vol Right, %	44%	0%	0%	85%	0%	0%	79%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	278	2	41	139	28	52	125	258
LT Vol	80	2	0	0	28	0	0	128
Through Vol	76	0	41	21	0	52	26	129
RT Vol	122	0	0	118	0	0	99	1
Lane Flow Rate	331	2	49	165	33	62	149	307
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.592	0.005	0.099	0.304	0.071	0.124	0.274	0.582
Departure Headway (Hd)	6.439	7.768	7.25	6.634	7.71	7.193	6.619	6.824
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	563	461	494	541	465	498	542	528
Service Time	4.139	5.516	4.998	4.381	5.457	4.94	4.366	4.564
HCM Lane V/C Ratio	0.588	0.004	0.099	0.305	0.071	0.124	0.275	0.581
HCM Control Delay	18	10.6	10.8	12.3	11	11	11.9	18.7
HCM Lane LOS	C	B	B	B	B	B	B	C
HCM 95th-tile Q	3.8	0	0.3	1.3	0.2	0.4	1.1	3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	266	830	1328	212	67	218
Future Volume (veh/h)	266	830	1328	212	67	218
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	289	902	1443	230	73	237
Adj No. of Lanes	2	3	3	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	392	3238	2079	331	325	290
Arrive On Green	0.12	0.64	0.47	0.47	0.19	0.19
Sat Flow, veh/h	3408	5202	4547	698	1757	1568
Grp Volume(v), veh/h	289	902	1105	568	73	237
Grp Sat Flow(s),veh/h/ln	1704	1679	1679	1722	1757	1568
Q Serve(g_s), s	6.2	5.8	19.4	19.4	2.7	10.9
Cycle Q Clear(g_c), s	6.2	5.8	19.4	19.4	2.7	10.9
Prop In Lane	1.00			0.41	1.00	1.00
Lane Grp Cap(c), veh/h	392	3238	1593	817	325	290
V/C Ratio(X)	0.74	0.28	0.69	0.69	0.22	0.82
Avail Cap(c_a), veh/h	636	4370	2108	1081	983	878
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	5.8	15.4	15.5	26.0	29.3
Incr Delay (d2), s/veh	2.7	0.0	0.6	1.3	0.3	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	2.7	9.0	9.4	1.3	9.4
LnGrp Delay(d),s/veh	34.8	5.9	16.1	16.7	26.3	34.9
LnGrp LOS	C	A	B	B	C	C
Approach Vol, veh/h		1191	1673		310	
Approach Delay, s/veh		12.9	16.3		32.9	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		55.0		20.0	12.6	42.4		
Change Period (Y+Rc), s		6.8		6.1	4.0	6.8		
Max Green Setting (Gmax), s		65.1		42.0	14.0	47.1		
Max Q Clear Time (g_c+I1), s		7.8		12.9	8.2	21.4		
Green Ext Time (p_c), s		8.1		1.0	0.5	14.2		

Intersection Summary		
HCM 2010 Ctrl Delay		16.6
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	528	230	97	971	227	254	307	51	109	448	349
Future Volume (veh/h)	169	528	230	97	971	227	254	307	51	109	448	349
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	192	600	261	110	1103	258	289	349	58	124	509	283
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	194	1289	577	136	1173	525	269	886	146	150	793	355
Arrive On Green	0.11	0.37	0.37	0.08	0.33	0.33	0.15	0.29	0.29	0.09	0.23	0.23
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	3013	496	1757	3505	1568
Grp Volume(v), veh/h	192	600	261	110	1103	258	289	202	205	124	509	283
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	1752	1757	1757	1752	1568
Q Serve(g_s), s	12.8	15.3	14.8	7.2	35.9	15.4	18.0	10.8	11.0	8.2	15.4	20.0
Cycle Q Clear(g_c), s	12.8	15.3	14.8	7.2	35.9	15.4	18.0	10.8	11.0	8.2	15.4	20.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	194	1289	577	136	1173	525	269	515	516	150	793	355
V/C Ratio(X)	0.99	0.47	0.45	0.81	0.94	0.49	1.07	0.39	0.40	0.82	0.64	0.80
Avail Cap(c_a), veh/h	194	1289	577	241	1187	531	269	735	737	199	1342	600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.2	28.3	28.2	53.3	38.0	31.1	49.8	33.1	33.2	52.9	41.1	42.9
Incr Delay (d2), s/veh	60.9	0.3	0.6	10.7	14.1	0.7	75.9	0.5	0.5	18.6	0.9	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	7.5	6.5	3.9	19.6	6.8	14.3	5.3	5.4	4.7	7.6	9.0
LnGrp Delay(d),s/veh	113.1	28.6	28.7	64.0	52.1	31.9	125.6	33.6	33.7	71.5	42.0	47.0
LnGrp LOS	F	C	C	E	D	C	F	C	C	E	D	D
Approach Vol, veh/h		1053			1471			696			916	
Approach Delay, s/veh		44.0			49.4			71.8			47.6	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	50.0	22.0	32.4	17.0	46.1	14.1	40.3
Change Period (Y+Rc), s	4.0	* 6.8	4.0	* 5.8	4.0	6.8	4.0	5.8
Max Green Setting (Gmax), s	16.1	* 37	18.0	* 45	13.0	39.8	13.3	49.3
Max Q Clear Time (g_c+I1), s	19.2	17.3	20.0	22.0	14.8	37.9	10.2	13.0
Green Ext Time (p_c), s	0.1	5.0	0.0	4.6	0.0	1.4	0.1	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	51.4
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	0	46	30	0	29
Future Vol, veh/h	8	0	46	30	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	9	9	9	9	9
Mvmt Flow	9	0	50	33	0	32

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	99	67	0	0	83	0
Stage 1	67	-	-	-	-	-
Stage 2	32	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.19	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.281	-
Pot Cap-1 Maneuver	883	977	-	-	1471	-
Stage 1	938	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	883	977	-	-	1471	-
Mov Cap-2 Maneuver	883	-	-	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	973	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	883	1471	-
HCM Lane V/C Ratio	-	-	0.01	-	-
HCM Control Delay (s)	-	-	9.1	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	6	363	24	22	174
Future Vol, veh/h	7	6	363	24	22	174
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	9	9	9	9	9
Mvmt Flow	8	7	395	26	24	189

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	645	408	0	0	421	0
Stage 1	408	-	-	-	-	-
Stage 2	237	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.19	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.281	-
Pot Cap-1 Maneuver	426	628	-	-	1102	-
Stage 1	656	-	-	-	-	-
Stage 2	786	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	416	628	-	-	1102	-
Mov Cap-2 Maneuver	416	-	-	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	767	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	493	1102	-
HCM Lane V/C Ratio	-	-	0.029	0.022	-
HCM Control Delay (s)	-	-	12.5	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	5	62	17	14	34	108	342	13	26	370	85
Future Volume (veh/h)	50	5	62	17	14	34	108	342	13	26	370	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	62	0	72	20	16	40	126	398	15	30	430	99
Adj No. of Lanes	2	0	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	278	0	124	57	46	90	166	1145	43	50	756	173
Arrive On Green	0.08	0.00	0.08	0.06	0.06	0.06	0.09	0.33	0.33	0.03	0.27	0.27
Sat Flow, veh/h	3514	0	1568	997	798	1568	1757	3445	130	1757	2835	648
Grp Volume(v), veh/h	62	0	72	36	0	40	126	202	211	30	264	265
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1795	0	1568	1757	1752	1822	1757	1752	1730
Q Serve(g_s), s	0.6	0.0	1.7	0.7	0.0	1.0	2.7	3.4	3.4	0.7	5.1	5.1
Cycle Q Clear(g_c), s	0.6	0.0	1.7	0.7	0.0	1.0	2.7	3.4	3.4	0.7	5.1	5.1
Prop In Lane	1.00		1.00	0.56		1.00	1.00		0.07	1.00		0.37
Lane Grp Cap(c), veh/h	278	0	124	103	0	90	166	583	606	50	467	461
V/C Ratio(X)	0.22	0.00	0.58	0.35	0.00	0.44	0.76	0.35	0.35	0.60	0.57	0.57
Avail Cap(c_a), veh/h	1575	0	703	1387	0	1212	679	1670	1736	276	1268	1252
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	17.3	17.6	0.0	17.7	17.2	9.8	9.8	18.6	12.3	12.3
Incr Delay (d2), s/veh	0.4	0.0	4.2	2.0	0.0	3.4	7.0	0.4	0.3	11.0	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.9	0.4	0.0	0.5	1.6	1.7	1.8	0.5	2.6	2.6
LnGrp Delay(d),s/veh	17.2	0.0	21.5	19.6	0.0	21.1	24.2	10.1	10.1	29.6	13.4	13.4
LnGrp LOS	B		C	B		C	C	B	B	C	B	B
Approach Vol, veh/h		134			76			539			559	
Approach Delay, s/veh		19.5			20.4			13.4			14.3	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.1	19.3		8.2	7.7	16.8		6.2
Change Period (Y+Rc), s	4.0	6.4		5.1	4.0	6.4		4.0
Max Green Setting (Gmax), s	6.1	37.0		17.4	15.0	28.1		30.0
Max Q Clear Time (g_c+I1), s	2.7	5.4		3.7	4.7	7.1		3.0
Green Ext Time (p_c), s	0.0	2.6		0.3	0.2	3.2		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	716	106	16	738	4	64	2	15	4	1	10
Future Volume (veh/h)	32	716	106	16	738	4	64	2	15	4	1	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	36	796	118	18	820	4	71	2	17	4	1	11
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	67	930	138	38	1056	5	94	3	23	8	2	22
Arrive On Green	0.04	0.59	0.59	0.02	0.58	0.58	0.07	0.07	0.07	0.02	0.02	0.02
Sat Flow, veh/h	1757	1571	233	1757	1834	9	1357	38	325	407	102	1119
Grp Volume(v), veh/h	36	0	914	18	0	824	90	0	0	16	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1804	1757	0	1843	1720	0	0	1627	0	0
Q Serve(g_s), s	1.2	0.0	24.4	0.6	0.0	20.0	3.0	0.0	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	1.2	0.0	24.4	0.6	0.0	20.0	3.0	0.0	0.0	0.6	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.00	0.79		0.19	0.25		0.69
Lane Grp Cap(c), veh/h	67	0	1068	38	0	1061	120	0	0	32	0	0
V/C Ratio(X)	0.54	0.00	0.86	0.47	0.00	0.78	0.75	0.00	0.00	0.50	0.00	0.00
Avail Cap(c_a), veh/h	166	0	1570	166	0	1604	531	0	0	517	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.5	0.0	9.8	28.2	0.0	9.5	26.6	0.0	0.0	28.3	0.0	0.0
Incr Delay (d2), s/veh	6.7	0.0	3.3	8.8	0.0	1.4	9.1	0.0	0.0	11.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	12.9	0.4	0.0	10.5	1.7	0.0	0.0	0.4	0.0	0.0
LnGrp Delay(d),s/veh	34.2	0.0	13.1	37.0	0.0	10.9	35.7	0.0	0.0	40.0	0.0	0.0
LnGrp LOS	C		B	D		B	D			D		
Approach Vol, veh/h		950			842			90			16	
Approach Delay, s/veh		13.9			11.4			35.7			40.0	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	39.2		5.1	6.2	38.2		8.7
Change Period (Y+Rc), s	4.0	* 4.7		4.0	4.0	* 4.7		4.6
Max Green Setting (Gmax), s	5.5	* 51		18.5	5.5	* 51		18.0
Max Q Clear Time (g_c+I1), s	2.6	26.4		2.6	3.2	22.0		5.0
Green Ext Time (p_c), s	0.0	8.1		0.0	0.0	7.1		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	14.1
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	73	20	461	41	13	838
Future Vol, veh/h	73	20	461	41	13	838
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	78	22	496	44	14	901

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	997	270	0	0	540	0
Stage 1	518	-	-	-	-	-
Stage 2	479	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	239	725	-	-	1018	-
Stage 1	560	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	236	725	-	-	1018	-
Mov Cap-2 Maneuver	236	-	-	-	-	-
Stage 1	560	-	-	-	-	-
Stage 2	578	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.3	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	276	1018	-
HCM Lane V/C Ratio	-	-	0.362	0.014	-
HCM Control Delay (s)	-	-	25.3	8.6	-
HCM Lane LOS	-	-	D	A	-
HCM 95th %tile Q(veh)	-	-	1.6	0	-

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	872	1554	34	44	24
Future Volume (veh/h)	34	872	1554	34	44	24
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	39	991	1766	39	50	27
Adj No. of Lanes	1	3	3	0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	72	3881	3279	72	111	99
Arrive On Green	0.04	0.77	0.65	0.65	0.06	0.06
Sat Flow, veh/h	1757	5202	5236	112	1757	1568
Grp Volume(v), veh/h	39	991	1169	636	50	27
Grp Sat Flow(s),veh/h/ln	1757	1679	1679	1825	1757	1568
Q Serve(g_s), s	1.2	3.0	10.2	10.2	1.5	0.9
Cycle Q Clear(g_c), s	1.2	3.0	10.2	10.2	1.5	0.9
Prop In Lane	1.00			0.06	1.00	1.00
Lane Grp Cap(c), veh/h	72	3881	2171	1180	111	99
V/C Ratio(X)	0.54	0.26	0.54	0.54	0.45	0.27
Avail Cap(c_a), veh/h	340	8129	4490	2441	762	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	1.8	5.2	5.2	24.5	24.2
Incr Delay (d2), s/veh	6.2	0.0	0.2	0.4	2.8	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.4	4.6	5.1	0.8	0.8
LnGrp Delay(d),s/veh	31.7	1.8	5.4	5.6	27.3	25.7
LnGrp LOS	C	A	A	A	C	C
Approach Vol, veh/h		1030	1805		77	
Approach Delay, s/veh		2.9	5.5		26.7	
Approach LOS		A	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				46.3		7.9	6.7	39.6
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				87.5		23.5	10.5	72.5
Max Q Clear Time (g_c+I1), s				5.0		3.5	3.2	12.2
Green Ext Time (p_c), s				9.3		0.2	0.0	22.8

Intersection Summary		
HCM 2010 Ctrl Delay		5.1
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	188	9	0	330	126	22	36	1	65	13	149
Future Volume (veh/h)	127	188	9	0	330	126	22	36	1	65	13	149
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	140	207	10	0	363	138	24	40	1	71	14	164
Adj No. of Lanes	2	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	362	929	45	3	452	172	59	485	12	126	310	278
Arrive On Green	0.11	0.53	0.53	0.00	0.35	0.35	0.03	0.14	0.14	0.07	0.18	0.18
Sat Flow, veh/h	3408	1745	84	1757	1275	485	1757	3495	87	1757	1752	1568
Grp Volume(v), veh/h	140	0	217	0	0	501	24	20	21	71	14	164
Grp Sat Flow(s),veh/h/ln	1704	0	1830	1757	0	1759	1757	1752	1829	1757	1752	1568
Q Serve(g_s), s	2.2	0.0	3.5	0.0	0.0	14.5	0.8	0.6	0.6	2.2	0.4	5.4
Cycle Q Clear(g_c), s	2.2	0.0	3.5	0.0	0.0	14.5	0.8	0.6	0.6	2.2	0.4	5.4
Prop In Lane	1.00		0.05	1.00		0.28	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	362	0	974	3	0	624	59	243	254	126	310	278
V/C Ratio(X)	0.39	0.00	0.22	0.00	0.00	0.80	0.41	0.08	0.08	0.57	0.05	0.59
Avail Cap(c_a), veh/h	1126	0	1755	203	0	1309	206	955	997	331	1071	958
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	0.0	7.0	0.0	0.0	16.4	26.7	21.1	21.1	25.3	19.2	21.3
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.0	0.0	2.5	4.5	0.1	0.1	4.0	0.1	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.8	0.0	0.0	7.4	0.4	0.3	0.3	1.2	0.2	2.5
LnGrp Delay(d),s/veh	24.1	0.0	7.1	0.0	0.0	18.8	31.2	21.3	21.3	29.3	19.3	23.3
LnGrp LOS	C		A			B	C	C	C	C	B	C
Approach Vol, veh/h		357			501			65			249	
Approach Delay, s/veh		13.8			18.8			24.9			24.8	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	13.2	0.0	35.1	5.9	15.4	10.0	25.1
Change Period (Y+Rc), s	4.0	* 5.4	4.0	5.1	4.0	5.4	4.0	5.1
Max Green Setting (Gmax), s	10.6	* 31	6.5	54.0	6.6	34.4	18.6	41.9
Max Q Clear Time (g_c+I1), s	4.2	2.6	0.0	5.5	2.8	7.4	4.2	16.5
Green Ext Time (p_c), s	0.1	0.2	0.0	1.4	0.0	1.1	0.3	3.5

Intersection Summary		
HCM 2010 Ctrl Delay		18.9
HCM 2010 LOS		B

Notes

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	303	42	29	150	25	13
Future Vol, veh/h	303	42	29	150	25	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	344	48	33	170	28	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	392	0	604	368
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	236	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1161	-	460	675
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	801	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1161	-	447	675
Mov Cap-2 Maneuver	-	-	-	-	447	-
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	779	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	505	-	-	1161	-
HCM Lane V/C Ratio	0.086	-	-	0.028	-
HCM Control Delay (s)	12.8	-	-	8.2	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	329	179	0	2	1
Future Vol, veh/h	0	329	179	0	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	378	206	0	2	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	206	0	-	0	584	206
Stage 1	-	-	-	-	206	-
Stage 2	-	-	-	-	378	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1359	-	-	-	472	832
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	691	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1359	-	-	-	472	832
Mov Cap-2 Maneuver	-	-	-	-	472	-
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	691	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1359	-	-	-	552
HCM Lane V/C Ratio	-	-	-	-	0.006
HCM Control Delay (s)	0	-	-	-	11.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	256	127	146	183	0	0	0	0	49	1	42
Future Vol, veh/h	0	256	127	146	183	0	0	0	0	49	1	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	75	-	-	-	-	-	-	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	284	141	162	203	0	0	0	0	54	1	47

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	425	0	0				882	952	102
Stage 1	-	-	-	-	-	-				527	527	-
Stage 2	-	-	-	-	-	-				355	425	-
Critical Hdwy	-	-	-	4.235	-	-				6.735	6.635	7.035
Critical Hdwy Stg 1	-	-	-	-	-	-				5.935	5.635	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.535	5.635	-
Follow-up Hdwy	-	-	-	2.2855	-	-				3.5855	4.0855	3.3855
Pot Cap-1 Maneuver	0	-	-	1090	-	0				290	249	914
Stage 1	0	-	-	-	-	0				541	513	-
Stage 2	0	-	-	-	-	0				691	571	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1090	-	-				247	0	914
Mov Cap-2 Maneuver	-	-	-	-	-	-				247	0	-
Stage 1	-	-	-	-	-	-				541	0	-
Stage 2	-	-	-	-	-	-				588	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	3.9	17.1
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1090	-	247	914
HCM Lane V/C Ratio	-	-	0.149	-	0.225	0.051
HCM Control Delay (s)	-	-	8.9	-	23.8	9.2
HCM Lane LOS	-	-	A	-	C	A
HCM 95th %tile Q(veh)	-	-	0.5	-	0.8	0.2

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	57	244	0	0	274	85	59	3	63	0	0	0
Future Vol, veh/h	57	244	0	0	274	85	59	3	63	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	75	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	64	274	0	0	308	96	66	3	71	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	404	0	-	-	-	0	556	806	137
Stage 1	-	-	-	-	-	-	402	402	-
Stage 2	-	-	-	-	-	-	154	404	-
Critical Hdwy	4.28	-	-	-	-	-	6.98	6.68	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	5.98	5.68	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.98	5.68	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.59	4.09	3.39
Pot Cap-1 Maneuver	1103	-	0	0	-	-	445	301	865
Stage 1	-	-	0	0	-	-	624	581	-
Stage 2	-	-	0	0	-	-	838	580	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1103	-	-	-	-	-	419	0	865
Mov Cap-2 Maneuver	-	-	-	-	-	-	419	0	-
Stage 1	-	-	-	-	-	-	588	0	-
Stage 2	-	-	-	-	-	-	838	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.6	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	419	865	1103	-	-	-
HCM Lane V/C Ratio	0.166	0.082	0.058	-	-	-
HCM Control Delay (s)	15.3	9.5	8.5	-	-	-
HCM Lane LOS	C	A	A	-	-	-
HCM 95th %tile Q(veh)	0.6	0.3	0.2	-	-	-

Intersection	
Intersection Delay, s/veh	14.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	50	237	150	137	0	142	16	56	0	43	50
Future Vol, veh/h	20	50	237	150	137	0	142	16	56	0	43	50
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	23	57	272	172	157	0	163	18	64	0	49	57
Number of Lanes	1	1	0	1	2	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	3	2
HCM Control Delay	17.5	12.3	14	12.1
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	90%	0%	100%	0%	100%	0%	0%	0%
Vol Thru, %	10%	0%	0%	17%	0%	100%	100%	46%
Vol Right, %	0%	100%	0%	83%	0%	0%	0%	54%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	158	56	20	287	150	69	69	93
LT Vol	142	0	20	0	150	0	0	0
Through Vol	16	0	0	50	0	69	69	43
RT Vol	0	56	0	237	0	0	0	50
Lane Flow Rate	182	64	23	330	172	79	79	107
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.39	0.117	0.048	0.59	0.362	0.154	0.113	0.218
Departure Headway (Hd)	7.731	6.566	7.536	6.436	7.563	7.054	5.165	7.334
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	465	545	478	564	476	509	692	489
Service Time	5.477	4.311	5.236	4.136	5.308	4.799	2.909	5.086
HCM Lane V/C Ratio	0.391	0.117	0.048	0.585	0.361	0.155	0.114	0.219
HCM Control Delay	15.4	10.2	10.6	18	14.6	11.1	8.6	12.1
HCM Lane LOS	C	B	B	C	B	B	A	B
HCM 95th-tile Q	1.8	0.4	0.2	3.8	1.6	0.5	0.4	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	426	42	5	341	26	48	4	6	45	22	60
Future Volume (veh/h)	49	426	42	5	341	26	48	4	6	45	22	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	52	448	44	5	359	27	51	4	6	47	23	63
Adj No. of Lanes	1	2	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	97	1246	557	12	520	39	102	8	97	65	32	87
Arrive On Green	0.06	0.36	0.36	0.01	0.31	0.31	0.06	0.06	0.06	0.11	0.11	0.11
Sat Flow, veh/h	1757	3505	1568	1757	1695	127	1635	128	1568	592	290	793
Grp Volume(v), veh/h	52	448	44	5	0	386	55	0	6	133	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	0	1822	1763	0	1568	1675	0	0
Q Serve(g_s), s	1.1	3.6	0.7	0.1	0.0	7.2	1.2	0.0	0.1	3.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	3.6	0.7	0.1	0.0	7.2	1.2	0.0	0.1	3.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.07	0.93		1.00	0.35		0.47
Lane Grp Cap(c), veh/h	97	1246	557	12	0	559	110	0	97	183	0	0
V/C Ratio(X)	0.53	0.36	0.08	0.42	0.00	0.69	0.50	0.00	0.06	0.73	0.00	0.00
Avail Cap(c_a), veh/h	523	5037	2253	250	0	2335	890	0	792	932	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	9.2	8.3	19.1	0.0	11.8	17.5	0.0	17.0	16.6	0.0	0.0
Incr Delay (d2), s/veh	4.5	0.2	0.1	21.9	0.0	1.5	3.5	0.0	0.3	5.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.8	0.3	0.1	0.0	3.8	0.7	0.0	0.1	1.6	0.0	0.0
LnGrp Delay(d),s/veh	22.3	9.4	8.3	41.1	0.0	13.3	21.0	0.0	17.3	22.0	0.0	0.0
LnGrp LOS	C	A	A	D		B	C		B	C		
Approach Vol, veh/h		544			391			61			133	
Approach Delay, s/veh		10.5			13.7			20.7			22.0	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	18.2		8.7	6.6	16.4		6.9
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.5	55.5		21.5	11.5	49.5		19.5
Max Q Clear Time (g_c+I1), s	2.1	5.6		5.0	3.1	9.2		3.2
Green Ext Time (p_c), s	0.0	3.5		0.6	0.0	2.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	394	140	484	333	38	28	12	130	29	33	16
Future Volume (veh/h)	15	394	140	484	333	38	28	12	130	29	33	16
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	16	428	152	526	362	41	30	13	141	32	36	17
Adj No. of Lanes	1	2	0	2	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	35	669	235	743	1616	723	59	19	203	62	168	79
Arrive On Green	0.02	0.26	0.26	0.22	0.46	0.46	0.03	0.14	0.14	0.04	0.14	0.14
Sat Flow, veh/h	1757	2544	895	3408	3505	1568	1757	134	1454	1757	1186	560
Grp Volume(v), veh/h	16	294	286	526	362	41	30	0	154	32	0	53
Grp Sat Flow(s),veh/h/ln	1757	1752	1687	1704	1752	1568	1757	0	1588	1757	0	1746
Q Serve(g_s), s	0.5	7.8	7.9	7.5	3.3	0.8	0.9	0.0	4.8	0.9	0.0	1.4
Cycle Q Clear(g_c), s	0.5	7.8	7.9	7.5	3.3	0.8	0.9	0.0	4.8	0.9	0.0	1.4
Prop In Lane	1.00		0.53	1.00		1.00	1.00		0.92	1.00		0.32
Lane Grp Cap(c), veh/h	35	461	444	743	1616	723	59	0	222	62	0	247
V/C Ratio(X)	0.46	0.64	0.65	0.71	0.22	0.06	0.51	0.00	0.69	0.51	0.00	0.21
Avail Cap(c_a), veh/h	252	1254	1207	2179	4248	1900	285	0	682	285	0	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.4	17.1	17.1	18.9	8.5	7.8	24.9	0.0	21.5	24.8	0.0	19.9
Incr Delay (d2), s/veh	9.1	1.5	1.6	1.3	0.1	0.0	6.5	0.0	3.8	6.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.9	3.9	3.6	1.6	0.3	0.5	0.0	2.3	0.6	0.0	0.7
LnGrp Delay(d),s/veh	34.5	18.6	18.7	20.2	8.6	7.8	31.4	0.0	25.3	31.2	0.0	20.3
LnGrp LOS	C	B	B	C	A	A	C		C	C		C
Approach Vol, veh/h		596			929			184			85	
Approach Delay, s/veh		19.1			15.1			26.3			24.4	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.9	18.3	6.3	11.9	5.5	28.7	6.4	11.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	33.5	37.5	8.5	22.5	7.5	63.5	8.5	22.5				
Max Q Clear Time (g_c+I1), s	9.5	9.9	2.9	3.4	2.5	5.3	2.9	6.8				
Green Ext Time (p_c), s	1.9	3.9	0.0	0.2	0.0	2.8	0.0	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			18.0									
HCM 2010 LOS			B									

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	602	33	116	692	119	706
Future Volume (veh/h)	602	33	116	692	119	706
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1900	1743	1743	1743	1743
Adj Flow Rate, veh/h	743	41	143	854	147	872
Adj No. of Lanes	2	0	1	2	1	2
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	998	55	181	1603	649	1020
Arrive On Green	0.31	0.31	0.11	0.48	0.39	0.39
Sat Flow, veh/h	3279	176	1660	3399	1660	2608
Grp Volume(v), veh/h	385	399	143	854	147	872
Grp Sat Flow(s),veh/h/ln	1656	1712	1660	1656	1660	1304
Q Serve(g_s), s	15.0	15.1	6.1	12.9	4.3	22.1
Cycle Q Clear(g_c), s	15.0	15.1	6.1	12.9	4.3	22.1
Prop In Lane		0.10	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	518	535	181	1603	649	1020
V/C Ratio(X)	0.74	0.75	0.79	0.53	0.23	0.85
Avail Cap(c_a), veh/h	1022	1056	495	3237	932	1464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	22.2	31.3	12.9	14.7	20.1
Incr Delay (d2), s/veh	2.2	2.1	7.5	0.3	0.2	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	7.4	3.2	5.9	2.0	8.4
LnGrp Delay(d),s/veh	24.4	24.3	38.8	13.2	14.8	23.7
LnGrp LOS	C	C	D	B	B	C
Approach Vol, veh/h	784			997	1019	
Approach Delay, s/veh	24.3			16.9	22.4	
Approach LOS	C			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.4	27.0				39.4		32.7
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	21.5	44.5				70.5		40.5
Max Q Clear Time (g_c+I1), s	8.1	17.1				14.9		24.1
Green Ext Time (p_c), s	0.3	5.5				7.6		4.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	1050	136	50	595	135	107	53	40	280	117	54
Future Volume (veh/h)	123	1050	136	50	595	135	107	53	40	280	117	54
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	131	1117	145	53	633	144	114	56	43	211	246	57
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	138	1163	151	87	1204	539	170	94	72	289	303	258
Arrive On Green	0.08	0.39	0.39	0.05	0.36	0.36	0.10	0.10	0.10	0.17	0.17	0.17
Sat Flow, veh/h	1660	2949	382	1660	3312	1482	1660	916	703	1660	1743	1482
Grp Volume(v), veh/h	131	626	636	53	633	144	114	0	99	211	246	57
Grp Sat Flow(s),veh/h/ln	1660	1656	1676	1660	1656	1482	1660	0	1619	1660	1743	1482
Q Serve(g_s), s	6.1	28.8	28.9	2.4	11.7	5.4	5.2	0.0	4.6	9.4	10.6	2.6
Cycle Q Clear(g_c), s	6.1	28.8	28.9	2.4	11.7	5.4	5.2	0.0	4.6	9.4	10.6	2.6
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	138	653	661	87	1204	539	170	0	166	289	303	258
V/C Ratio(X)	0.95	0.96	0.96	0.61	0.53	0.27	0.67	0.00	0.60	0.73	0.81	0.22
Avail Cap(c_a), veh/h	138	653	661	138	1306	584	935	0	912	363	382	324
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	23.0	23.1	36.2	19.6	17.5	33.8	0.0	33.5	30.5	31.0	27.7
Incr Delay (d2), s/veh	60.8	25.4	25.9	6.7	0.4	0.3	4.5	0.0	3.4	5.5	10.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	17.7	18.0	1.3	5.4	2.2	2.6	0.0	2.2	4.7	6.0	1.1
LnGrp Delay(d),s/veh	96.4	48.5	49.0	42.9	19.9	17.8	38.2	0.0	36.9	36.0	41.1	28.1
LnGrp LOS	F	D	D	D	B	B	D		D	D	D	C
Approach Vol, veh/h		1393			830			213			514	
Approach Delay, s/veh		53.2			21.0			37.6			37.6	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.1	37.6		19.0	10.5	35.2		13.4
Change Period (Y+Rc), s	4.0	6.8		5.4	4.0	6.8		5.4
Max Green Setting (Gmax), s	6.5	30.8		17.1	6.5	30.8		44.0
Max Q Clear Time (g_c+I1), s	4.4	30.9		12.6	8.1	13.7		7.2
Green Ext Time (p_c), s	0.0	0.0		1.0	0.0	4.6		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	40.3
HCM 2010 LOS	D

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑	↱	↰	↑↑	↰	↱		
Traffic Volume (veh/h)	1306	140	24	813	54	38		
Future Volume (veh/h)	1306	140	24	813	54	38		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1743		
Adj Flow Rate, veh/h	1360	146	25	847	56	40		
Adj No. of Lanes	2	1	1	2	1	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	9	9	9	9	9	9		
Cap, veh/h	1939	867	56	2363	170	152		
Arrive On Green	0.59	0.59	0.03	0.71	0.10	0.10		
Sat Flow, veh/h	3399	1482	1660	3399	1660	1482		
Grp Volume(v), veh/h	1360	146	25	847	56	40		
Grp Sat Flow(s),veh/h/ln	1656	1482	1660	1656	1660	1482		
Q Serve(g_s), s	18.4	2.9	0.9	6.3	2.0	1.6		
Cycle Q Clear(g_c), s	18.4	2.9	0.9	6.3	2.0	1.6		
Prop In Lane		1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	1939	867	56	2363	170	152		
V/C Ratio(X)	0.70	0.17	0.45	0.36	0.33	0.26		
Avail Cap(c_a), veh/h	3904	1747	209	4633	504	449		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	9.3	6.1	30.2	3.5	26.5	26.3		
Incr Delay (d2), s/veh	0.5	0.1	5.5	0.1	1.1	0.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	8.4	1.2	0.5	2.9	1.0	0.7		
LnGrp Delay(d),s/veh	9.7	6.2	35.7	3.6	27.6	27.2		
LnGrp LOS	A	A	D	A	C	C		
Approach Vol, veh/h	1506			872	96			
Approach Delay, s/veh	9.4			4.5	27.5			
Approach LOS	A			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.1	43.2				51.4		12.2
Change Period (Y+Rc), s	6.0	6.0				6.0		5.7
Max Green Setting (Gmax), s	8.0	75.0				89.0		19.3
Max Q Clear Time (g_c+I1), s	2.9	20.4				8.3		4.0
Green Ext Time (p_c), s	0.0	16.9				7.6		0.2

Intersection Summary		
HCM 2010 Ctrl Delay		8.4
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	271	904	103	74	530	60	65	60	74	54	37	118
Future Volume (veh/h)	271	904	103	74	530	60	65	60	74	54	37	118
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	285	952	108	78	558	63	68	63	78	57	39	124
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	331	1332	596	126	922	413	221	94	117	128	88	189
Arrive On Green	0.19	0.38	0.38	0.07	0.26	0.26	0.13	0.13	0.13	0.12	0.12	0.12
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	751	930	1064	728	1568
Grp Volume(v), veh/h	285	952	108	78	558	63	68	0	141	96	0	124
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	0	1681	1791	0	1568
Q Serve(g_s), s	9.7	14.3	2.8	2.7	8.6	1.9	2.2	0.0	5.0	3.1	0.0	4.7
Cycle Q Clear(g_c), s	9.7	14.3	2.8	2.7	8.6	1.9	2.2	0.0	5.0	3.1	0.0	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.55	0.59		1.00
Lane Grp Cap(c), veh/h	331	1332	596	126	922	413	221	0	211	216	0	189
V/C Ratio(X)	0.86	0.71	0.18	0.62	0.61	0.15	0.31	0.00	0.67	0.44	0.00	0.66
Avail Cap(c_a), veh/h	341	2027	907	184	1715	767	1078	0	1032	1186	0	1038
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	16.3	12.8	27.9	20.0	17.5	24.6	0.0	25.8	25.3	0.0	26.0
Incr Delay (d2), s/veh	19.1	0.7	0.1	4.9	0.6	0.2	0.8	0.0	3.6	1.4	0.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	7.0	1.3	1.5	4.3	0.8	1.1	0.0	2.5	1.6	0.0	2.2
LnGrp Delay(d),s/veh	43.5	17.1	12.9	32.8	20.6	17.7	25.4	0.0	29.4	26.7	0.0	29.8
LnGrp LOS	D	B	B	C	C	B	C		C	C		C
Approach Vol, veh/h		1345			699			209			220	
Approach Delay, s/veh		22.3			21.7			28.1			28.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.4	29.5		12.2	15.7	22.3		11.8
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	6.5	35.8		* 41	12.0	30.3		38.0
Max Q Clear Time (g_c+I1), s	11.7	16.3		6.7	11.7	10.6		7.0
Green Ext Time (p_c), s	0.0	7.2		1.0	0.0	3.9		1.0

Intersection Summary		
HCM 2010 Ctrl Delay		23.2
HCM 2010 LOS		C

Notes

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	8	62	37	7	46	46	28	74	0	100	189	17
Future Vol, veh/h	8	62	37	7	46	46	28	74	0	100	189	17
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	70	42	8	52	52	31	83	0	112	212	19
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	8.9	9	11.6
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	7%	7%	33%
Vol Thru, %	73%	58%	46%	62%
Vol Right, %	0%	35%	46%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	102	107	99	306
LT Vol	28	8	7	100
Through Vol	74	62	46	189
RT Vol	0	37	46	17
Lane Flow Rate	115	120	111	344
Geometry Grp	1	1	1	1
Degree of Util (X)	0.159	0.167	0.153	0.448
Departure Headway (Hd)	4.992	5.003	4.946	4.695
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	713	711	719	763
Service Time	3.063	3.076	3.019	2.752
HCM Lane V/C Ratio	0.161	0.169	0.154	0.451
HCM Control Delay	9	9.1	8.9	11.6
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.6	0.6	0.5	2.3

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	3	130	43	42	94	20	11	62	48	39	79	5
Future Vol, veh/h	3	130	43	42	94	20	11	62	48	39	79	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	3	137	45	44	99	21	12	65	51	41	83	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	9.2	8.7	9.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	2%	27%	32%
Vol Thru, %	51%	74%	60%	64%
Vol Right, %	40%	24%	13%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	121	176	156	123
LT Vol	11	3	42	39
Through Vol	62	130	94	79
RT Vol	48	43	20	5
Lane Flow Rate	127	185	164	129
Geometry Grp	1	1	1	1
Degree of Util (X)	0.167	0.238	0.218	0.179
Departure Headway (Hd)	4.724	4.634	4.775	4.973
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	755	771	749	717
Service Time	2.781	2.685	2.827	3.029
HCM Lane V/C Ratio	0.168	0.24	0.219	0.18
HCM Control Delay	8.7	9.1	9.2	9.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.9	0.8	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	1055	359	218	530	12	282	38	146	11	17	16
Future Volume (veh/h)	64	1055	359	218	530	12	282	38	146	11	17	16
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	67	1111	0	229	558	13	297	40	154	12	18	17
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	86	1387	621	273	1759	41	473	256	218	25	37	53
Arrive On Green	0.05	0.40	0.00	0.16	0.50	0.50	0.14	0.14	0.14	0.03	0.03	0.03
Sat Flow, veh/h	1757	3505	1568	1757	3501	82	3408	1845	1568	723	1085	1568
Grp Volume(v), veh/h	67	1111	0	229	279	292	297	40	154	30	0	17
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1830	1704	1845	1568	1808	0	1568
Q Serve(g_s), s	2.7	20.1	0.0	9.1	6.8	6.8	5.9	1.4	6.7	1.2	0.0	0.8
Cycle Q Clear(g_c), s	2.7	20.1	0.0	9.1	6.8	6.8	5.9	1.4	6.7	1.2	0.0	0.8
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	86	1387	621	273	880	920	473	256	218	61	0	53
V/C Ratio(X)	0.78	0.80	0.00	0.84	0.32	0.32	0.63	0.16	0.71	0.49	0.00	0.32
Avail Cap(c_a), veh/h	240	1686	754	343	936	977	812	440	374	630	0	546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.7	19.2	0.0	29.4	10.6	10.6	29.1	27.2	29.5	34.0	0.0	33.8
Incr Delay (d2), s/veh	14.2	2.4	0.0	13.8	0.2	0.2	1.4	0.3	4.2	5.9	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	10.2	0.0	5.4	3.3	3.5	2.9	0.7	3.2	0.7	0.0	0.4
LnGrp Delay(d),s/veh	47.9	21.5	0.0	43.2	10.8	10.8	30.5	27.5	33.7	40.0	0.0	37.2
LnGrp LOS	D	C		D	B	B	C	C	C	D		D
Approach Vol, veh/h		1178			800			491			47	
Approach Delay, s/veh		23.0			20.1			31.3			39.0	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.1	34.2		7.0	7.5	41.8		15.4
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	14.0	* 35		25.0	9.8	38.3		17.1
Max Q Clear Time (g_c+I1), s	11.1	22.1		3.2	4.7	8.8		8.7
Green Ext Time (p_c), s	0.2	6.3		0.1	0.0	3.7		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	927	7	21	647	104	21	9	4	177	11	116
Future Volume (veh/h)	169	927	7	21	647	104	21	9	4	177	11	116
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	176	966	7	22	674	108	22	9	4	184	11	121
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	212	1067	907	34	740	119	52	21	9	236	14	222
Arrive On Green	0.12	0.58	0.58	0.02	0.48	0.48	0.05	0.05	0.05	0.14	0.14	0.14
Sat Flow, veh/h	1757	1845	1568	1757	1552	249	1103	451	200	1662	99	1568
Grp Volume(v), veh/h	176	966	7	22	0	782	35	0	0	195	0	121
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1801	1754	0	0	1762	0	1568
Q Serve(g_s), s	8.0	37.8	0.2	1.0	0.0	32.7	1.6	0.0	0.0	8.7	0.0	5.8
Cycle Q Clear(g_c), s	8.0	37.8	0.2	1.0	0.0	32.7	1.6	0.0	0.0	8.7	0.0	5.8
Prop In Lane	1.00		1.00	1.00		0.14	0.63		0.11	0.94		1.00
Lane Grp Cap(c), veh/h	212	1067	907	34	0	858	82	0	0	250	0	222
V/C Ratio(X)	0.83	0.91	0.01	0.65	0.00	0.91	0.42	0.00	0.00	0.78	0.00	0.54
Avail Cap(c_a), veh/h	246	1151	978	119	0	993	399	0	0	385	0	343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.0	15.2	7.3	39.7	0.0	19.7	37.7	0.0	0.0	33.7	0.0	32.5
Incr Delay (d2), s/veh	18.3	9.8	0.0	19.1	0.0	11.2	3.4	0.0	0.0	5.5	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	22.0	0.1	0.7	0.0	18.7	0.8	0.0	0.0	4.6	0.0	2.6
LnGrp Delay(d),s/veh	53.3	25.0	7.3	58.7	0.0	30.9	41.2	0.0	0.0	39.2	0.0	34.6
LnGrp LOS	D	C	A	E		C	D			D		C
Approach Vol, veh/h		1149			804			35			316	
Approach Delay, s/veh		29.3			31.7			41.2			37.4	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	51.8		16.2	13.8	43.5		7.8
Change Period (Y+Rc), s	4.0	* 4.7		* 4.7	4.0	* 4.7		4.0
Max Green Setting (Gmax), s	5.5	* 51		* 18	11.4	* 45		18.5
Max Q Clear Time (g_c+I1), s	3.0	39.8		10.7	10.0	34.7		3.6
Green Ext Time (p_c), s	0.0	5.6		0.9	0.1	4.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	31.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	644	163	47	677	0	118	0	57	0	0	0
Future Volume (veh/h)	0	644	163	47	677	0	118	0	57	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	0	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	0	795	201	58	836	0	146	0	70	0	0	0
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	0	3	3	3	3	3	3
Cap, veh/h	3	995	846	116	1264	0	219	0	195	0	4	0
Arrive On Green	0.00	0.54	0.54	0.07	0.69	0.00	0.12	0.00	0.12	0.00	0.00	0.00
Sat Flow, veh/h	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Grp Volume(v), veh/h	0	795	201	58	836	0	146	0	70	0	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Q Serve(g_s), s	0.0	17.6	3.4	1.6	13.2	0.0	4.0	0.0	2.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	17.6	3.4	1.6	13.2	0.0	4.0	0.0	2.1	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	3	995	846	116	1264	0	219	0	195	0	4	0
V/C Ratio(X)	0.00	0.80	0.24	0.50	0.66	0.00	0.67	0.00	0.36	0.00	0.00	0.00
Avail Cap(c_a), veh/h	226	1807	1536	226	1807	0	627	0	560	0	677	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	9.4	6.1	22.7	4.6	0.0	21.1	0.0	20.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.5	0.1	3.3	0.6	0.0	3.5	0.0	1.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.3	1.5	0.9	6.7	0.0	2.2	0.0	1.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	10.9	6.3	26.0	5.2	0.0	24.5	0.0	21.3	0.0	0.0	0.0
LnGrp LOS		B	A	C	A		C		C			
Approach Vol, veh/h		996			894			216			0	
Approach Delay, s/veh		10.0			6.5			23.5			0.0	
Approach LOS		A			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.3	32.2		0.0	0.0	39.5		10.9
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.6
Max Green Setting (Gmax), s	6.5	49.4		18.5	6.5	49.4		18.0
Max Q Clear Time (g_c+I1), s	3.6	19.6		0.0	0.0	15.2		6.0
Green Ext Time (p_c), s	0.0	7.6		0.0	0.0	7.6		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	9.9
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	44	83	66	71	143	72	89	58	91	66	4
Future Vol, veh/h	2	44	83	66	71	143	72	89	58	91	66	4
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	51	95	76	82	164	83	102	67	105	76	5
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.9	10.5	13.3	12.4
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	33%	100%	0%	0%	100%	0%	0%	57%
Vol Thru, %	41%	0%	100%	15%	0%	100%	14%	41%
Vol Right, %	26%	0%	0%	85%	0%	0%	86%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	219	2	29	98	66	47	167	161
LT Vol	72	2	0	0	66	0	0	91
Through Vol	89	0	29	15	0	47	24	66
RT Vol	58	0	0	83	0	0	143	4
Lane Flow Rate	252	2	34	112	76	54	192	185
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.425	0.004	0.061	0.183	0.141	0.094	0.297	0.332
Departure Headway (Hd)	6.077	6.983	6.471	5.862	6.709	6.199	5.586	6.459
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	592	511	552	610	534	577	642	555
Service Time	3.822	4.74	4.228	3.619	4.459	3.948	3.335	4.208
HCM Lane V/C Ratio	0.426	0.004	0.062	0.184	0.142	0.094	0.299	0.333
HCM Control Delay	13.3	9.8	9.7	9.9	10.6	9.6	10.7	12.4
HCM Lane LOS	B	A	A	A	B	A	B	B
HCM 95th-tile Q	2.1	0	0.2	0.7	0.5	0.3	1.2	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	253	1691	1018	90	113	185
Future Volume (veh/h)	253	1691	1018	90	113	185
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	275	1838	1107	98	123	201
Adj No. of Lanes	2	3	3	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	404	3141	2079	184	299	267
Arrive On Green	0.12	0.62	0.44	0.44	0.17	0.17
Sat Flow, veh/h	3408	5202	4878	417	1757	1568
Grp Volume(v), veh/h	275	1838	789	416	123	201
Grp Sat Flow(s),veh/h/ln	1704	1679	1679	1771	1757	1568
Q Serve(g_s), s	4.8	13.5	10.7	10.7	3.9	7.6
Cycle Q Clear(g_c), s	4.8	13.5	10.7	10.7	3.9	7.6
Prop In Lane	1.00			0.24	1.00	1.00
Lane Grp Cap(c), veh/h	404	3141	1481	782	299	267
V/C Ratio(X)	0.68	0.59	0.53	0.53	0.41	0.75
Avail Cap(c_a), veh/h	871	5239	2420	1276	1179	1052
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	7.0	12.8	12.8	23.2	24.7
Incr Delay (d2), s/veh	2.0	0.2	0.3	0.6	0.9	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	6.2	5.0	5.3	2.0	6.7
LnGrp Delay(d),s/veh	28.5	7.2	13.1	13.3	24.1	29.0
LnGrp LOS	C	A	B	B	C	C
Approach Vol, veh/h		2113	1205		324	
Approach Delay, s/veh		9.9	13.2		27.1	
Approach LOS		A	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		45.8		16.7	11.4	34.4		
Change Period (Y+Rc), s		6.8		6.1	4.0	6.8		
Max Green Setting (Gmax), s		65.1		42.0	16.0	45.1		
Max Q Clear Time (g_c+I1), s		15.5		9.6	6.8	12.7		
Green Ext Time (p_c), s		23.5		1.1	0.6	10.2		

Intersection Summary	
HCM 2010 Ctrl Delay	12.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	460	1139	302	123	677	113	170	375	134	86	343	291
Future Volume (veh/h)	460	1139	302	123	677	113	170	375	134	86	343	291
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	523	1294	343	140	769	128	193	426	152	98	390	217
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	394	1493	668	168	1042	466	181	549	194	123	641	287
Arrive On Green	0.22	0.43	0.43	0.10	0.30	0.30	0.10	0.22	0.22	0.07	0.18	0.18
Sat Flow, veh/h	1757	3505	1568	1757	3505	1568	1757	2541	898	1757	3505	1568
Grp Volume(v), veh/h	523	1294	343	140	769	128	193	293	285	98	390	217
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1568	1757	1752	1686	1757	1752	1568
Q Serve(g_s), s	24.0	35.9	17.2	8.4	21.1	6.7	11.0	16.8	17.1	5.9	10.9	14.0
Cycle Q Clear(g_c), s	24.0	35.9	17.2	8.4	21.1	6.7	11.0	16.8	17.1	5.9	10.9	14.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	394	1493	668	168	1042	466	181	378	364	123	641	287
V/C Ratio(X)	1.33	0.87	0.51	0.83	0.74	0.27	1.07	0.77	0.78	0.80	0.61	0.76
Avail Cap(c_a), veh/h	394	1619	724	177	1173	525	181	770	741	141	1475	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	27.9	22.5	47.5	33.8	28.8	48.0	39.5	39.6	49.0	40.2	41.4
Incr Delay (d2), s/veh	163.6	5.0	0.6	26.5	2.2	0.3	86.2	3.4	3.7	24.0	0.9	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.5	18.3	7.5	5.3	10.6	2.9	9.6	8.5	8.3	3.7	5.4	6.4
LnGrp Delay(d),s/veh	205.1	32.9	23.2	74.0	36.0	29.1	134.2	42.8	43.3	73.0	41.1	45.5
LnGrp LOS	F	C	C	E	D	C	F	D	D	E	D	D
Approach Vol, veh/h		2160			1037			771			705	
Approach Delay, s/veh		73.0			40.3			65.9			46.9	
Approach LOS		E			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.2	52.4	15.0	25.4	28.0	38.6	11.5	28.9
Change Period (Y+Rc), s	4.0	* 6.8	4.0	* 5.8	4.0	6.8	4.0	5.8
Max Green Setting (Gmax), s	10.8	* 49	11.0	* 45	24.0	35.8	8.6	47.0
Max Q Clear Time (g_c+I1), s	10.4	37.9	13.0	16.0	26.0	23.1	7.9	19.1
Green Ext Time (p_c), s	0.0	7.6	0.0	3.5	0.0	4.7	0.0	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	60.7
HCM 2010 LOS	E

Notes

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	0	21	15	0	56
Future Vol, veh/h	37	0	21	15	0	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	9	9	9	9	9
Mvmt Flow	40	0	23	16	0	61

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	92	31	0	0	39	0
Stage 1	31	-	-	-	-	-
Stage 2	61	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.19	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.281	-
Pot Cap-1 Maneuver	891	1023	-	-	1527	-
Stage 1	974	-	-	-	-	-
Stage 2	944	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	891	1023	-	-	1527	-
Mov Cap-2 Maneuver	891	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	944	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	891	1527	-
HCM Lane V/C Ratio	-	-	0.045	-	-
HCM Control Delay (s)	-	-	9.2	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	27	187	11	10	420
Future Vol, veh/h	30	27	187	11	10	420
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	9	9	9	9	9
Mvmt Flow	33	29	203	12	11	457

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	688	209	0	0	215	0
Stage 1	209	-	-	-	-	-
Stage 2	479	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.19	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.281	-
Pot Cap-1 Maneuver	402	814	-	-	1314	-
Stage 1	810	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	398	814	-	-	1314	-
Mov Cap-2 Maneuver	398	-	-	-	-	-
Stage 1	810	-	-	-	-	-
Stage 2	602	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	525	1314	-
HCM Lane V/C Ratio	-	-	0.118	0.008	-
HCM Control Delay (s)	-	-	12.8	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	40	95	71	34	57	92	375	13	75	420	63
Future Volume (veh/h)	67	40	95	71	34	57	92	375	13	75	420	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	58	64	103	77	37	62	100	408	14	82	457	68
Adj No. of Lanes	1	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	202	212	180	133	64	173	129	922	32	104	773	114
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.07	0.27	0.27	0.06	0.25	0.25
Sat Flow, veh/h	1757	1845	1568	1205	579	1568	1757	3458	118	1757	3064	453
Grp Volume(v), veh/h	58	64	103	114	0	62	100	206	216	82	260	265
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1784	0	1568	1757	1752	1824	1757	1752	1765
Q Serve(g_s), s	1.3	1.4	2.7	2.6	0.0	1.6	2.4	4.3	4.3	2.0	5.7	5.7
Cycle Q Clear(g_c), s	1.3	1.4	2.7	2.6	0.0	1.6	2.4	4.3	4.3	2.0	5.7	5.7
Prop In Lane	1.00		1.00	0.68		1.00	1.00		0.06	1.00		0.26
Lane Grp Cap(c), veh/h	202	212	180	197	0	173	129	467	486	104	442	445
V/C Ratio(X)	0.29	0.30	0.57	0.58	0.00	0.36	0.77	0.44	0.44	0.79	0.59	0.59
Avail Cap(c_a), veh/h	704	739	628	1233	0	1084	526	1255	1307	486	1215	1224
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.6	17.6	18.2	18.4	0.0	17.9	19.8	13.2	13.2	20.2	14.3	14.3
Incr Delay (d2), s/veh	0.8	0.8	2.9	2.7	0.0	1.3	9.4	0.7	0.6	12.4	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.7	1.3	1.4	0.0	0.7	1.5	2.1	2.2	1.3	2.8	3.0
LnGrp Delay(d),s/veh	18.4	18.4	21.1	21.0	0.0	19.1	29.2	13.9	13.9	32.5	15.5	15.5
LnGrp LOS	B	B	C	C		B	C	B	B	C	B	B
Approach Vol, veh/h		225			176			522			607	
Approach Delay, s/veh		19.6			20.4			16.8			17.8	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	18.0		10.1	7.2	17.4		8.8
Change Period (Y+Rc), s	4.0	6.4		5.1	4.0	6.4		4.0
Max Green Setting (Gmax), s	12.0	31.1		17.4	13.0	30.1		30.0
Max Q Clear Time (g_c+I1), s	4.0	6.3		4.7	4.4	7.7		4.6
Green Ext Time (p_c), s	0.1	2.5		0.6	0.1	3.2		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	18.0
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	928	43	14	738	4	34	1	14	15	3	49
Future Volume (veh/h)	27	928	43	14	738	4	34	1	14	15	3	49
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	29	987	46	15	785	4	36	1	15	16	3	52
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1095	51	32	1125	6	54	2	23	20	4	67
Arrive On Green	0.03	0.63	0.63	0.02	0.61	0.61	0.05	0.05	0.05	0.06	0.06	0.06
Sat Flow, veh/h	1757	1749	82	1757	1834	9	1176	33	490	364	68	1185
Grp Volume(v), veh/h	29	0	1033	15	0	789	52	0	0	71	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1830	1757	0	1843	1699	0	0	1617	0	0
Q Serve(g_s), s	1.1	0.0	33.1	0.6	0.0	19.8	2.1	0.0	0.0	3.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	0.0	33.1	0.6	0.0	19.8	2.1	0.0	0.0	3.0	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.01	0.69		0.29	0.23		0.73
Lane Grp Cap(c), veh/h	54	0	1146	32	0	1131	78	0	0	91	0	0
V/C Ratio(X)	0.53	0.00	0.90	0.47	0.00	0.70	0.67	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	142	0	1359	142	0	1369	448	0	0	438	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	32.6	0.0	10.9	33.2	0.0	8.9	32.1	0.0	0.0	31.8	0.0	0.0
Incr Delay (d2), s/veh	7.9	0.0	7.6	10.4	0.0	1.2	9.4	0.0	0.0	13.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	18.8	0.4	0.0	10.2	1.2	0.0	0.0	1.7	0.0	0.0
LnGrp Delay(d),s/veh	40.4	0.0	18.6	43.6	0.0	10.1	41.4	0.0	0.0	45.2	0.0	0.0
LnGrp LOS	D		B	D		B	D			D		
Approach Vol, veh/h		1062			804			52			71	
Approach Delay, s/veh		19.2			10.8			41.4			45.2	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	47.5		7.8	6.1	46.6		7.7
Change Period (Y+Rc), s	4.0	* 4.7		4.0	4.0	* 4.7		4.6
Max Green Setting (Gmax), s	5.5	* 51		18.5	5.5	* 51		18.0
Max Q Clear Time (g_c+I1), s	2.6	35.1		5.0	3.1	21.8		4.1
Green Ext Time (p_c), s	0.0	7.7		0.2	0.0	6.6		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	23	871	120	33	736
Future Vol, veh/h	46	23	871	120	33	736
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	50	25	947	130	36	800

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1484	539	0	0	1077	0
Stage 1	1012	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	114	484	-	-	637	-
Stage 1	310	-	-	-	-	-
Stage 2	591	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	108	484	-	-	637	-
Mov Cap-2 Maneuver	108	-	-	-	-	-
Stage 1	310	-	-	-	-	-
Stage 2	557	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	53.2	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	146	637	-
HCM Lane V/C Ratio	-	-	0.514	0.056	-
HCM Control Delay (s)	-	-	53.2	11	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	2.5	0.2	-

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	58	1796	1106	57	71	19
Future Volume (veh/h)	58	1796	1106	57	71	19
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	66	2041	1257	65	81	22
Adj No. of Lanes	1	3	3	0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	100	3891	3126	162	124	110
Arrive On Green	0.06	0.77	0.64	0.64	0.07	0.07
Sat Flow, veh/h	1757	5202	5070	254	1757	1568
Grp Volume(v), veh/h	66	2041	861	461	81	22
Grp Sat Flow(s),veh/h/ln	1757	1679	1679	1800	1757	1568
Q Serve(g_s), s	2.1	8.9	7.2	7.2	2.6	0.8
Cycle Q Clear(g_c), s	2.1	8.9	7.2	7.2	2.6	0.8
Prop In Lane	1.00			0.14	1.00	1.00
Lane Grp Cap(c), veh/h	100	3891	2140	1147	124	110
V/C Ratio(X)	0.66	0.52	0.40	0.40	0.66	0.20
Avail Cap(c_a), veh/h	475	7511	3836	2057	782	698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	2.5	5.1	5.1	26.0	25.1
Incr Delay (d2), s/veh	7.3	0.1	0.1	0.2	5.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	4.0	3.3	3.5	1.4	0.7
LnGrp Delay(d),s/veh	33.8	2.6	5.2	5.3	31.8	26.0
LnGrp LOS	C	A	A	A	C	C
Approach Vol, veh/h		2107	1322		103	
Approach Delay, s/veh		3.6	5.2		30.5	
Approach LOS		A	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				48.8		8.5	7.8	41.0
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				85.5		25.5	15.5	65.5
Max Q Clear Time (g_c+I1), s				10.9		4.6	4.1	9.2
Green Ext Time (p_c), s				33.4		0.2	0.1	13.1

Intersection Summary		
HCM 2010 Ctrl Delay		5.0
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	271	29	2	256	121	19	17	4	115	22	198
Future Volume (veh/h)	148	271	29	2	256	121	19	17	4	115	22	198
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	157	288	31	2	272	129	20	18	4	122	23	211
Adj No. of Lanes	2	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	384	667	72	6	353	167	51	424	91	165	373	334
Arrive On Green	0.11	0.41	0.41	0.00	0.30	0.30	0.03	0.15	0.15	0.09	0.21	0.21
Sat Flow, veh/h	3408	1637	176	1757	1184	562	1757	2872	616	1757	1752	1568
Grp Volume(v), veh/h	157	0	319	2	0	401	20	11	11	122	23	211
Grp Sat Flow(s),veh/h/ln	1704	0	1814	1757	0	1746	1757	1752	1736	1757	1752	1568
Q Serve(g_s), s	2.3	0.0	6.7	0.1	0.0	11.1	0.6	0.3	0.3	3.6	0.6	6.5
Cycle Q Clear(g_c), s	2.3	0.0	6.7	0.1	0.0	11.1	0.6	0.3	0.3	3.6	0.6	6.5
Prop In Lane	1.00		0.10	1.00		0.32	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	384	0	739	6	0	520	51	259	256	165	373	334
V/C Ratio(X)	0.41	0.00	0.43	0.35	0.00	0.77	0.39	0.04	0.04	0.74	0.06	0.63
Avail Cap(c_a), veh/h	1217	0	1782	218	0	1308	231	879	871	535	1172	1049
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.0	0.0	11.3	26.5	0.0	17.0	25.4	19.5	19.5	23.5	16.7	19.0
Incr Delay (d2), s/veh	0.7	0.0	0.4	32.2	0.0	2.5	4.9	0.1	0.1	6.3	0.1	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	3.4	0.1	0.0	5.7	0.4	0.1	0.1	2.0	0.3	3.0
LnGrp Delay(d),s/veh	22.7	0.0	11.7	58.7	0.0	19.5	30.3	19.5	19.5	29.7	16.8	21.0
LnGrp LOS	C		B	E		B	C	B	B	C	B	C
Approach Vol, veh/h		476			403			42			356	
Approach Delay, s/veh		15.3			19.7			24.7			23.7	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	13.3	4.2	26.8	5.5	16.7	10.0	21.0
Change Period (Y+Rc), s	4.0	* 5.4	4.0	5.1	4.0	5.4	4.0	5.1
Max Green Setting (Gmax), s	16.2	* 27	6.6	52.3	7.0	35.6	19.0	39.9
Max Q Clear Time (g_c+I1), s	5.6	2.3	2.1	8.7	2.6	8.5	4.3	13.1
Green Ext Time (p_c), s	0.2	0.1	0.0	2.1	0.0	1.5	0.4	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	19.4
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	223	28	24	316	57	19
Future Vol, veh/h	223	28	24	316	57	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	256	32	28	363	66	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	288	0	691	272
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	419	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1268	-	409	764
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	661	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1268	-	400	764
Mov Cap-2 Maneuver	-	-	-	-	400	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	646	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	14.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	454	-	-	1268	-
HCM Lane V/C Ratio	0.192	-	-	0.022	-
HCM Control Delay (s)	14.8	-	-	7.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	244	358	4	0	1
Future Vol, veh/h	1	244	358	4	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	271	398	4	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	402	0	-	0	673	400
Stage 1	-	-	-	-	400	-
Stage 2	-	-	-	-	273	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1151	-	-	-	419	648
Stage 1	-	-	-	-	675	-
Stage 2	-	-	-	-	771	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1151	-	-	-	419	648
Mov Cap-2 Maneuver	-	-	-	-	419	-
Stage 1	-	-	-	-	674	-
Stage 2	-	-	-	-	771	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1151	-	-	-	648
HCM Lane V/C Ratio	0.001	-	-	-	0.002
HCM Control Delay (s)	8.1	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	162	102	14	311	0	0	0	0	31	0	71
Future Vol, veh/h	0	162	102	14	311	0	0	0	0	31	0	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	75	-	-	-	-	-	-	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	165	104	14	317	0	0	0	0	32	0	72

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	269	0	0				562	614	159
Stage 1	-	-	-	-	-	-				345	345	-
Stage 2	-	-	-	-	-	-				217	269	-
Critical Hdwy	-	-	-	4.145	-	-				6.645	6.545	6.945
Critical Hdwy Stg 1	-	-	-	-	-	-				5.845	5.545	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.445	5.545	-
Follow-up Hdwy	-	-	-	2.2285	-	-				3.5285	4.0285	3.3285
Pot Cap-1 Maneuver	0	-	-	1287	-	0				470	405	856
Stage 1	0	-	-	-	-	0				687	633	-
Stage 2	0	-	-	-	-	0				816	684	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1287	-	-				465	0	856
Mov Cap-2 Maneuver	-	-	-	-	-	-				465	0	-
Stage 1	-	-	-	-	-	-				687	0	-
Stage 2	-	-	-	-	-	-				807	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.3	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1287	-	465	856
HCM Lane V/C Ratio	-	-	0.011	-	0.068	0.085
HCM Control Delay (s)	-	-	7.8	-	13.3	9.6
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0	-	0.2	0.3

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	171	0	0	227	44	121	0	25	0	0	0
Future Vol, veh/h	24	171	0	0	227	44	121	0	25	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	75	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	28	201	0	0	267	52	142	0	29	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	319	0	-	-	-	0	391	576	101
Stage 1	-	-	-	-	-	-	257	257	-
Stage 2	-	-	-	-	-	-	134	319	-
Critical Hdwy	4.16	-	-	-	-	-	6.86	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.86	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	5.56	-
Follow-up Hdwy	2.23	-	-	-	-	-	3.53	4.03	3.33
Pot Cap-1 Maneuver	1231	-	0	0	-	-	583	424	932
Stage 1	-	-	0	0	-	-	759	691	-
Stage 2	-	-	0	0	-	-	875	649	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1231	-	-	-	-	-	570	0	932
Mov Cap-2 Maneuver	-	-	-	-	-	-	570	0	-
Stage 1	-	-	-	-	-	-	742	0	-
Stage 2	-	-	-	-	-	-	875	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	570	932	1231	-	-	-
HCM Lane V/C Ratio	0.25	0.032	0.023	-	-	-
HCM Control Delay (s)	13.4	9	8	-	-	-
HCM Lane LOS	B	A	A	-	-	-
HCM 95th %tile Q(veh)	1	0.1	0.1	-	-	-

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	1	179	0	1	0	278	110	1	0	58	45
Future Vol, veh/h	56	1	179	0	1	0	278	110	1	0	58	45
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	64	1	203	0	1	0	316	125	1	0	66	51
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	10.2	9	15.3	9
HCM LOS	B	A	C	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	71%	100%	0%	0%	0%
Vol Thru, %	28%	0%	1%	100%	56%
Vol Right, %	0%	0%	99%	0%	44%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	389	56	180	1	103
LT Vol	278	56	0	0	0
Through Vol	110	0	1	1	58
RT Vol	1	0	179	0	45
Lane Flow Rate	442	64	205	1	117
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.604	0.113	0.295	0.002	0.16
Departure Headway (Hd)	4.92	6.411	5.2	5.965	4.933
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	729	555	683	604	719
Service Time	2.983	4.199	2.987	3.965	3.022
HCM Lane V/C Ratio	0.606	0.115	0.3	0.002	0.163
HCM Control Delay	15.3	10	10.2	9	9
HCM Lane LOS	C	A	B	A	A
HCM 95th-tile Q	4.1	0.4	1.2	0	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	375	33	9	481	32	79	5	7	41	8	47
Future Volume (veh/h)	26	375	33	9	481	32	79	5	7	41	8	47
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	37	536	47	13	687	46	113	7	10	59	11	67
Adj No. of Lanes	1	2	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	66	1754	784	28	819	55	156	10	147	78	14	88
Arrive On Green	0.04	0.50	0.50	0.02	0.48	0.48	0.09	0.09	0.09	0.11	0.11	0.11
Sat Flow, veh/h	1757	3505	1568	1757	1710	114	1659	103	1568	717	134	814
Grp Volume(v), veh/h	37	536	47	13	0	733	120	0	10	137	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	0	1824	1762	0	1568	1665	0	0
Q Serve(g_s), s	1.3	5.8	1.0	0.5	0.0	22.4	4.2	0.0	0.4	5.1	0.0	0.0
Cycle Q Clear(g_c), s	1.3	5.8	1.0	0.5	0.0	22.4	4.2	0.0	0.4	5.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.06	0.94		1.00	0.43		0.49
Lane Grp Cap(c), veh/h	66	1754	784	28	0	874	166	0	147	180	0	0
V/C Ratio(X)	0.56	0.31	0.06	0.46	0.00	0.84	0.72	0.00	0.07	0.76	0.00	0.00
Avail Cap(c_a), veh/h	151	3311	1481	140	0	1712	503	0	448	471	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	30.3	9.4	8.2	31.2	0.0	14.5	28.2	0.0	26.4	27.7	0.0	0.0
Incr Delay (d2), s/veh	7.2	0.1	0.0	11.1	0.0	2.3	5.9	0.0	0.2	6.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.8	0.4	0.3	0.0	11.7	2.3	0.0	0.2	2.7	0.0	0.0
LnGrp Delay(d),s/veh	37.5	9.5	8.3	42.4	0.0	16.8	34.1	0.0	26.6	34.1	0.0	0.0
LnGrp LOS	D	A	A	D		B	C		C	C		
Approach Vol, veh/h		620			746			130			137	
Approach Delay, s/veh		11.1			17.2			33.5			34.1	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	36.5		11.4	6.9	35.2		10.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.1	60.5		18.1	5.5	60.1		18.3
Max Q Clear Time (g_c+I1), s	2.5	7.8		7.1	3.3	24.4		6.2
Green Ext Time (p_c), s	0.0	4.3		0.5	0.0	6.2		0.4

Intersection Summary		
HCM 2010 Ctrl Delay		17.6
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	302	169	851	485	52	13	7	110	19	28	13
Future Volume (veh/h)	20	302	169	851	485	52	13	7	110	19	28	13
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	23	351	197	990	564	60	15	8	128	22	33	15
Adj No. of Lanes	1	2	0	2	2	1	1	1	0	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	46	501	276	1218	1966	880	32	11	175	44	150	68
Arrive On Green	0.03	0.23	0.23	0.36	0.56	0.56	0.02	0.12	0.12	0.03	0.12	0.12
Sat Flow, veh/h	1757	2182	1203	3408	3505	1568	1757	93	1489	1757	1202	546
Grp Volume(v), veh/h	23	281	267	990	564	60	15	0	136	22	0	48
Grp Sat Flow(s),veh/h/ln	1757	1752	1632	1704	1752	1568	1757	0	1582	1757	0	1748
Q Serve(g_s), s	0.9	9.8	10.0	17.5	5.6	1.2	0.6	0.0	5.5	0.8	0.0	1.6
Cycle Q Clear(g_c), s	0.9	9.8	10.0	17.5	5.6	1.2	0.6	0.0	5.5	0.8	0.0	1.6
Prop In Lane	1.00		0.74	1.00		1.00	1.00		0.94	1.00		0.31
Lane Grp Cap(c), veh/h	46	403	375	1218	1966	880	32	0	186	44	0	218
V/C Ratio(X)	0.50	0.70	0.71	0.81	0.29	0.07	0.47	0.00	0.73	0.50	0.00	0.22
Avail Cap(c_a), veh/h	161	792	738	2431	3764	1684	145	0	440	156	0	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.0	23.5	23.6	19.4	7.6	6.7	32.4	0.0	28.4	32.0	0.0	26.2
Incr Delay (d2), s/veh	8.3	2.2	2.5	1.4	0.1	0.0	10.3	0.0	5.5	8.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.9	4.8	8.3	2.7	0.5	0.4	0.0	2.7	0.5	0.0	0.8
LnGrp Delay(d),s/veh	40.3	25.7	26.1	20.7	7.7	6.7	42.7	0.0	33.8	40.5	0.0	26.7
LnGrp LOS	D	C	C	C	A	A	D		C	D		C
Approach Vol, veh/h		571			1614			151			70	
Approach Delay, s/veh		26.5			15.7			34.7			31.1	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.3	19.8	5.7	12.8	6.2	41.9	6.2	12.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	47.5	30.1	5.5	18.9	6.1	71.5	5.9	18.5
Max Q Clear Time (g_c+I1), s	19.5	12.0	2.6	3.6	2.9	7.6	2.8	7.5
Green Ext Time (p_c), s	4.3	3.3	0.0	0.1	0.0	4.7	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	367	14	125	1236	152	599
Future Volume (veh/h)	367	14	125	1236	152	599
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1900	1743	1743	1743	1743
Adj Flow Rate, veh/h	437	17	149	1471	181	713
Adj No. of Lanes	3	0	1	3	1	2
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1541	60	192	2452	567	890
Arrive On Green	0.33	0.33	0.12	0.52	0.34	0.34
Sat Flow, veh/h	4859	182	1660	4916	1660	2608
Grp Volume(v), veh/h	294	160	149	1471	181	713
Grp Sat Flow(s),veh/h/ln	1586	1711	1660	1586	1660	1304
Q Serve(g_s), s	4.3	4.3	5.5	13.6	5.1	15.5
Cycle Q Clear(g_c), s	4.3	4.3	5.5	13.6	5.1	15.5
Prop In Lane		0.11	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1040	561	192	2452	567	890
V/C Ratio(X)	0.28	0.29	0.78	0.60	0.32	0.80
Avail Cap(c_a), veh/h	1796	969	728	5122	1152	1809
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	15.6	26.9	10.7	15.3	18.7
Incr Delay (d2), s/veh	0.1	0.3	6.6	0.2	0.3	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.1	2.8	5.9	2.4	5.8
LnGrp Delay(d),s/veh	15.8	15.9	33.5	10.9	15.6	20.5
LnGrp LOS	B	B	C	B	B	C
Approach Vol, veh/h	454			1620	894	
Approach Delay, s/veh	15.8			13.0	19.5	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.8	25.1				36.8		25.9
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	27.5	35.5				67.5		43.5
Max Q Clear Time (g_c+I1), s	7.5	6.3				15.6		17.5
Green Ext Time (p_c), s	0.4	3.1				16.7		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	15.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	821	108	77	1251	283	204	113	36	204	74	129
Future Volume (veh/h)	129	821	108	77	1251	283	204	113	36	204	74	129
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	147	933	123	88	1422	322	232	128	41	232	84	147
Adj No. of Lanes	1	3	0	1	3	1	2	1	0	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	145	1705	224	112	1811	564	346	174	56	334	234	199
Arrive On Green	0.09	0.40	0.40	0.07	0.38	0.38	0.11	0.14	0.14	0.10	0.13	0.13
Sat Flow, veh/h	1660	4257	559	1660	4759	1482	3221	1266	406	3221	1743	1482
Grp Volume(v), veh/h	147	694	362	88	1422	322	232	0	169	232	84	147
Grp Sat Flow(s),veh/h/ln	1660	1586	1644	1660	1586	1482	1610	0	1672	1610	1743	1482
Q Serve(g_s), s	6.5	12.5	12.6	3.9	19.6	12.8	5.2	0.0	7.2	5.2	3.3	7.1
Cycle Q Clear(g_c), s	6.5	12.5	12.6	3.9	19.6	12.8	5.2	0.0	7.2	5.2	3.3	7.1
Prop In Lane	1.00		0.34	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	145	1270	659	112	1811	564	346	0	230	334	234	199
V/C Ratio(X)	1.01	0.55	0.55	0.78	0.79	0.57	0.67	0.00	0.73	0.69	0.36	0.74
Avail Cap(c_a), veh/h	145	1314	681	145	1971	614	1905	0	989	741	401	341
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	17.1	17.1	34.1	20.3	18.2	31.9	0.0	30.8	32.2	29.3	31.0
Incr Delay (d2), s/veh	78.2	0.4	0.9	18.7	2.0	1.1	2.3	0.0	4.5	2.6	0.9	5.3
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	5.5	5.8	2.4	8.9	5.4	2.4	0.0	3.6	2.4	1.6	3.2
LnGrp Delay(d),s/veh	112.3	17.6	18.0	52.9	22.3	19.3	34.2	0.0	35.2	34.8	30.2	36.3
LnGrp LOS	F	B	B	D	C	B	C		D	C	C	D
Approach Vol, veh/h		1203			1832			401			463	
Approach Delay, s/veh		29.3			23.3			34.6			34.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	36.6	13.4	15.4	10.5	35.1	13.1	15.6
Change Period (Y+Rc), s	4.0	6.8	5.4	5.4	4.0	6.8	5.4	5.4
Max Green Setting (Gmax), s	6.5	30.8	44.0	17.1	6.5	30.8	17.1	44.0
Max Q Clear Time (g_c+I1), s	5.9	14.6	7.2	9.1	8.5	21.6	7.2	9.2
Green Ext Time (p_c), s	0.0	6.6	0.8	0.5	0.0	6.7	0.5	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	251	675	180	48	1132	367	270	386	106	60	141	128
Future Volume (veh/h)	251	675	180	48	1132	367	270	386	106	60	141	128
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1900	1743	1743	1900	1743	1743	1900
Adj Flow Rate, veh/h	273	734	196	52	1230	334	293	420	115	65	153	106
Adj No. of Lanes	1	3	1	1	3	0	1	2	0	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	280	2307	718	69	1331	361	317	668	181	120	203	132
Arrive On Green	0.17	0.48	0.48	0.04	0.36	0.36	0.19	0.26	0.26	0.04	0.11	0.11
Sat Flow, veh/h	1660	4759	1482	1660	3726	1011	1660	2577	699	3221	1924	1254
Grp Volume(v), veh/h	273	734	196	52	1047	517	293	269	266	65	130	129
Grp Sat Flow(s),veh/h/ln	1660	1586	1482	1660	1586	1565	1660	1656	1620	1610	1656	1522
Q Serve(g_s), s	19.4	11.1	9.3	3.7	37.5	37.5	20.5	17.0	17.3	2.3	9.0	9.8
Cycle Q Clear(g_c), s	19.4	11.1	9.3	3.7	37.5	37.5	20.5	17.0	17.3	2.3	9.0	9.8
Prop In Lane	1.00		1.00	1.00		0.65	1.00		0.43	1.00		0.82
Lane Grp Cap(c), veh/h	280	2307	718	69	1134	559	317	429	420	120	175	161
V/C Ratio(X)	0.97	0.32	0.27	0.75	0.92	0.92	0.93	0.63	0.63	0.54	0.75	0.80
Avail Cap(c_a), veh/h	280	2307	718	126	1152	568	323	488	478	166	252	231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	18.6	18.1	56.1	36.5	36.5	47.1	38.8	38.9	56.0	51.4	51.7
Incr Delay (d2), s/veh	46.3	0.1	0.2	15.2	12.2	20.9	31.2	2.0	2.3	3.8	6.9	12.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.5	4.9	3.9	2.0	18.4	19.5	12.2	8.0	8.0	1.1	4.5	4.6
LnGrp Delay(d),s/veh	95.2	18.7	18.3	71.4	48.7	57.4	78.3	40.8	41.1	59.8	58.3	63.7
LnGrp LOS	F	B	B	E	D	E	E	D	D	E	E	E
Approach Vol, veh/h		1203			1616			828			324	
Approach Delay, s/veh		36.0			52.2			54.2			60.8	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	63.4	27.1	17.0	26.0	48.3	8.9	35.2
Change Period (Y+Rc), s	6.0	6.0	4.5	4.5	6.0	6.0	4.5	4.5
Max Green Setting (Gmax), s	9.0	54.0	23.0	18.0	20.0	43.0	6.1	34.9
Max Q Clear Time (g_c+I1), s	5.7	13.1	22.5	11.8	21.4	39.5	4.3	19.3
Green Ext Time (p_c), s	0.0	6.9	0.0	0.7	0.0	2.8	0.0	3.0

Intersection Summary		
HCM 2010 Ctrl Delay		48.4
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	573	588	79	58	842	318	81	64	26	160	27	350
Future Volume (veh/h)	573	588	79	58	842	318	81	64	26	160	27	350
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	616	632	85	62	905	342	87	69	28	172	29	376
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	368	2133	664	84	1319	411	140	100	41	410	69	425
Arrive On Green	0.21	0.42	0.42	0.05	0.26	0.26	0.08	0.08	0.08	0.27	0.27	0.27
Sat Flow, veh/h	1757	5036	1568	1757	5036	1568	1757	1249	507	1514	255	1568
Grp Volume(v), veh/h	616	632	85	62	905	342	87	0	97	201	0	376
Grp Sat Flow(s),veh/h/ln	1757	1679	1568	1757	1679	1568	1757	0	1755	1769	0	1568
Q Serve(g_s), s	22.0	8.7	3.5	3.7	17.0	21.6	5.0	0.0	5.7	9.8	0.0	24.2
Cycle Q Clear(g_c), s	22.0	8.7	3.5	3.7	17.0	21.6	5.0	0.0	5.7	9.8	0.0	24.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	0.86		1.00
Lane Grp Cap(c), veh/h	368	2133	664	84	1319	411	140	0	140	479	0	425
V/C Ratio(X)	1.67	0.30	0.13	0.74	0.69	0.83	0.62	0.00	0.69	0.42	0.00	0.89
Avail Cap(c_a), veh/h	368	2133	664	199	1452	452	635	0	635	690	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.5	20.0	18.5	49.4	34.9	36.6	46.8	0.0	47.1	31.5	0.0	36.7
Incr Delay (d2), s/veh	315.2	0.1	0.1	11.9	1.2	11.7	4.4	0.0	5.9	0.6	0.0	10.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	42.8	4.1	1.5	2.1	8.0	10.6	2.6	0.0	3.0	4.9	0.0	11.7
LnGrp Delay(d),s/veh	356.8	20.0	18.5	61.3	36.1	48.3	51.2	0.0	53.0	32.1	0.0	47.5
LnGrp LOS	F	C	B	E	D	D	D		D	C		D
Approach Vol, veh/h		1333			1309			184			577	
Approach Delay, s/veh		175.6			40.5			52.1			42.1	
Approach LOS		F			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	50.5		33.1	26.0	33.5		12.4
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	11.9	40.4		* 41	22.0	30.3		38.0
Max Q Clear Time (g_c+I1), s	5.7	10.7		26.2	24.0	23.6		7.7
Green Ext Time (p_c), s	0.0	5.1		2.3	0.0	3.9		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	94.3
HCM 2010 LOS	F

Notes

Intersection	
Intersection Delay, s/veh	12.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	5	108	57	4	81	79	57	112	7	73	117	9
Future Vol, veh/h	5	108	57	4	81	79	57	112	7	73	117	9
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	7	146	77	5	109	107	77	151	9	99	158	12
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.8	11.5	12.3	12.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	3%	2%	37%
Vol Thru, %	64%	64%	49%	59%
Vol Right, %	4%	34%	48%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	170	164	199
LT Vol	57	5	4	73
Through Vol	112	108	81	117
RT Vol	7	57	79	9
Lane Flow Rate	238	230	222	269
Geometry Grp	1	1	1	1
Degree of Util (X)	0.379	0.358	0.341	0.425
Departure Headway (Hd)	5.744	5.605	5.536	5.694
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	623	639	645	629
Service Time	3.813	3.674	3.606	3.76
HCM Lane V/C Ratio	0.382	0.36	0.344	0.428
HCM Control Delay	12.3	11.8	11.5	12.9
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.8	1.6	1.5	2.1

Intersection	
Intersection Delay, s/veh	35.9
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	128	68	21	50	111	111	23	198	31	38	97	27
Future Vol, veh/h	128	68	21	50	111	111	23	198	31	38	97	27
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	197	105	32	77	171	171	35	305	48	58	149	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	31.3	43.8	40	22.3
HCM LOS	D	E	E	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	59%	18%	23%
Vol Thru, %	79%	31%	41%	60%
Vol Right, %	12%	10%	41%	17%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	252	217	272	162
LT Vol	23	128	50	38
Through Vol	198	68	111	97
RT Vol	31	21	111	27
Lane Flow Rate	388	334	418	249
Geometry Grp	1	1	1	1
Degree of Util (X)	0.838	0.745	0.874	0.577
Departure Headway (Hd)	7.784	8.037	7.52	8.336
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	465	447	481	431
Service Time	5.867	6.127	5.602	6.433
HCM Lane V/C Ratio	0.834	0.747	0.869	0.578
HCM Control Delay	40	31.3	43.8	22.3
HCM Lane LOS	E	D	E	C
HCM 95th-tile Q	8.2	6.1	9.3	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	665	317	241	694	24	326	31	213	17	41	31
Future Volume (veh/h)	30	665	317	241	694	24	326	31	213	17	41	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	37	821	0	298	857	30	402	38	263	21	51	38
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	0	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	50	1031	461	341	1590	56	670	363	308	33	81	99
Arrive On Green	0.03	0.29	0.00	0.19	0.46	0.46	0.20	0.20	0.20	0.06	0.06	0.06
Sat Flow, veh/h	1757	3505	1568	1757	3455	121	3408	1845	1568	530	1288	1568
Grp Volume(v), veh/h	37	821	0	298	435	452	402	38	263	72	0	38
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1823	1704	1845	1568	1818	0	1568
Q Serve(g_s), s	1.6	17.0	0.0	12.9	14.0	14.0	8.4	1.3	12.7	3.0	0.0	1.8
Cycle Q Clear(g_c), s	1.6	17.0	0.0	12.9	14.0	14.0	8.4	1.3	12.7	3.0	0.0	1.8
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	0.29		1.00
Lane Grp Cap(c), veh/h	50	1031	461	341	806	839	670	363	308	114	0	99
V/C Ratio(X)	0.75	0.80	0.00	0.87	0.54	0.54	0.60	0.10	0.85	0.63	0.00	0.38
Avail Cap(c_a), veh/h	148	1315	588	425	925	963	741	401	341	578	0	499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.9	25.6	0.0	30.7	15.2	15.2	28.8	25.9	30.5	35.9	0.0	35.4
Incr Delay (d2), s/veh	19.7	2.7	0.0	15.3	0.6	0.5	1.1	0.1	17.2	5.6	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	8.6	0.0	7.7	6.9	7.2	4.1	0.7	7.0	1.7	0.0	0.9
LnGrp Delay(d),s/veh	57.6	28.3	0.0	46.0	15.8	15.8	29.9	26.0	47.7	41.5	0.0	37.8
LnGrp LOS	E	C		D	B	B	C	C	D	D		D
Approach Vol, veh/h		858			1185			703			110	
Approach Delay, s/veh		29.6			23.4			36.3			40.2	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.3	28.9		9.6	6.2	42.0		20.9
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	19.0	* 30		25.0	6.6	41.5		17.1
Max Q Clear Time (g_c+I1), s	14.9	19.0		5.0	3.6	16.0		14.7
Green Ext Time (p_c), s	0.4	4.1		0.4	0.0	6.2		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	29.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	645	27	7	724	99	25	14	3	267	0	151
Future Volume (veh/h)	160	645	27	7	724	99	25	14	3	267	0	151
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	174	701	29	8	787	108	27	15	3	290	0	164
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	183	1065	905	14	764	105	54	30	6	322	0	287
Arrive On Green	0.10	0.58	0.58	0.01	0.48	0.48	0.05	0.05	0.05	0.18	0.00	0.18
Sat Flow, veh/h	1757	1845	1568	1757	1588	218	1062	590	118	1757	0	1568
Grp Volume(v), veh/h	174	701	29	8	0	895	45	0	0	290	0	164
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1806	1771	0	0	1757	0	1568
Q Serve(g_s), s	9.5	24.9	0.8	0.4	0.0	46.3	2.4	0.0	0.0	15.5	0.0	9.2
Cycle Q Clear(g_c), s	9.5	24.9	0.8	0.4	0.0	46.3	2.4	0.0	0.0	15.5	0.0	9.2
Prop In Lane	1.00		1.00	1.00		0.12	0.60		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	183	1065	905	14	0	869	90	0	0	322	0	287
V/C Ratio(X)	0.95	0.66	0.03	0.57	0.00	1.03	0.50	0.00	0.00	0.90	0.00	0.57
Avail Cap(c_a), veh/h	183	1065	905	100	0	869	340	0	0	325	0	290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.9	13.9	8.8	47.6	0.0	25.0	44.5	0.0	0.0	38.5	0.0	35.9
Incr Delay (d2), s/veh	52.8	1.5	0.0	31.4	0.0	38.4	4.2	0.0	0.0	26.7	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	13.1	0.3	0.3	0.0	32.2	1.3	0.0	0.0	9.9	0.0	4.2
LnGrp Delay(d),s/veh	95.7	15.4	8.8	79.0	0.0	63.3	48.7	0.0	0.0	65.1	0.0	38.5
LnGrp LOS	F	B	A	E		F	D			E		D
Approach Vol, veh/h		904			903			45			454	
Approach Delay, s/veh		30.6			63.4			48.7			55.5	
Approach LOS		C			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	60.2		22.3	14.0	51.0		8.9
Change Period (Y+Rc), s	4.0	* 4.7		* 4.7	4.0	* 4.7		4.0
Max Green Setting (Gmax), s	5.5	* 51		* 18	10.0	* 46		18.5
Max Q Clear Time (g_c+I1), s	2.4	26.9		17.5	11.5	48.3		4.4
Green Ext Time (p_c), s	0.0	5.4		0.1	0.0	0.0		0.1

Intersection Summary		
HCM 2010 Ctrl Delay		48.7
HCM 2010 LOS		D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	681	168	28	775	0	129	0	63	0	0	0
Future Volume (veh/h)	0	681	168	28	775	0	129	0	63	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	0	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	0	841	207	35	957	0	159	0	78	0	0	0
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	0	3	3	3	3	3	3
Cap, veh/h	3	1036	881	80	1261	0	233	0	208	0	4	0
Arrive On Green	0.00	0.56	0.56	0.05	0.68	0.00	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Grp Volume(v), veh/h	0	841	207	35	957	0	159	0	78	0	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Q Serve(g_s), s	0.0	19.2	3.5	1.0	17.8	0.0	4.5	0.0	2.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	19.2	3.5	1.0	17.8	0.0	4.5	0.0	2.4	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	3	1036	881	80	1261	0	233	0	208	0	4	0
V/C Ratio(X)	0.00	0.81	0.24	0.44	0.76	0.00	0.68	0.00	0.37	0.00	0.00	0.00
Avail Cap(c_a), veh/h	218	1741	1479	218	1741	0	604	0	539	0	652	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	9.2	5.8	24.3	5.4	0.0	21.6	0.0	20.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.6	0.1	3.7	1.3	0.0	3.5	0.0	1.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.0	1.5	0.6	9.2	0.0	2.4	0.0	1.1	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	10.8	5.9	28.0	6.7	0.0	25.1	0.0	21.8	0.0	0.0	0.0
LnGrp LOS		B	A	C	A		C		C			
Approach Vol, veh/h		1048			992			237			0	
Approach Delay, s/veh		9.9			7.5			24.0			0.0	
Approach LOS		A			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	34.4		0.0	0.0	40.8		11.6				
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.6				
Max Green Setting (Gmax), s	6.5	49.4		18.5	6.5	49.4		18.0				
Max Q Clear Time (g_c+I1), s	3.0	21.2		0.0	0.0	19.8		6.5				
Green Ext Time (p_c), s	0.0	8.2		0.0	0.0	9.2		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			10.3									
HCM 2010 LOS			B									

Intersection	
Intersection Delay, s/veh	19.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	63	139	32	56	103	94	79	140	146	149	1
Future Vol, veh/h	2	63	139	32	56	103	94	79	140	146	149	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	75	165	38	67	123	112	94	167	174	177	1
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	13.3	12.2	22.9	24.2
HCM LOS	B	B	C	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	30%	100%	0%	0%	100%	0%	0%	49%
Vol Thru, %	25%	0%	100%	13%	0%	100%	15%	50%
Vol Right, %	45%	0%	0%	87%	0%	0%	85%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	313	2	42	160	32	37	122	296
LT Vol	94	2	0	0	32	0	0	146
Through Vol	79	0	42	21	0	37	19	149
RT Vol	140	0	0	139	0	0	103	1
Lane Flow Rate	373	2	50	190	38	44	145	352
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.688	0.005	0.106	0.37	0.087	0.095	0.284	0.691
Departure Headway (Hd)	6.648	8.14	7.62	6.988	8.186	7.666	7.049	7.056
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	544	439	469	514	437	466	508	511
Service Time	4.403	5.906	5.385	4.752	5.954	5.433	4.816	4.812
HCM Lane V/C Ratio	0.686	0.005	0.107	0.37	0.087	0.094	0.285	0.689
HCM Control Delay	22.9	10.9	11.3	13.8	11.7	11.2	12.6	24.2
HCM Lane LOS	C	B	B	B	B	B	B	C
HCM 95th-tile Q	5.3	0	0.4	1.7	0.3	0.3	1.2	5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	282	961	1524	232	72	245
Future Volume (veh/h)	282	961	1524	232	72	245
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	307	1045	1657	252	78	266
Adj No. of Lanes	2	3	3	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	389	3281	2168	328	351	313
Arrive On Green	0.11	0.65	0.49	0.49	0.20	0.20
Sat Flow, veh/h	3408	5202	4582	668	1757	1568
Grp Volume(v), veh/h	307	1045	1258	651	78	266
Grp Sat Flow(s),veh/h/ln	1704	1679	1679	1727	1757	1568
Q Serve(g_s), s	7.6	7.9	26.4	26.7	3.2	14.2
Cycle Q Clear(g_c), s	7.6	7.9	26.4	26.7	3.2	14.2
Prop In Lane	1.00			0.39	1.00	1.00
Lane Grp Cap(c), veh/h	389	3281	1649	848	351	313
V/C Ratio(X)	0.79	0.32	0.76	0.77	0.22	0.85
Avail Cap(c_a), veh/h	488	3784	1887	971	852	760
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	6.6	17.9	18.0	29.0	33.4
Incr Delay (d2), s/veh	6.7	0.1	1.7	3.3	0.3	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	3.6	12.4	13.4	1.6	12.0
LnGrp Delay(d),s/veh	44.1	6.7	19.6	21.3	29.4	39.8
LnGrp LOS	D	A	B	C	C	D
Approach Vol, veh/h		1352	1909		344	
Approach Delay, s/veh		15.2	20.2		37.5	
Approach LOS		B	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		63.2		23.4	13.9	49.3		
Change Period (Y+Rc), s		6.8		6.1	4.0	6.8		
Max Green Setting (Gmax), s		65.1		42.0	12.4	48.7		
Max Q Clear Time (g_c+I1), s		9.9		16.2	9.6	28.7		
Green Ext Time (p_c), s		9.9		1.1	0.3	13.9		

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	598	288	114	1083	269	315	357	61	128	530	422
Future Volume (veh/h)	209	598	288	114	1083	269	315	357	61	128	530	422
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	227	650	313	124	1177	292	342	388	66	139	576	276
Adj No. of Lanes	2	2	1	2	2	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	239	1305	584	176	1239	554	342	965	163	166	775	346
Arrive On Green	0.07	0.37	0.37	0.05	0.35	0.35	0.19	0.32	0.32	0.09	0.22	0.22
Sat Flow, veh/h	3408	3505	1568	3408	3505	1568	1757	3001	506	1757	3505	1568
Grp Volume(v), veh/h	227	650	313	124	1177	292	342	225	229	139	576	276
Grp Sat Flow(s),veh/h/ln	1704	1752	1568	1704	1752	1568	1757	1752	1755	1757	1752	1568
Q Serve(g_s), s	8.5	18.3	20.1	4.6	41.9	19.0	25.0	12.8	13.1	10.0	19.7	21.4
Cycle Q Clear(g_c), s	8.5	18.3	20.1	4.6	41.9	19.0	25.0	12.8	13.1	10.0	19.7	21.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	239	1305	584	176	1239	554	342	563	564	166	775	346
V/C Ratio(X)	0.95	0.50	0.54	0.71	0.95	0.53	1.00	0.40	0.41	0.84	0.74	0.80
Avail Cap(c_a), veh/h	239	1305	584	266	1251	559	342	672	673	279	1229	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.5	31.1	31.6	59.9	40.4	32.9	51.7	33.9	34.0	57.2	46.6	47.3
Incr Delay (d2), s/veh	44.3	0.3	1.0	5.1	15.0	0.9	48.5	0.5	0.5	10.6	1.4	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	8.9	8.8	2.3	22.8	8.3	16.7	6.3	6.4	5.4	9.7	9.7
LnGrp Delay(d),s/veh	103.8	31.3	32.6	65.0	55.3	33.8	100.2	34.4	34.4	67.8	48.0	51.5
LnGrp LOS	F	C	C	E	E	C	F	C	C	E	D	D
Approach Vol, veh/h		1190			1593			796			991	
Approach Delay, s/veh		45.5			52.2			62.7			51.8	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	54.6	29.0	34.2	13.0	52.2	16.1	47.1
Change Period (Y+Rc), s	4.0	* 6.8	4.0	* 5.8	4.0	6.8	4.0	5.8
Max Green Setting (Gmax), s	10.0	* 45	25.0	* 45	9.0	45.8	20.4	49.2
Max Q Clear Time (g_c+I1), s	6.6	22.1	27.0	23.4	10.5	43.9	12.0	15.1
Green Ext Time (p_c), s	0.1	5.9	0.0	5.0	0.0	1.4	0.2	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	52.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	6	73	20	17	40	128	398	15	31	437	101
Future Volume (veh/h)	59	6	73	20	17	40	128	398	15	31	437	101
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	74	0	85	23	20	47	149	463	17	36	508	117
Adj No. of Lanes	2	0	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	320	0	143	59	51	95	196	1271	47	57	820	188
Arrive On Green	0.09	0.00	0.09	0.06	0.06	0.06	0.11	0.37	0.37	0.03	0.29	0.29
Sat Flow, veh/h	3514	0	1568	961	836	1568	1757	3448	126	1757	2833	649
Grp Volume(v), veh/h	74	0	85	43	0	47	149	235	245	36	313	312
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1797	0	1568	1757	1752	1822	1757	1752	1730
Q Serve(g_s), s	0.9	0.0	2.3	1.0	0.0	1.3	3.6	4.3	4.3	0.9	6.7	6.8
Cycle Q Clear(g_c), s	0.9	0.0	2.3	1.0	0.0	1.3	3.6	4.3	4.3	0.9	6.7	6.8
Prop In Lane	1.00		1.00	0.53		1.00	1.00		0.07	1.00		0.38
Lane Grp Cap(c), veh/h	320	0	143	109	0	95	196	646	672	57	507	500
V/C Ratio(X)	0.23	0.00	0.60	0.39	0.00	0.49	0.76	0.36	0.36	0.63	0.62	0.62
Avail Cap(c_a), veh/h	1402	0	625	1236	0	1078	604	1470	1529	262	1129	1115
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.4	0.0	19.1	19.7	0.0	19.8	18.8	10.0	10.0	20.8	13.4	13.4
Incr Delay (d2), s/veh	0.4	0.0	3.9	2.3	0.0	3.9	5.9	0.3	0.3	11.0	1.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.1	0.6	0.0	0.7	2.1	2.1	2.2	0.6	3.4	3.4
LnGrp Delay(d),s/veh	18.8	0.0	23.0	22.0	0.0	23.7	24.7	10.4	10.4	31.8	14.6	14.7
LnGrp LOS	B		C	C		C	C	B	B	C	B	B
Approach Vol, veh/h		159			90			629			661	
Approach Delay, s/veh		21.0			22.9			13.8			15.6	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	22.5		9.1	8.9	19.0		6.7
Change Period (Y+Rc), s	4.0	6.4		5.1	4.0	6.4		4.0
Max Green Setting (Gmax), s	6.5	36.6		17.4	15.0	28.1		30.0
Max Q Clear Time (g_c+I1), s	2.9	6.3		4.3	5.6	8.8		3.3
Green Ext Time (p_c), s	0.0	3.1		0.4	0.2	3.8		0.3

Intersection Summary			
HCM 2010 Ctrl Delay			15.8
HCM 2010 LOS			B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	829	126	19	830	4	76	2	18	5	1	10
Future Volume (veh/h)	33	829	126	19	830	4	76	2	18	5	1	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	37	921	140	21	922	4	84	2	20	6	1	11
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	64	994	151	42	1143	5	111	3	27	11	2	21
Arrive On Green	0.04	0.64	0.64	0.02	0.62	0.62	0.08	0.08	0.08	0.02	0.02	0.02
Sat Flow, veh/h	1757	1565	238	1757	1835	8	1362	32	324	547	91	1002
Grp Volume(v), veh/h	37	0	1061	21	0	926	106	0	0	18	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1803	1757	0	1843	1719	0	0	1640	0	0
Q Serve(g_s), s	1.5	0.0	37.9	0.9	0.0	27.6	4.4	0.0	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.0	37.9	0.9	0.0	27.6	4.4	0.0	0.0	0.8	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.00	0.79		0.19	0.33		0.61
Lane Grp Cap(c), veh/h	64	0	1145	42	0	1148	141	0	0	34	0	0
V/C Ratio(X)	0.58	0.00	0.93	0.50	0.00	0.81	0.75	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	133	0	1258	133	0	1287	426	0	0	418	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	34.5	0.0	11.7	35.0	0.0	10.4	32.6	0.0	0.0	35.2	0.0	0.0
Incr Delay (d2), s/veh	8.1	0.0	11.2	9.0	0.0	3.5	7.9	0.0	0.0	11.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	21.8	0.5	0.0	15.0	2.4	0.0	0.0	0.5	0.0	0.0
LnGrp Delay(d),s/veh	42.6	0.0	22.9	44.1	0.0	13.9	40.6	0.0	0.0	47.0	0.0	0.0
LnGrp LOS	D		C	D		B	D			D		
Approach Vol, veh/h		1098			947			106			18	
Approach Delay, s/veh		23.6			14.6			40.6			47.0	
Approach LOS		C			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	50.8		5.5	6.6	49.9		10.5
Change Period (Y+Rc), s	4.0	* 4.7		4.0	4.0	* 4.7		4.6
Max Green Setting (Gmax), s	5.5	* 51		18.5	5.5	* 51		18.0
Max Q Clear Time (g_c+I1), s	2.9	39.9		2.8	3.5	29.6		6.4
Green Ext Time (p_c), s	0.0	6.3		0.0	0.0	7.6		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.7
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	86	24	539	49	15	991
Future Vol, veh/h	86	24	539	49	15	991
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	92	26	580	53	16	1066

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1172	317	0	0	633	0
Stage 1	607	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	184	676	-	-	939	-
Stage 1	504	-	-	-	-	-
Stage 2	530	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	181	676	-	-	939	-
Mov Cap-2 Maneuver	181	-	-	-	-	-
Stage 1	504	-	-	-	-	-
Stage 2	521	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	40.5	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	215	939	-
HCM Lane V/C Ratio	-	-	0.55	0.017	-
HCM Control Delay (s)	-	-	40.5	8.9	-
HCM Lane LOS	-	-	E	A	-
HCM 95th %tile Q(veh)	-	-	2.9	0.1	-

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	1009	1750	34	44	24
Future Volume (veh/h)	34	1009	1750	34	44	24
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	39	1147	1989	39	50	27
Adj No. of Lanes	1	3	3	0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	69	4013	3486	68	104	93
Arrive On Green	0.04	0.80	0.69	0.69	0.06	0.06
Sat Flow, veh/h	1757	5202	5251	100	1757	1568
Grp Volume(v), veh/h	39	1147	1313	715	50	27
Grp Sat Flow(s),veh/h/ln	1757	1679	1679	1827	1757	1568
Q Serve(g_s), s	1.4	3.7	12.6	12.6	1.7	1.0
Cycle Q Clear(g_c), s	1.4	3.7	12.6	12.6	1.7	1.0
Prop In Lane	1.00			0.05	1.00	1.00
Lane Grp Cap(c), veh/h	69	4013	2302	1253	104	93
V/C Ratio(X)	0.56	0.29	0.57	0.57	0.48	0.29
Avail Cap(c_a), veh/h	267	7134	4004	2179	633	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.5	1.7	5.1	5.1	28.5	28.1
Incr Delay (d2), s/veh	7.0	0.0	0.2	0.4	3.4	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.7	5.7	6.3	0.9	1.0
LnGrp Delay(d),s/veh	36.5	1.7	5.3	5.5	31.9	29.9
LnGrp LOS	D	A	A	A	C	C
Approach Vol, veh/h		1186	2028		77	
Approach Delay, s/veh		2.9	5.4		31.2	
Approach LOS		A	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				54.3		8.2	7.0	47.3
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				88.5		22.5	9.5	74.5
Max Q Clear Time (g_c+I1), s				5.7		3.7	3.4	14.6
Green Ext Time (p_c), s				11.6		0.2	0.0	28.2

Intersection Summary		
HCM 2010 Ctrl Delay		5.1
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	223	8	0	391	149	19	36	1	77	13	176
Future Volume (veh/h)	150	223	8	0	391	149	19	36	1	77	13	176
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	165	245	9	0	430	164	21	40	1	85	14	193
Adj No. of Lanes	2	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	329	998	37	3	514	196	52	446	11	131	302	271
Arrive On Green	0.10	0.56	0.56	0.00	0.40	0.40	0.03	0.13	0.13	0.07	0.17	0.17
Sat Flow, veh/h	3408	1768	65	1757	1273	486	1757	3495	87	1757	1752	1568
Grp Volume(v), veh/h	165	0	254	0	0	594	21	20	21	85	14	193
Grp Sat Flow(s),veh/h/ln	1704	0	1833	1757	0	1759	1757	1752	1829	1757	1752	1568
Q Serve(g_s), s	2.9	0.0	4.3	0.0	0.0	18.9	0.7	0.6	0.6	2.9	0.4	7.2
Cycle Q Clear(g_c), s	2.9	0.0	4.3	0.0	0.0	18.9	0.7	0.6	0.6	2.9	0.4	7.2
Prop In Lane	1.00		0.04	1.00		0.28	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	329	0	1035	3	0	710	52	224	233	131	302	271
V/C Ratio(X)	0.50	0.00	0.25	0.00	0.00	0.84	0.41	0.09	0.09	0.65	0.05	0.71
Avail Cap(c_a), veh/h	1021	0	1594	184	0	1187	187	810	846	357	971	869
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	0.0	6.8	0.0	0.0	16.7	29.6	23.9	23.9	28.0	21.4	24.2
Incr Delay (d2), s/veh	1.2	0.0	0.1	0.0	0.0	2.7	5.1	0.2	0.2	5.4	0.1	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.2	0.0	0.0	9.6	0.4	0.3	0.3	1.6	0.2	3.4
LnGrp Delay(d),s/veh	27.8	0.0	7.0	0.0	0.0	19.4	34.7	24.1	24.1	33.3	21.5	27.7
LnGrp LOS	C		A			B	C	C	C	C	C	C
Approach Vol, veh/h		419			594			62			292	
Approach Delay, s/veh		15.2			19.4			27.7			29.1	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	13.3	0.0	40.1	5.8	16.1	10.0	30.2
Change Period (Y+Rc), s	4.0	* 5.4	4.0	5.1	4.0	5.4	4.0	5.1
Max Green Setting (Gmax), s	12.6	* 29	6.5	54.0	6.6	34.4	18.6	41.9
Max Q Clear Time (g_c+I1), s	4.9	2.6	0.0	6.3	2.7	9.2	4.9	20.9
Green Ext Time (p_c), s	0.1	0.1	0.0	1.6	0.0	1.3	0.4	4.2

Intersection Summary		
HCM 2010 Ctrl Delay		20.5
HCM 2010 LOS		C

Notes

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	76	31	515	92	38	275
Future Volume (veh/h)	76	31	515	92	38	275
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	83	34	560	100	41	299
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	177	158	800	680	84	1145
Arrive On Green	0.10	0.10	0.43	0.43	0.05	0.62
Sat Flow, veh/h	1757	1568	1845	1568	1757	1845
Grp Volume(v), veh/h	83	34	560	100	41	299
Grp Sat Flow(s),veh/h/ln	1757	1568	1845	1568	1757	1845
Q Serve(g_s), s	1.4	0.6	8.0	1.2	0.7	2.4
Cycle Q Clear(g_c), s	1.4	0.6	8.0	1.2	0.7	2.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	177	158	800	680	84	1145
V/C Ratio(X)	0.47	0.22	0.70	0.15	0.49	0.26
Avail Cap(c_a), veh/h	1225	1093	4201	3570	572	5058
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.7	13.3	7.4	5.5	15.0	2.8
Incr Delay (d2), s/veh	1.9	0.7	1.1	0.1	4.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.3	4.1	0.5	0.5	1.2
LnGrp Delay(d),s/veh	15.6	14.0	8.6	5.6	19.4	2.9
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	117		660			340
Approach Delay, s/veh	15.2		8.1			4.9
Approach LOS	B		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.0	18.5				24.5		7.7
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	10.5	73.5				88.5		22.5
Max Q Clear Time (g_c+I1), s	2.7	10.0				4.4		3.4
Green Ext Time (p_c), s	0.0	4.0				1.7		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	7.9
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	351	50	17	155	30	8
Future Vol, veh/h	351	50	17	155	30	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	399	57	19	176	34	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	456	0	642	428
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	214	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1100	-	437	625
Stage 1	-	-	-	-	655	-
Stage 2	-	-	-	-	819	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1100	-	430	625
Mov Cap-2 Maneuver	-	-	-	-	430	-
Stage 1	-	-	-	-	655	-
Stage 2	-	-	-	-	805	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	460	-	-	1100	-
HCM Lane V/C Ratio	0.094	-	-	0.018	-
HCM Control Delay (s)	13.6	-	-	8.3	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	374	172	0	2	1
Future Vol, veh/h	0	374	172	0	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	430	198	0	2	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	198	0	-	0	628	198
Stage 1	-	-	-	-	198	-
Stage 2	-	-	-	-	430	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1369	-	-	-	445	841
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	654	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1369	-	-	-	445	841
Mov Cap-2 Maneuver	-	-	-	-	445	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	654	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1369	-	-	-	528
HCM Lane V/C Ratio	-	-	-	-	0.007
HCM Control Delay (s)	0	-	-	-	11.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	288	150	31	176	0	0	0	0	46	1	50
Future Vol, veh/h	0	288	150	31	176	0	0	0	0	46	1	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	75	-	-	-	-	-	-	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	320	167	34	196	0	0	0	0	51	1	56

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	487	0	0				668	751	98
Stage 1	-	-	-	-	-	-				264	264	-
Stage 2	-	-	-	-	-	-				404	487	-
Critical Hdwy	-	-	-	4.145	-	-				6.645	6.545	6.945
Critical Hdwy Stg 1	-	-	-	-	-	-				5.845	5.545	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.445	5.545	-
Follow-up Hdwy	-	-	-	2.2285	-	-				3.5285	4.0285	3.3285
Pot Cap-1 Maneuver	0	-	-	1068	-	0				405	337	936
Stage 1	0	-	-	-	-	0				754	687	-
Stage 2	0	-	-	-	-	0				671	547	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1068	-	-				392	0	936
Mov Cap-2 Maneuver	-	-	-	-	-	-				392	0	-
Stage 1	-	-	-	-	-	-				754	0	-
Stage 2	-	-	-	-	-	-				650	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.3	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1068	-	392	936
HCM Lane V/C Ratio	-	-	0.032	-	0.133	0.059
HCM Control Delay (s)	-	-	8.5	-	15.6	9.1
HCM Lane LOS	-	-	A	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	-	0.5	0.2

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	68	262	0	0	142	70	70	4	23	0	0	0
Future Vol, veh/h	68	262	0	0	142	70	70	4	23	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	75	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	76	294	0	0	160	79	79	4	26	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	239	0	-	-	-	0	526	685	147
Stage 1	-	-	-	-	-	-	446	446	-
Stage 2	-	-	-	-	-	-	80	239	-
Critical Hdwy	4.16	-	-	-	-	-	6.86	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.86	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	5.56	-
Follow-up Hdwy	2.23	-	-	-	-	-	3.53	4.03	3.33
Pot Cap-1 Maneuver	1318	-	0	0	-	-	479	367	870
Stage 1	-	-	0	0	-	-	609	570	-
Stage 2	-	-	0	0	-	-	931	704	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1318	-	-	-	-	-	451	0	870
Mov Cap-2 Maneuver	-	-	-	-	-	-	451	0	-
Stage 1	-	-	-	-	-	-	574	0	-
Stage 2	-	-	-	-	-	-	931	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.6	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	451	870	1318	-	-	-
HCM Lane V/C Ratio	0.184	0.03	0.058	-	-	-
HCM Control Delay (s)	14.8	9.3	7.9	-	-	-
HCM Lane LOS	B	A	A	-	-	-
HCM 95th %tile Q(veh)	0.7	0.1	0.2	-	-	-

Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	0	304	1	4	0	171	55	0	0	110	79
Future Vol, veh/h	31	0	304	1	4	0	171	55	0	0	110	79
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	36	0	349	1	5	0	197	63	0	0	126	91
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	12.6	9.1	12	10.5
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	76%	100%	0%	20%	0%
Vol Thru, %	24%	0%	0%	80%	58%
Vol Right, %	0%	0%	100%	0%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	226	31	304	5	189
LT Vol	171	31	0	1	0
Through Vol	55	0	0	4	110
RT Vol	0	0	304	0	79
Lane Flow Rate	260	36	349	6	217
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.393	0.063	0.5	0.01	0.31
Departure Headway (Hd)	5.452	6.369	5.155	6.019	5.135
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	660	566	702	594	700
Service Time	3.486	4.069	2.855	4.063	3.169
HCM Lane V/C Ratio	0.394	0.064	0.497	0.01	0.31
HCM Control Delay	12	9.5	12.9	9.1	10.5
HCM Lane LOS	B	A	B	A	B
HCM 95th-tile Q	1.9	0.2	2.8	0	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	505	50	6	404	31	57	5	7	53	26	53
Future Volume (veh/h)	51	505	50	6	404	31	57	5	7	53	26	53
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	54	532	53	6	425	33	60	5	7	56	27	56
Adj No. of Lanes	1	2	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	97	1371	613	14	581	45	109	9	105	77	37	77
Arrive On Green	0.06	0.39	0.39	0.01	0.34	0.34	0.07	0.07	0.07	0.11	0.11	0.11
Sat Flow, veh/h	1757	3505	1568	1757	1690	131	1628	136	1568	681	328	681
Grp Volume(v), veh/h	54	532	53	6	0	458	65	0	7	139	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	0	1821	1763	0	1568	1690	0	0
Q Serve(g_s), s	1.3	4.7	0.9	0.1	0.0	9.4	1.5	0.0	0.2	3.4	0.0	0.0
Cycle Q Clear(g_c), s	1.3	4.7	0.9	0.1	0.0	9.4	1.5	0.0	0.2	3.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.07	0.92		1.00	0.40		0.40
Lane Grp Cap(c), veh/h	97	1371	613	14	0	626	118	0	105	192	0	0
V/C Ratio(X)	0.56	0.39	0.09	0.42	0.00	0.73	0.55	0.00	0.07	0.73	0.00	0.00
Avail Cap(c_a), veh/h	431	4624	2069	226	0	2190	803	0	714	809	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.7	9.4	8.2	21.1	0.0	12.3	19.3	0.0	18.7	18.3	0.0	0.0
Incr Delay (d2), s/veh	4.9	0.2	0.1	18.9	0.0	1.7	3.9	0.0	0.3	5.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.3	0.4	0.1	0.0	5.0	0.9	0.0	0.1	1.9	0.0	0.0
LnGrp Delay(d),s/veh	24.6	9.5	8.3	40.1	0.0	14.0	23.3	0.0	19.0	23.5	0.0	0.0
LnGrp LOS	C	A	A	D		B	C		B	C		
Approach Vol, veh/h		639			464			72			139	
Approach Delay, s/veh		10.7			14.3			22.8			23.5	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	21.3		9.4	6.9	19.2		7.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.5	56.5		20.5	10.5	51.5		19.5
Max Q Clear Time (g_c+I1), s	2.1	6.7		5.4	3.3	11.4		3.5
Green Ext Time (p_c), s	0.0	4.3		0.6	0.0	3.3		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	466	166	544	394	45	33	14	143	34	39	19
Future Volume (veh/h)	18	466	166	544	394	45	33	14	143	34	39	19
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	20	507	180	591	428	49	36	15	155	37	42	21
Adj No. of Lanes	1	2	0	2	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	41	736	260	785	1739	778	66	20	211	67	170	85
Arrive On Green	0.02	0.29	0.29	0.23	0.50	0.50	0.04	0.15	0.15	0.04	0.15	0.15
Sat Flow, veh/h	1757	2541	898	3408	3505	1568	1757	140	1449	1757	1161	581
Grp Volume(v), veh/h	20	349	338	591	428	49	36	0	170	37	0	63
Grp Sat Flow(s),veh/h/ln	1757	1752	1686	1704	1752	1568	1757	0	1589	1757	0	1742
Q Serve(g_s), s	0.7	10.7	10.8	9.8	4.3	1.0	1.2	0.0	6.2	1.3	0.0	1.9
Cycle Q Clear(g_c), s	0.7	10.7	10.8	9.8	4.3	1.0	1.2	0.0	6.2	1.3	0.0	1.9
Prop In Lane	1.00		0.53	1.00		1.00	1.00		0.91	1.00		0.33
Lane Grp Cap(c), veh/h	41	507	488	785	1739	778	66	0	231	67	0	255
V/C Ratio(X)	0.48	0.69	0.69	0.75	0.25	0.06	0.55	0.00	0.73	0.55	0.00	0.25
Avail Cap(c_a), veh/h	188	1168	1124	1879	3894	1742	217	0	536	217	0	588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.3	19.1	19.2	21.8	8.8	8.0	28.7	0.0	24.8	28.7	0.0	23.0
Incr Delay (d2), s/veh	8.5	1.7	1.8	1.5	0.1	0.0	6.9	0.0	4.5	6.9	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.4	5.2	4.8	2.0	0.4	0.7	0.0	3.0	0.7	0.0	1.0
LnGrp Delay(d),s/veh	37.8	20.8	21.0	23.3	8.9	8.0	35.6	0.0	29.3	35.6	0.0	23.5
LnGrp LOS	D	C	C	C	A	A	D		C	D		C
Approach Vol, veh/h		707			1068			206			100	
Approach Delay, s/veh		21.4			16.8			30.4			27.9	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.5	22.1	6.8	13.4	5.9	34.7	6.8	13.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	33.5	40.5	7.5	20.5	6.5	67.5	7.5	20.5
Max Q Clear Time (g_c+I1), s	11.8	12.8	3.2	3.9	2.7	6.3	3.3	8.2
Green Ext Time (p_c), s	2.2	4.8	0.0	0.2	0.0	3.4	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	702	39	129	790	141	817
Future Volume (veh/h)	702	39	129	790	141	817
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1900	1743	1743	1743	1743
Adj Flow Rate, veh/h	867	48	159	975	174	1009
Adj No. of Lanes	3	0	1	3	1	2
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1256	69	197	2128	732	1149
Arrive On Green	0.27	0.27	0.12	0.45	0.44	0.44
Sat Flow, veh/h	4773	255	1660	4916	1660	2608
Grp Volume(v), veh/h	595	320	159	975	174	1009
Grp Sat Flow(s),veh/h/ln	1586	1698	1660	1586	1660	1304
Q Serve(g_s), s	13.5	13.5	7.5	11.4	5.3	28.3
Cycle Q Clear(g_c), s	13.5	13.5	7.5	11.4	5.3	28.3
Prop In Lane		0.15	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	864	462	197	2128	732	1149
V/C Ratio(X)	0.69	0.69	0.81	0.46	0.24	0.88
Avail Cap(c_a), veh/h	1443	773	466	3766	983	1544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	26.2	34.4	15.4	14.0	20.5
Incr Delay (d2), s/veh	1.0	1.9	7.5	0.2	0.2	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	6.5	3.9	5.0	2.5	10.8
LnGrp Delay(d),s/veh	27.1	28.0	42.0	15.6	14.2	25.2
LnGrp LOS	C	C	D	B	B	C
Approach Vol, veh/h	915			1134	1183	
Approach Delay, s/veh	27.5			19.3	23.6	
Approach LOS	C			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.0	26.3				40.4		39.9
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	22.5	36.5				63.5		47.5
Max Q Clear Time (g_c+I1), s	9.5	15.5				13.4		30.3
Green Ext Time (p_c), s	0.3	6.3				9.0		5.0

Intersection Summary	
HCM 2010 Ctrl Delay	23.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	1225	158	59	689	200	124	79	47	352	137	68
Future Volume (veh/h)	163	1225	158	59	689	200	124	79	47	352	137	68
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	173	1303	168	63	733	213	132	84	50	374	146	72
Adj No. of Lanes	1	3	0	1	3	1	2	1	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	158	1624	209	98	1639	510	263	120	71	482	323	274
Arrive On Green	0.10	0.38	0.38	0.06	0.34	0.34	0.08	0.12	0.12	0.15	0.19	0.19
Sat Flow, veh/h	1660	4268	550	1660	4759	1482	3221	1025	610	3221	1743	1482
Grp Volume(v), veh/h	173	969	502	63	733	213	132	0	134	374	146	72
Grp Sat Flow(s),veh/h/ln	1660	1586	1646	1660	1586	1482	1610	0	1635	1610	1743	1482
Q Serve(g_s), s	7.0	20.0	20.0	2.7	8.8	8.1	2.9	0.0	5.8	8.2	5.5	3.1
Cycle Q Clear(g_c), s	7.0	20.0	20.0	2.7	8.8	8.1	2.9	0.0	5.8	8.2	5.5	3.1
Prop In Lane	1.00		0.33	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	158	1207	626	98	1639	510	263	0	191	482	323	274
V/C Ratio(X)	1.09	0.80	0.80	0.64	0.45	0.42	0.50	0.00	0.70	0.78	0.45	0.26
Avail Cap(c_a), veh/h	158	1329	689	147	1961	610	1927	0	978	749	405	345
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	20.3	20.3	33.8	18.7	18.5	32.3	0.0	31.2	30.1	26.6	25.7
Incr Delay (d2), s/veh	99.2	3.4	6.3	6.8	0.2	0.5	1.5	0.0	4.6	2.7	1.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	9.3	10.2	1.4	3.8	3.3	1.3	0.0	2.8	3.8	2.7	1.3
LnGrp Delay(d),s/veh	132.5	23.7	26.6	40.7	18.9	19.0	33.8	0.0	35.8	32.8	27.6	26.2
LnGrp LOS	F	C	C	D	B	B	C		D	C	C	C
Approach Vol, veh/h		1644			1009			266			592	
Approach Delay, s/veh		36.0			20.3			34.8			30.7	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	34.8	11.4	19.0	11.0	32.1	16.4	14.0
Change Period (Y+Rc), s	4.0	6.8	5.4	5.4	4.0	6.8	5.4	5.4
Max Green Setting (Gmax), s	6.5	30.8	44.0	17.1	7.0	30.3	17.1	44.0
Max Q Clear Time (g_c+I1), s	4.7	22.0	4.9	7.5	9.0	10.8	10.2	7.8
Green Ext Time (p_c), s	0.0	6.0	0.5	0.7	0.0	5.9	0.8	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	30.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	346	1473	122	28	926	448	47	269	45	458	499	239
Future Volume (veh/h)	346	1473	122	28	926	448	47	269	45	458	499	239
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1900	1743	1743	1900	1743	1743	1900
Adj Flow Rate, veh/h	360	1534	127	29	965	405	49	280	47	477	520	218
Adj No. of Lanes	1	3	1	1	3	0	1	2	0	2	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	361	2400	747	51	1045	438	107	368	61	538	528	221
Arrive On Green	0.22	0.50	0.50	0.03	0.32	0.32	0.06	0.13	0.13	0.17	0.23	0.23
Sat Flow, veh/h	1660	4759	1482	1660	3291	1381	1660	2844	472	3221	2279	952
Grp Volume(v), veh/h	360	1534	127	29	930	440	49	162	165	477	377	361
Grp Sat Flow(s),veh/h/ln	1660	1586	1482	1660	1586	1499	1660	1656	1660	1610	1656	1575
Q Serve(g_s), s	26.9	29.3	5.8	2.1	35.2	35.2	3.5	11.7	12.0	18.0	28.2	28.4
Cycle Q Clear(g_c), s	26.9	29.3	5.8	2.1	35.2	35.2	3.5	11.7	12.0	18.0	28.2	28.4
Prop In Lane	1.00		1.00	1.00		0.92	1.00		0.28	1.00		0.60
Lane Grp Cap(c), veh/h	361	2400	747	51	1007	476	107	214	215	538	384	365
V/C Ratio(X)	1.00	0.64	0.17	0.57	0.92	0.92	0.46	0.76	0.77	0.89	0.98	0.99
Avail Cap(c_a), veh/h	361	2400	747	80	1026	485	240	303	303	625	384	365
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.6	22.5	16.7	59.4	40.9	40.9	56.0	52.2	52.3	50.6	47.5	47.6
Incr Delay (d2), s/veh	46.8	0.6	0.1	9.8	13.3	23.3	3.0	6.6	7.6	13.2	41.2	43.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.0	12.9	2.4	1.1	17.2	17.6	1.7	5.7	6.0	9.0	17.3	16.8
LnGrp Delay(d),s/veh	95.4	23.1	16.8	69.2	54.2	64.3	59.1	58.8	59.9	63.8	88.7	91.4
LnGrp LOS	F	C	B	E	D	E	E	E	E	E	F	F
Approach Vol, veh/h		2021			1399			376			1215	
Approach Delay, s/veh		35.6			57.7			59.3			79.7	
Approach LOS		D			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	68.7	12.5	33.3	33.0	45.5	25.2	20.6
Change Period (Y+Rc), s	6.0	6.0	4.5	4.5	6.0	6.0	4.5	4.5
Max Green Setting (Gmax), s	6.0	61.2	18.0	28.8	27.0	40.2	24.1	22.7
Max Q Clear Time (g_c+I1), s	4.1	31.3	5.5	30.4	28.9	37.2	20.0	14.0
Green Ext Time (p_c), s	0.0	15.1	0.1	0.0	0.0	2.3	0.7	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	54.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	351	1008	122	88	594	109	77	70	88	312	89	579
Future Volume (veh/h)	351	1008	122	88	594	109	77	70	88	312	89	579
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	369	1061	128	93	625	115	81	74	93	328	94	609
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	334	1480	461	117	857	267	218	93	116	489	140	555
Arrive On Green	0.19	0.29	0.29	0.07	0.17	0.17	0.12	0.12	0.12	0.35	0.35	0.35
Sat Flow, veh/h	1757	5036	1568	1757	5036	1568	1757	744	935	1380	396	1568
Grp Volume(v), veh/h	369	1061	128	93	625	115	81	0	167	422	0	609
Grp Sat Flow(s),veh/h/ln	1757	1679	1568	1757	1679	1568	1757	0	1680	1776	0	1568
Q Serve(g_s), s	22.0	21.8	7.3	6.0	13.6	7.6	4.9	0.0	11.2	23.3	0.0	41.0
Cycle Q Clear(g_c), s	22.0	21.8	7.3	6.0	13.6	7.6	4.9	0.0	11.2	23.3	0.0	41.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	0.78		1.00
Lane Grp Cap(c), veh/h	334	1480	461	117	857	267	218	0	209	629	0	555
V/C Ratio(X)	1.11	0.72	0.28	0.80	0.73	0.43	0.37	0.00	0.80	0.67	0.00	1.10
Avail Cap(c_a), veh/h	334	1778	554	173	1317	410	576	0	551	629	0	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.9	36.6	31.4	53.3	45.5	43.0	46.6	0.0	49.3	31.7	0.0	37.4
Incr Delay (d2), s/veh	80.8	1.1	0.3	14.4	1.2	1.1	1.0	0.0	6.9	2.8	0.0	67.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.1	10.3	3.2	3.4	6.4	3.4	2.4	0.0	5.6	11.9	0.0	28.1
LnGrp Delay(d),s/veh	127.7	37.7	31.8	67.7	46.7	44.1	47.6	0.0	56.2	34.5	0.0	104.9
LnGrp LOS	F	D	C	E	D	D	D		E	C		F
Approach Vol, veh/h		1558			833			248			1031	
Approach Delay, s/veh		58.5			48.7			53.4			76.1	
Approach LOS		E			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.7	40.0		45.7	26.0	25.7		18.4
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	11.4	40.9		* 41	22.0	30.3		38.0
Max Q Clear Time (g_c+I1), s	8.0	23.8		43.0	24.0	15.6		13.2
Green Ext Time (p_c), s	0.1	7.5		0.0	0.0	4.1		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	60.9
HCM 2010 LOS	E

Notes

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	7	73	44	8	54	54	33	70	0	118	178	15
Future Vol, veh/h	7	73	44	8	54	54	33	70	0	118	178	15
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	8	82	49	9	61	61	37	79	0	133	200	17
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.4	9.2	9.2	12.1
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	6%	7%	38%
Vol Thru, %	68%	59%	47%	57%
Vol Right, %	0%	35%	47%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	124	116	311
LT Vol	33	7	8	118
Through Vol	70	73	54	178
RT Vol	0	44	54	15
Lane Flow Rate	116	139	130	349
Geometry Grp	1	1	1	1
Degree of Util (X)	0.165	0.196	0.181	0.467
Departure Headway (Hd)	5.123	5.06	5.011	4.813
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	692	702	708	741
Service Time	3.212	3.147	3.1	2.883
HCM Lane V/C Ratio	0.168	0.198	0.184	0.471
HCM Control Delay	9.2	9.4	9.2	12.1
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.6	0.7	0.7	2.5

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	4	154	51	50	111	24	13	56	57	46	50	6
Future Vol, veh/h	4	154	51	50	111	24	13	56	57	46	50	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	162	54	53	117	25	14	59	60	48	53	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.6	9.5	8.9	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	2%	27%	45%
Vol Thru, %	44%	74%	60%	49%
Vol Right, %	45%	24%	13%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	126	209	185	102
LT Vol	13	4	50	46
Through Vol	56	154	111	50
RT Vol	57	51	24	6
Lane Flow Rate	133	220	195	107
Geometry Grp	1	1	1	1
Degree of Util (X)	0.178	0.284	0.259	0.154
Departure Headway (Hd)	4.819	4.642	4.784	5.153
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	739	770	746	690
Service Time	2.887	2.699	2.844	3.224
HCM Lane V/C Ratio	0.18	0.286	0.261	0.155
HCM Control Delay	8.9	9.6	9.5	9.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	1.2	1	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	1189	423	254	593	14	334	45	171	13	20	19
Future Volume (veh/h)	76	1189	423	254	593	14	334	45	171	13	20	19
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	80	1252	0	267	624	15	352	47	180	14	21	20
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	103	1434	642	282	1788	43	512	277	236	25	38	55
Arrive On Green	0.06	0.41	0.00	0.16	0.51	0.51	0.15	0.15	0.15	0.04	0.04	0.04
Sat Flow, veh/h	1757	3505	1568	1757	3498	84	3408	1845	1568	723	1085	1568
Grp Volume(v), veh/h	80	1252	0	267	312	327	352	47	180	35	0	20
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1830	1704	1845	1568	1808	0	1568
Q Serve(g_s), s	3.6	26.6	0.0	12.2	8.6	8.6	7.9	1.8	8.9	1.5	0.0	1.0
Cycle Q Clear(g_c), s	3.6	26.6	0.0	12.2	8.6	8.6	7.9	1.8	8.9	1.5	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	103	1434	642	282	896	935	512	277	236	63	0	55
V/C Ratio(X)	0.78	0.87	0.00	0.95	0.35	0.35	0.69	0.17	0.76	0.55	0.00	0.36
Avail Cap(c_a), veh/h	230	1538	688	282	896	935	720	390	331	559	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.5	22.0	0.0	33.6	11.8	11.8	32.6	30.0	33.0	38.4	0.0	38.1
Incr Delay (d2), s/veh	11.7	5.6	0.0	39.1	0.2	0.2	1.6	0.3	6.6	7.3	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	13.8	0.0	8.9	4.1	4.3	3.8	0.9	4.3	0.9	0.0	0.5
LnGrp Delay(d),s/veh	49.2	27.5	0.0	72.7	12.0	12.0	34.2	30.3	39.6	45.7	0.0	42.1
LnGrp LOS	D	C		E	B	B	C	C	D	D		D
Approach Vol, veh/h		1332			906			579			55	
Approach Delay, s/veh		28.8			29.9			35.6			44.4	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	38.9		7.4	8.7	47.1		17.6
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	13.0	* 36		25.0	10.6	37.5		17.1
Max Q Clear Time (g_c+I1), s	14.2	28.6		3.5	5.6	10.6		10.9
Green Ext Time (p_c), s	0.0	4.5		0.2	0.1	4.2		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	30.8
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	1040	7	22	729	109	22	9	4	186	12	121
Future Volume (veh/h)	173	1040	7	22	729	109	22	9	4	186	12	121
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	180	1083	7	23	759	114	23	9	4	194	12	126
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	179	1094	929	34	801	120	52	20	9	240	15	227
Arrive On Green	0.10	0.59	0.59	0.02	0.51	0.51	0.05	0.05	0.05	0.14	0.14	0.14
Sat Flow, veh/h	1757	1845	1568	1757	1568	235	1121	439	195	1659	103	1568
Grp Volume(v), veh/h	180	1083	7	23	0	873	36	0	0	206	0	126
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1803	1754	0	0	1762	0	1568
Q Serve(g_s), s	9.0	51.3	0.2	1.2	0.0	40.7	1.8	0.0	0.0	10.0	0.0	6.6
Cycle Q Clear(g_c), s	9.0	51.3	0.2	1.2	0.0	40.7	1.8	0.0	0.0	10.0	0.0	6.6
Prop In Lane	1.00		1.00	1.00		0.13	0.64		0.11	0.94		1.00
Lane Grp Cap(c), veh/h	179	1094	929	34	0	921	81	0	0	255	0	227
V/C Ratio(X)	1.01	0.99	0.01	0.67	0.00	0.95	0.44	0.00	0.00	0.81	0.00	0.56
Avail Cap(c_a), veh/h	179	1094	929	109	0	963	367	0	0	354	0	315
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.8	17.8	7.4	43.1	0.0	20.6	41.1	0.0	0.0	36.7	0.0	35.2
Incr Delay (d2), s/veh	69.4	24.8	0.0	20.3	0.0	17.4	3.7	0.0	0.0	9.2	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	33.4	0.1	0.7	0.0	24.6	0.9	0.0	0.0	5.5	0.0	3.0
LnGrp Delay(d),s/veh	109.2	42.6	7.4	63.4	0.0	38.0	44.8	0.0	0.0	45.9	0.0	37.3
LnGrp LOS	F	D	A	E		D	D			D		D
Approach Vol, veh/h		1270			896			36			332	
Approach Delay, s/veh		51.8			38.6			44.8			42.7	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	57.2		17.5	13.0	49.9		8.1
Change Period (Y+Rc), s	4.0	* 4.7		* 4.7	4.0	* 4.7		4.0
Max Green Setting (Gmax), s	5.5	* 51		* 18	9.0	* 47		18.5
Max Q Clear Time (g_c+I1), s	3.2	53.3		12.0	11.0	42.7		3.8
Green Ext Time (p_c), s	0.0	0.0		0.8	0.0	2.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	45.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	720	180	49	778	0	132	0	63	0	0	0
Future Volume (veh/h)	0	720	180	49	778	0	132	0	63	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	0	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	0	889	222	60	960	0	163	0	78	0	0	0
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	0	3	3	3	3	3	3
Cap, veh/h	3	1059	900	112	1302	0	231	0	206	0	3	0
Arrive On Green	0.00	0.57	0.57	0.06	0.71	0.00	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Grp Volume(v), veh/h	0	889	222	60	960	0	163	0	78	0	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Q Serve(g_s), s	0.0	23.3	4.1	1.9	18.8	0.0	5.2	0.0	2.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	23.3	4.1	1.9	18.8	0.0	5.2	0.0	2.7	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	3	1059	900	112	1302	0	231	0	206	0	3	0
V/C Ratio(X)	0.00	0.84	0.25	0.54	0.74	0.00	0.71	0.00	0.38	0.00	0.00	0.00
Avail Cap(c_a), veh/h	194	1548	1315	194	1548	0	537	0	479	0	580	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.3	6.2	26.7	5.3	0.0	24.5	0.0	23.4	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.8	0.1	3.9	1.6	0.0	3.9	0.0	1.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.4	1.8	1.1	9.9	0.0	2.8	0.0	1.2	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	13.2	6.4	30.7	6.9	0.0	28.4	0.0	24.5	0.0	0.0	0.0
LnGrp LOS		B	A	C	A		C		C			
Approach Vol, veh/h		1111			1020			241			0	
Approach Delay, s/veh		11.8			8.3			27.2			0.0	
Approach LOS		B			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	38.8		0.0	0.0	46.6		12.3
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.6
Max Green Setting (Gmax), s	6.5	49.4		18.5	6.5	49.4		18.0
Max Q Clear Time (g_c+I1), s	3.9	25.3		0.0	0.0	20.8		7.2
Green Ext Time (p_c), s	0.0	8.5		0.0	0.0	9.2		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	11.8
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	12.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	6	98	73	67	162	85	101	66	90	65	5
Future Vol, veh/h	2	6	98	73	67	162	85	101	66	90	65	5
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	7	113	84	77	186	98	116	76	103	75	6
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.1	10.9	14.6	12.5
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	34%	100%	0%	0%	100%	0%	0%	56%
Vol Thru, %	40%	0%	100%	2%	0%	100%	12%	41%
Vol Right, %	26%	0%	0%	98%	0%	0%	88%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	252	2	4	100	73	45	184	160
LT Vol	85	2	0	0	73	0	0	90
Through Vol	101	0	4	2	0	45	22	65
RT Vol	66	0	0	98	0	0	162	5
Lane Flow Rate	290	2	5	115	84	51	212	184
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.49	0.005	0.008	0.19	0.158	0.09	0.332	0.333
Departure Headway (Hd)	6.087	7.163	6.65	5.946	6.788	6.277	5.648	6.522
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	591	498	536	601	527	569	634	550
Service Time	3.836	4.929	4.416	3.711	4.543	4.032	3.402	4.278
HCM Lane V/C Ratio	0.491	0.004	0.009	0.191	0.159	0.09	0.334	0.335
HCM Control Delay	14.6	10	9.5	10.1	10.8	9.7	11.2	12.5
HCM Lane LOS	B	A	A	B	B	A	B	B
HCM 95th-tile Q	2.7	0	0	0.7	0.6	0.3	1.5	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	281	1949	1170	96	109	177		
Future Volume (veh/h)	281	1949	1170	96	109	177		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845		
Adj Flow Rate, veh/h	305	2118	1272	104	118	192		
Adj No. of Lanes	2	3	3	0	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	3	3	3	3	3	3		
Cap, veh/h	422	3332	2289	187	279	249		
Arrive On Green	0.12	0.66	0.48	0.48	0.16	0.16		
Sat Flow, veh/h	3408	5202	4912	388	1757	1568		
Grp Volume(v), veh/h	305	2118	900	476	118	192		
Grp Sat Flow(s),veh/h/ln	1704	1679	1679	1776	1757	1568		
Q Serve(g_s), s	6.2	17.6	13.6	13.6	4.4	8.4		
Cycle Q Clear(g_c), s	6.2	17.6	13.6	13.6	4.4	8.4		
Prop In Lane	1.00			0.22	1.00	1.00		
Lane Grp Cap(c), veh/h	422	3332	1619	857	279	249		
V/C Ratio(X)	0.72	0.64	0.56	0.56	0.42	0.77		
Avail Cap(c_a), veh/h	816	4564	2052	1085	1027	917		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	30.3	7.1	13.2	13.2	27.2	29.0		
Incr Delay (d2), s/veh	2.4	0.2	0.3	0.6	1.0	5.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.1	8.1	6.3	6.7	2.2	7.4		
LnGrp Delay(d),s/veh	32.7	7.3	13.5	13.7	28.3	34.0		
LnGrp LOS	C	A	B	B	C	C		
Approach Vol, veh/h		2423	1376		310			
Approach Delay, s/veh		10.5	13.5		31.8			
Approach LOS		B	B		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		54.3		17.5	12.9	41.4		
Change Period (Y+Rc), s		6.8		6.1	4.0	6.8		
Max Green Setting (Gmax), s		65.1		42.0	17.2	43.9		
Max Q Clear Time (g_c+I1), s		19.6		10.4	8.2	15.6		
Green Ext Time (p_c), s		27.9		1.0	0.7	11.6		
Intersection Summary								
HCM 2010 Ctrl Delay			13.1					
HCM 2010 LOS			B					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	557	1268	384	148	753	133	228	444	160	101	401	357
Future Volume (veh/h)	557	1268	384	148	753	133	228	444	160	101	401	357
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	605	1378	417	161	818	145	248	483	174	110	436	225
Adj No. of Lanes	2	2	1	2	2	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	659	1506	674	203	1037	464	274	667	239	136	648	290
Arrive On Green	0.19	0.43	0.43	0.06	0.30	0.30	0.16	0.26	0.26	0.08	0.19	0.19
Sat Flow, veh/h	3408	3505	1568	3408	3505	1568	1757	2531	906	1757	3505	1568
Grp Volume(v), veh/h	605	1378	417	161	818	145	248	333	324	110	436	225
Grp Sat Flow(s),veh/h/ln	1704	1752	1568	1704	1752	1568	1757	1752	1685	1757	1752	1568
Q Serve(g_s), s	21.1	44.7	25.0	5.6	25.9	8.7	16.8	20.9	21.2	7.5	14.0	16.5
Cycle Q Clear(g_c), s	21.1	44.7	25.0	5.6	25.9	8.7	16.8	20.9	21.2	7.5	14.0	16.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.54	1.00		1.00
Lane Grp Cap(c), veh/h	659	1506	674	203	1037	464	274	462	444	136	648	290
V/C Ratio(X)	0.92	0.92	0.62	0.79	0.79	0.31	0.91	0.72	0.73	0.81	0.67	0.78
Avail Cap(c_a), veh/h	681	1549	693	203	1045	468	283	688	661	241	1303	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.9	32.5	26.8	56.2	39.2	33.1	50.2	40.5	40.6	55.0	45.9	46.9
Incr Delay (d2), s/veh	17.2	8.7	1.6	19.2	4.1	0.4	30.0	2.2	2.3	10.9	1.2	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.5	23.4	11.1	3.2	13.1	3.8	10.4	10.4	10.2	4.0	6.9	7.5
LnGrp Delay(d),s/veh	65.1	41.1	28.4	75.4	43.3	33.5	80.2	42.7	42.9	65.8	47.1	51.4
LnGrp LOS	E	D	C	E	D	C	F	D	D	E	D	D
Approach Vol, veh/h		2400			1124			905			771	
Approach Delay, s/veh		45.0			46.6			53.1			51.0	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	58.8	22.8	28.2	27.4	42.6	13.4	37.7
Change Period (Y+Rc), s	4.0	* 6.8	4.0	* 5.8	4.0	6.8	4.0	5.8
Max Green Setting (Gmax), s	7.2	* 54	19.5	* 45	24.2	36.1	16.6	47.5
Max Q Clear Time (g_c+I1), s	7.6	46.7	18.8	18.5	23.1	27.9	9.5	23.2
Green Ext Time (p_c), s	0.0	5.3	0.1	3.9	0.3	3.8	0.1	4.4

Intersection Summary	
HCM 2010 Ctrl Delay	47.6
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	47	113	84	40	68	109	443	15	89	491	75
Future Volume (veh/h)	79	47	113	84	40	68	109	443	15	89	491	75
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	68	75	123	91	43	74	118	482	16	97	534	82
Adj No. of Lanes	1	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	222	233	198	149	71	193	155	991	33	126	822	126
Arrive On Green	0.13	0.13	0.13	0.12	0.12	0.12	0.09	0.29	0.29	0.07	0.27	0.27
Sat Flow, veh/h	1757	1845	1568	1212	573	1568	1757	3462	115	1757	3048	466
Grp Volume(v), veh/h	68	75	123	134	0	74	118	244	254	97	306	310
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1784	0	1568	1757	1752	1824	1757	1752	1762
Q Serve(g_s), s	1.7	1.8	3.7	3.5	0.0	2.2	3.3	5.7	5.7	2.7	7.7	7.7
Cycle Q Clear(g_c), s	1.7	1.8	3.7	3.5	0.0	2.2	3.3	5.7	5.7	2.7	7.7	7.7
Prop In Lane	1.00		1.00	0.68		1.00	1.00		0.06	1.00		0.26
Lane Grp Cap(c), veh/h	222	233	198	220	0	193	155	501	522	126	472	475
V/C Ratio(X)	0.31	0.32	0.62	0.61	0.00	0.38	0.76	0.49	0.49	0.77	0.65	0.65
Avail Cap(c_a), veh/h	615	646	549	1078	0	947	531	1073	1117	449	991	997
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.7	19.8	20.6	20.6	0.0	20.0	22.1	14.7	14.7	22.7	16.1	16.1
Incr Delay (d2), s/veh	0.8	0.8	3.2	2.7	0.0	1.2	7.5	0.7	0.7	9.6	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	1.8	1.9	0.0	1.0	1.9	2.9	3.0	1.6	3.9	3.9
LnGrp Delay(d),s/veh	20.5	20.5	23.7	23.3	0.0	21.3	29.7	15.4	15.4	32.3	17.6	17.6
LnGrp LOS	C	C	C	C		C	C	B	B	C	B	B
Approach Vol, veh/h		266			208			616			713	
Approach Delay, s/veh		22.0			22.6			18.2			19.6	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	20.6		11.4	8.4	19.8		10.1				
Change Period (Y+Rc), s	4.0	6.4		5.1	4.0	6.4		4.0				
Max Green Setting (Gmax), s	12.7	30.4		17.4	15.0	28.1		30.0				
Max Q Clear Time (g_c+I1), s	4.7	7.7		5.7	5.3	9.7		5.5				
Green Ext Time (p_c), s	0.1	3.0		0.7	0.2	3.7		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			19.8									
HCM 2010 LOS			B									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1044	51	17	843	5	40	1	17	17	4	52
Future Volume (veh/h)	30	1044	51	17	843	5	40	1	17	17	4	52
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	32	1111	54	18	897	5	43	1	18	18	4	55
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	56	1132	55	36	1168	7	56	1	23	23	5	71
Arrive On Green	0.03	0.65	0.65	0.02	0.64	0.64	0.05	0.05	0.05	0.06	0.06	0.06
Sat Flow, veh/h	1757	1745	85	1757	1833	10	1178	27	493	379	84	1158
Grp Volume(v), veh/h	32	0	1165	18	0	902	62	0	0	77	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1830	1757	0	1843	1699	0	0	1621	0	0
Q Serve(g_s), s	1.4	0.0	48.0	0.8	0.0	27.1	2.8	0.0	0.0	3.6	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	48.0	0.8	0.0	27.1	2.8	0.0	0.0	3.6	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.01	0.69		0.29	0.23		0.71
Lane Grp Cap(c), veh/h	56	0	1187	36	0	1174	81	0	0	99	0	0
V/C Ratio(X)	0.57	0.00	0.98	0.49	0.00	0.77	0.77	0.00	0.00	0.77	0.00	0.00
Avail Cap(c_a), veh/h	124	0	1190	124	0	1199	392	0	0	385	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	37.2	0.0	13.2	37.8	0.0	10.0	36.7	0.0	0.0	36.1	0.0	0.0
Incr Delay (d2), s/veh	8.7	0.0	21.7	10.0	0.0	3.0	14.2	0.0	0.0	12.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	30.8	0.5	0.0	14.5	1.6	0.0	0.0	2.0	0.0	0.0
LnGrp Delay(d),s/veh	45.9	0.0	34.9	47.8	0.0	13.1	50.9	0.0	0.0	48.0	0.0	0.0
LnGrp LOS	D		C	D		B	D			D		
Approach Vol, veh/h		1197			920			62			77	
Approach Delay, s/veh		35.2			13.7			50.9			48.0	
Approach LOS		D			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	55.3		8.8	6.5	54.4		8.3				
Change Period (Y+Rc), s	4.0	* 4.7		4.0	4.0	* 4.7		4.6				
Max Green Setting (Gmax), s	5.5	* 51		18.5	5.5	* 51		18.0				
Max Q Clear Time (g_c+I1), s	2.8	50.0		5.6	3.4	29.1		4.8				
Green Ext Time (p_c), s	0.0	0.6		0.2	0.0	7.4		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			27.3									
HCM 2010 LOS			C									
Notes												

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	54	27	1030	142	39	866
Future Vol, veh/h	54	27	1030	142	39	866
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	59	29	1120	154	42	941

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1752	637	0	0	1274	0
Stage 1	1197	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	76	418	-	-	536	-
Stage 1	247	-	-	-	-	-
Stage 2	536	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	70	418	-	-	536	-
Mov Cap-2 Maneuver	70	-	-	-	-	-
Stage 1	247	-	-	-	-	-
Stage 2	494	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	146.2	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	97	536	-
HCM Lane V/C Ratio	-	-	0.908	0.079	-
HCM Control Delay (s)	-	-	146.2	12.3	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	5.2	0.3	-

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	58	2008	1272	57	71	19
Future Volume (veh/h)	58	2008	1272	57	71	19
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	66	2282	1445	65	81	22
Adj No. of Lanes	1	3	3	0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	92	4035	3373	152	117	105
Arrive On Green	0.05	0.80	0.68	0.68	0.07	0.07
Sat Flow, veh/h	1757	5202	5107	222	1757	1568
Grp Volume(v), veh/h	66	2282	982	528	81	22
Grp Sat Flow(s),veh/h/ln	1757	1679	1679	1805	1757	1568
Q Serve(g_s), s	2.5	11.2	8.9	8.9	3.1	0.9
Cycle Q Clear(g_c), s	2.5	11.2	8.9	8.9	3.1	0.9
Prop In Lane	1.00			0.12	1.00	1.00
Lane Grp Cap(c), veh/h	92	4035	2292	1233	117	105
V/C Ratio(X)	0.72	0.57	0.43	0.43	0.69	0.21
Avail Cap(c_a), veh/h	374	6468	3376	1815	606	541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	2.5	4.8	4.8	31.1	30.1
Incr Delay (d2), s/veh	10.0	0.1	0.1	0.2	7.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	5.1	4.1	4.5	1.7	0.8
LnGrp Delay(d),s/veh	41.8	2.6	5.0	5.1	38.2	31.1
LnGrp LOS	D	A	A	A	D	C
Approach Vol, veh/h		2348	1510		103	
Approach Delay, s/veh		3.7	5.0		36.7	
Approach LOS		A	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				59.1		9.0	8.1	51.0
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				87.5		23.5	14.5	68.5
Max Q Clear Time (g_c+I1), s				13.2		5.1	4.5	10.9
Green Ext Time (p_c), s				41.4		0.2	0.1	16.4

Intersection Summary			
HCM 2010 Ctrl Delay			5.0
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	321	26	2	303	143	19	17	5	136	18	234
Future Volume (veh/h)	175	321	26	2	303	143	19	17	5	136	18	234
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	186	341	28	2	322	152	20	18	5	145	19	249
Adj No. of Lanes	2	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	350	735	60	6	400	189	50	373	99	188	377	337
Arrive On Green	0.10	0.44	0.44	0.00	0.34	0.34	0.03	0.14	0.14	0.11	0.21	0.21
Sat Flow, veh/h	3408	1682	138	1757	1186	560	1757	2740	729	1757	1752	1568
Grp Volume(v), veh/h	186	0	369	2	0	474	20	11	12	145	19	249
Grp Sat Flow(s),veh/h/ln	1704	0	1820	1757	0	1746	1757	1752	1716	1757	1752	1568
Q Serve(g_s), s	3.0	0.0	8.4	0.1	0.0	14.4	0.7	0.3	0.3	4.7	0.5	8.7
Cycle Q Clear(g_c), s	3.0	0.0	8.4	0.1	0.0	14.4	0.7	0.3	0.3	4.7	0.5	8.7
Prop In Lane	1.00		0.08	1.00		0.32	1.00		0.42	1.00		1.00
Lane Grp Cap(c), veh/h	350	0	795	6	0	589	50	238	233	188	377	337
V/C Ratio(X)	0.53	0.00	0.46	0.35	0.00	0.81	0.40	0.05	0.05	0.77	0.05	0.74
Avail Cap(c_a), veh/h	1085	0	1648	198	0	1222	198	789	773	481	1062	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	11.6	29.1	0.0	17.6	27.9	21.9	22.0	25.4	18.2	21.4
Incr Delay (d2), s/veh	1.3	0.0	0.4	32.3	0.0	2.6	5.1	0.1	0.1	6.5	0.1	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	4.3	0.1	0.0	7.3	0.4	0.2	0.2	2.6	0.2	4.0
LnGrp Delay(d),s/veh	26.1	0.0	12.0	61.4	0.0	20.3	33.0	22.0	22.0	31.8	18.3	24.6
LnGrp LOS	C		B	E		C	C	C	C	C	B	C
Approach Vol, veh/h		555			476			43			413	
Approach Delay, s/veh		16.8			20.4			27.1			26.8	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	13.3	4.2	30.6	5.7	18.0	10.0	24.8
Change Period (Y+Rc), s	4.0	* 5.4	4.0	5.1	4.0	5.4	4.0	5.1
Max Green Setting (Gmax), s	16.0	* 26	6.6	52.9	6.6	35.4	18.6	40.9
Max Q Clear Time (g_c+I1), s	6.7	2.3	2.1	10.4	2.7	10.7	5.0	16.4
Green Ext Time (p_c), s	0.2	0.1	0.0	2.5	0.0	1.7	0.5	3.3

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

Notes

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	194	79	249	189	78	475
Future Volume (veh/h)	194	79	249	189	78	475
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	211	86	271	205	85	516
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	335	299	494	420	149	931
Arrive On Green	0.19	0.19	0.27	0.27	0.08	0.50
Sat Flow, veh/h	1757	1568	1845	1568	1757	1845
Grp Volume(v), veh/h	211	86	271	205	85	516
Grp Sat Flow(s),veh/h/ln	1757	1568	1845	1568	1757	1845
Q Serve(g_s), s	3.3	1.4	3.7	3.3	1.4	5.7
Cycle Q Clear(g_c), s	3.3	1.4	3.7	3.3	1.4	5.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	335	299	494	420	149	931
V/C Ratio(X)	0.63	0.29	0.55	0.49	0.57	0.55
Avail Cap(c_a), veh/h	2228	1988	3025	2572	1218	4585
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.0	10.2	9.3	9.1	13.0	5.0
Incr Delay (d2), s/veh	1.9	0.5	1.0	0.9	3.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.6	2.0	1.5	0.8	3.0
LnGrp Delay(d),s/veh	13.0	10.8	10.2	10.0	16.4	5.6
LnGrp LOS	B	B	B	B	B	A
Approach Vol, veh/h	297		476			601
Approach Delay, s/veh	12.3		10.1			7.1
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	7.0	12.4				19.4		10.1
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	20.5	48.5				73.5		37.5
Max Q Clear Time (g_c+I1), s	3.4	5.7				7.7		5.3
Green Ext Time (p_c), s	0.2	2.2				3.3		0.9

Intersection Summary		
HCM 2010 Ctrl Delay		9.3
HCM 2010 LOS		A

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	238	28	28	321	57	31
Future Vol, veh/h	238	28	28	321	57	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	274	32	32	369	66	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	306	0	723	290
Stage 1	-	-	-	-	290	-
Stage 2	-	-	-	-	433	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1249	-	392	747
Stage 1	-	-	-	-	757	-
Stage 2	-	-	-	-	652	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1249	-	382	747
Mov Cap-2 Maneuver	-	-	-	-	382	-
Stage 1	-	-	-	-	757	-
Stage 2	-	-	-	-	635	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	461	-	-	1249	-
HCM Lane V/C Ratio	0.219	-	-	0.026	-
HCM Control Delay (s)	15	-	-	8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

Intersection						
Int Delay, s/veh	0					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	271	367	4	0	1
Future Vol, veh/h	1	271	367	4	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	301	408	4	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	412	0	-	0	713	410
Stage 1	-	-	-	-	410	-
Stage 2	-	-	-	-	303	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1142	-	-	-	397	639
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	747	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1142	-	-	-	397	639
Mov Cap-2 Maneuver	-	-	-	-	397	-
Stage 1	-	-	-	-	667	-
Stage 2	-	-	-	-	747	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1142	-	-	-	639
HCM Lane V/C Ratio	0.001	-	-	-	0.002
HCM Control Delay (s)	8.2	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	2.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	189	102	42	320	0	0	0	0	52	0	71
Future Vol, veh/h	0	189	102	42	320	0	0	0	0	52	0	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	75	-	-	-	-	-	-	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	193	104	43	327	0	0	0	0	53	0	72

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	297	0	0				658	710	164
Stage 1	-	-	-	-	-	-				413	413	-
Stage 2	-	-	-	-	-	-				245	297	-
Critical Hdwy	-	-	-	4.235	-	-				6.735	6.635	7.035
Critical Hdwy Stg 1	-	-	-	-	-	-				5.935	5.635	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.535	5.635	-
Follow-up Hdwy	-	-	-	2.2855	-	-				3.5855	4.0855	3.3855
Pot Cap-1 Maneuver	0	-	-	1219	-	0				400	347	833
Stage 1	0	-	-	-	-	0				620	578	-
Stage 2	0	-	-	-	-	0				776	652	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1219	-	-				386	0	833
Mov Cap-2 Maneuver	-	-	-	-	-	-				386	0	-
Stage 1	-	-	-	-	-	-				620	0	-
Stage 2	-	-	-	-	-	-				749	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.9	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1219	-	386	833
HCM Lane V/C Ratio	-	-	0.035	-	0.137	0.087
HCM Control Delay (s)	-	-	8.1	-	15.8	9.7
HCM Lane LOS	-	-	A	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	-	0.5	0.3

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	219	0	0	264	50	121	0	121	0	0	0
Future Vol, veh/h	24	219	0	0	264	50	121	0	121	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	75	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	28	258	0	0	311	59	142	0	142	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	370	0	-	-	-	0	470	684	129
Stage 1	-	-	-	-	-	-	314	314	-
Stage 2	-	-	-	-	-	-	156	370	-
Critical Hdwy	4.28	-	-	-	-	-	6.98	6.68	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	5.98	5.68	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.98	5.68	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.59	4.09	3.39
Pot Cap-1 Maneuver	1136	-	0	0	-	-	505	356	875
Stage 1	-	-	0	0	-	-	693	638	-
Stage 2	-	-	0	0	-	-	836	601	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1136	-	-	-	-	-	492	0	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	492	0	-
Stage 1	-	-	-	-	-	-	676	0	-
Stage 2	-	-	-	-	-	-	836	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.8	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	492	875	1136	-	-	-
HCM Lane V/C Ratio	0.289	0.163	0.025	-	-	-
HCM Control Delay (s)	15.3	9.9	8.2	-	-	-
HCM Lane LOS	C	A	A	-	-	-
HCM 95th %tile Q(veh)	1.2	0.6	0.1	-	-	-

Intersection	
Intersection Delay, s/veh	32.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	109	201	35	33	0	284	126	119	0	62	49
Future Vol, veh/h	70	109	201	35	33	0	284	126	119	0	62	49
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	80	124	228	40	38	0	323	143	135	0	70	56
Number of Lanes	1	1	0	1	2	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	3	2
HCM Control Delay	22.8	11.9	46.6	13.8
HCM LOS	C	B	E	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	69%	0%	100%	0%	100%	0%	0%	0%
Vol Thru, %	31%	0%	0%	35%	0%	100%	100%	56%
Vol Right, %	0%	100%	0%	65%	0%	0%	0%	44%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	410	119	70	310	35	17	17	111
LT Vol	284	0	70	0	35	0	0	0
Through Vol	126	0	0	109	0	17	17	62
RT Vol	0	119	0	201	0	0	0	49
Lane Flow Rate	466	135	80	352	40	19	19	126
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.953	0.237	0.18	0.701	0.102	0.045	0.035	0.279
Departure Headway (Hd)	7.367	6.31	8.148	7.166	9.192	8.674	6.757	7.964
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	494	568	441	504	389	412	528	450
Service Time	5.112	4.055	5.894	4.912	6.956	6.438	4.52	5.724
HCM Lane V/C Ratio	0.943	0.238	0.181	0.698	0.103	0.046	0.036	0.28
HCM Control Delay	56.9	11	12.7	25.1	13	11.8	9.8	13.8
HCM Lane LOS	F	B	B	D	B	B	A	B
HCM 95th-tile Q	11.8	0.9	0.6	5.4	0.3	0.1	0.1	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	375	33	9	481	32	79	5	7	41	8	51
Future Volume (veh/h)	38	375	33	9	481	32	79	5	7	41	8	51
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	54	536	47	13	687	46	113	7	10	59	11	73
Adj No. of Lanes	1	2	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	83	1776	795	28	813	54	155	10	147	77	14	95
Arrive On Green	0.05	0.51	0.51	0.02	0.48	0.48	0.09	0.09	0.09	0.11	0.11	0.11
Sat Flow, veh/h	1757	3505	1568	1757	1710	114	1659	103	1568	685	128	848
Grp Volume(v), veh/h	54	536	47	13	0	733	120	0	10	143	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	0	1824	1762	0	1568	1661	0	0
Q Serve(g_s), s	2.0	5.9	1.0	0.5	0.0	23.4	4.4	0.0	0.4	5.6	0.0	0.0
Cycle Q Clear(g_c), s	2.0	5.9	1.0	0.5	0.0	23.4	4.4	0.0	0.4	5.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.06	0.94		1.00	0.41		0.51
Lane Grp Cap(c), veh/h	83	1776	795	28	0	867	165	0	147	187	0	0
V/C Ratio(X)	0.65	0.30	0.06	0.46	0.00	0.85	0.73	0.00	0.07	0.76	0.00	0.00
Avail Cap(c_a), veh/h	182	3192	1428	135	0	1612	485	0	432	452	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	31.1	9.5	8.3	32.4	0.0	15.3	29.3	0.0	27.5	28.6	0.0	0.0
Incr Delay (d2), s/veh	8.1	0.1	0.0	11.3	0.0	2.4	6.0	0.0	0.2	6.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.9	0.4	0.3	0.0	12.2	2.4	0.0	0.2	2.9	0.0	0.0
LnGrp Delay(d),s/veh	39.2	9.6	8.4	43.7	0.0	17.7	35.3	0.0	27.7	35.0	0.0	0.0
LnGrp LOS	D	A	A	D		B	D		C	C		
Approach Vol, veh/h		637			746			130			143	
Approach Delay, s/veh		12.1			18.1			34.7			35.0	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	38.2		12.0	7.7	36.1		10.7
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.1	60.5		18.1	6.9	58.7		18.3
Max Q Clear Time (g_c+I1), s	2.5	7.9		7.6	4.0	25.4		6.4
Green Ext Time (p_c), s	0.0	4.3		0.5	0.0	6.2		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	302	169	855	485	52	13	7	110	19	28	13
Future Volume (veh/h)	20	302	169	855	485	52	13	7	110	19	28	13
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	23	351	197	994	564	60	15	8	128	22	33	15
Adj No. of Lanes	1	2	0	2	2	1	1	1	0	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	46	501	276	1221	1969	881	32	11	175	44	149	68
Arrive On Green	0.03	0.23	0.23	0.36	0.56	0.56	0.02	0.12	0.12	0.03	0.12	0.12
Sat Flow, veh/h	1757	2182	1203	3408	3505	1568	1757	93	1489	1757	1202	546
Grp Volume(v), veh/h	23	281	267	994	564	60	15	0	136	22	0	48
Grp Sat Flow(s),veh/h/ln	1757	1752	1632	1704	1752	1568	1757	0	1582	1757	0	1748
Q Serve(g_s), s	0.9	9.8	10.1	17.6	5.6	1.2	0.6	0.0	5.5	0.8	0.0	1.7
Cycle Q Clear(g_c), s	0.9	9.8	10.1	17.6	5.6	1.2	0.6	0.0	5.5	0.8	0.0	1.7
Prop In Lane	1.00		0.74	1.00		1.00	1.00		0.94	1.00		0.31
Lane Grp Cap(c), veh/h	46	402	375	1221	1969	881	32	0	186	44	0	217
V/C Ratio(X)	0.50	0.70	0.71	0.81	0.29	0.07	0.47	0.00	0.73	0.50	0.00	0.22
Avail Cap(c_a), veh/h	160	790	736	2424	3753	1679	145	0	438	155	0	495
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.1	23.6	23.7	19.4	7.6	6.7	32.5	0.0	28.5	32.1	0.0	26.3
Incr Delay (d2), s/veh	8.3	2.2	2.5	1.4	0.1	0.0	10.3	0.0	5.5	8.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.0	4.8	8.5	2.7	0.5	0.4	0.0	2.7	0.5	0.0	0.8
LnGrp Delay(d),s/veh	40.4	25.8	26.2	20.8	7.7	6.7	42.8	0.0	33.9	40.6	0.0	26.8
LnGrp LOS	D	C	C	C	A	A	D		C	D		C
Approach Vol, veh/h		571			1618			151			70	
Approach Delay, s/veh		26.6			15.7			34.8			31.2	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.4	19.8	5.7	12.8	6.2	42.0	6.2	12.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	47.5	30.1	5.5	18.9	6.1	71.5	5.9	18.5
Max Q Clear Time (g_c+I1), s	19.6	12.1	2.6	3.7	2.9	7.6	2.8	7.5
Green Ext Time (p_c), s	4.3	3.3	0.0	0.1	0.0	4.7	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	367	14	125	1240	152	612
Future Volume (veh/h)	367	14	125	1240	152	612
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1900	1743	1743	1743	1743
Adj Flow Rate, veh/h	437	17	149	1476	181	729
Adj No. of Lanes	3	0	1	3	1	2
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	9	9	9	9	9	9
Cap, veh/h	1533	59	192	2437	576	904
Arrive On Green	0.33	0.33	0.12	0.51	0.35	0.35
Sat Flow, veh/h	4859	182	1660	4916	1660	2608
Grp Volume(v), veh/h	294	160	149	1476	181	729
Grp Sat Flow(s),veh/h/ln	1586	1711	1660	1586	1660	1304
Q Serve(g_s), s	4.4	4.4	5.6	14.0	5.1	16.2
Cycle Q Clear(g_c), s	4.4	4.4	5.6	14.0	5.1	16.2
Prop In Lane		0.11	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1035	558	192	2437	576	904
V/C Ratio(X)	0.28	0.29	0.78	0.61	0.31	0.81
Avail Cap(c_a), veh/h	1715	925	715	4959	1158	1819
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	16.0	27.4	11.0	15.3	18.9
Incr Delay (d2), s/veh	0.1	0.3	6.6	0.2	0.3	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.1	2.9	6.1	2.4	6.0
LnGrp Delay(d),s/veh	16.1	16.3	34.1	11.3	15.6	20.6
LnGrp LOS	B	B	C	B	B	C
Approach Vol, veh/h	454			1625	910	
Approach Delay, s/veh	16.2			13.3	19.6	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.9	25.3				37.2		26.6
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	27.5	34.5				66.5		44.5
Max Q Clear Time (g_c+I1), s	7.6	6.4				16.0		18.2
Green Ext Time (p_c), s	0.4	3.1				16.7		4.0

Intersection Summary	
HCM 2010 Ctrl Delay	15.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	821	108	77	1251	349	204	146	36	225	83	133
Future Volume (veh/h)	142	821	108	77	1251	349	204	146	36	225	83	133
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	161	933	123	88	1422	397	232	166	41	256	94	151
Adj No. of Lanes	1	3	0	1	3	1	2	1	0	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	138	1649	217	110	1763	549	341	216	53	354	286	243
Arrive On Green	0.08	0.39	0.39	0.07	0.37	0.37	0.11	0.16	0.16	0.11	0.16	0.16
Sat Flow, veh/h	1660	4257	559	1660	4759	1482	3221	1351	334	3221	1743	1482
Grp Volume(v), veh/h	161	694	362	88	1422	397	232	0	207	256	94	151
Grp Sat Flow(s),veh/h/ln	1660	1586	1644	1660	1586	1482	1610	0	1684	1610	1743	1482
Q Serve(g_s), s	6.5	13.4	13.5	4.1	21.0	18.0	5.4	0.0	9.2	6.0	3.7	7.4
Cycle Q Clear(g_c), s	6.5	13.4	13.5	4.1	21.0	18.0	5.4	0.0	9.2	6.0	3.7	7.4
Prop In Lane	1.00		0.34	1.00		1.00	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	138	1228	637	110	1763	549	341	0	269	354	286	243
V/C Ratio(X)	1.17	0.57	0.57	0.80	0.81	0.72	0.68	0.00	0.77	0.72	0.33	0.62
Avail Cap(c_a), veh/h	138	1251	649	138	1877	584	1815	0	949	705	382	324
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	18.8	18.8	35.9	22.1	21.1	33.6	0.0	31.4	33.6	28.8	30.4
Incr Delay (d2), s/veh	127.7	0.6	1.1	22.3	2.6	4.1	2.4	0.0	4.6	2.8	0.7	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	6.0	6.3	2.5	9.5	7.9	2.5	0.0	4.6	2.8	1.8	3.2
LnGrp Delay(d),s/veh	163.5	19.3	19.9	58.3	24.6	25.3	36.0	0.0	36.0	36.4	29.5	33.0
LnGrp LOS	F	B	B	E	C	C	D		D	D	C	C
Approach Vol, veh/h		1217			1907			439			501	
Approach Delay, s/veh		38.6			26.3			36.0			34.1	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	37.0	13.7	18.2	10.5	35.7	14.0	17.9
Change Period (Y+Rc), s	4.0	6.8	5.4	5.4	4.0	6.8	5.4	5.4
Max Green Setting (Gmax), s	6.5	30.8	44.0	17.1	6.5	30.8	17.1	44.0
Max Q Clear Time (g_c+I1), s	6.1	15.5	7.4	9.4	8.5	23.0	8.0	11.2
Green Ext Time (p_c), s	0.0	6.4	0.8	0.6	0.0	6.0	0.6	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	32.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	251	686	190	48	1168	367	300	386	106	60	141	128
Future Volume (veh/h)	251	686	190	48	1168	367	300	386	106	60	141	128
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1766	1900	1743	1764	1900	1743	1790	1900
Adj Flow Rate, veh/h	273	746	207	52	1270	334	326	420	115	65	153	106
Adj No. of Lanes	1	3	1	1	3	0	1	2	0	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	267	2229	694	69	1328	349	345	716	194	120	206	135
Arrive On Green	0.16	0.47	0.47	0.04	0.35	0.35	0.21	0.27	0.27	0.04	0.10	0.10
Sat Flow, veh/h	1660	4759	1482	1660	3805	1000	1660	2608	707	3221	1975	1288
Grp Volume(v), veh/h	273	746	207	52	1073	531	326	269	266	65	130	129
Grp Sat Flow(s),veh/h/ln	1660	1586	1482	1660	1607	1590	1660	1676	1639	1610	1701	1563
Q Serve(g_s), s	19.0	11.7	10.2	3.7	38.5	38.5	22.9	16.3	16.6	2.3	8.8	9.5
Cycle Q Clear(g_c), s	19.0	11.7	10.2	3.7	38.5	38.5	22.9	16.3	16.6	2.3	8.8	9.5
Prop In Lane	1.00		1.00	1.00		0.63	1.00		0.43	1.00		0.82
Lane Grp Cap(c), veh/h	267	2229	694	69	1122	555	345	460	450	120	178	163
V/C Ratio(X)	1.02	0.33	0.30	0.75	0.96	0.96	0.95	0.58	0.59	0.54	0.73	0.79
Avail Cap(c_a), veh/h	267	2229	694	127	1125	556	345	532	521	169	277	254
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	19.8	19.4	56.0	37.5	37.6	46.1	37.0	37.1	55.8	51.3	51.6
Incr Delay (d2), s/veh	60.7	0.1	0.2	15.1	17.3	27.7	34.6	1.2	1.3	3.7	5.8	8.5
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.2	5.1	4.2	2.0	19.7	21.1	13.8	7.7	7.7	1.1	4.4	4.5
LnGrp Delay(d),s/veh	110.3	19.9	19.6	71.1	54.8	65.2	80.7	38.2	38.4	59.6	57.0	60.0
LnGrp LOS	F	B	B	E	D	E	F	D	D	E	E	E
Approach Vol, veh/h		1226			1656			861			324	
Approach Delay, s/veh		40.0			58.7			54.3			58.7	
Approach LOS		D			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	61.3	29.0	16.8	25.0	47.2	8.9	36.9
Change Period (Y+Rc), s	6.0	6.0	4.5	4.5	6.0	6.0	4.5	4.5
Max Green Setting (Gmax), s	9.0	51.3	24.5	19.2	19.0	41.3	6.2	37.5
Max Q Clear Time (g_c+I1), s	15.7	13.7	24.9	11.5	21.0	40.5	4.3	18.6
Green Ext Time (p_c), s	0.0	7.1	0.0	0.9	0.0	0.6	0.0	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	52.1
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	575	597	79	58	872	318	81	64	26	160	27	356
Future Volume (veh/h)	575	597	79	58	872	318	81	64	26	160	27	356
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	618	642	85	62	938	342	87	69	28	172	29	383
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	365	2123	661	83	1317	410	140	100	40	416	70	431
Arrive On Green	0.21	0.42	0.42	0.05	0.26	0.26	0.08	0.08	0.08	0.27	0.27	0.27
Sat Flow, veh/h	1757	5036	1568	1757	5036	1568	1757	1249	507	1514	255	1568
Grp Volume(v), veh/h	618	642	85	62	938	342	87	0	97	201	0	383
Grp Sat Flow(s),veh/h/ln	1757	1679	1568	1757	1679	1568	1757	0	1755	1769	0	1568
Q Serve(g_s), s	22.0	9.0	3.5	3.7	17.9	21.8	5.1	0.0	5.7	9.9	0.0	24.8
Cycle Q Clear(g_c), s	22.0	9.0	3.5	3.7	17.9	21.8	5.1	0.0	5.7	9.9	0.0	24.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	0.86		1.00
Lane Grp Cap(c), veh/h	365	2123	661	83	1317	410	140	0	140	486	0	431
V/C Ratio(X)	1.69	0.30	0.13	0.74	0.71	0.83	0.62	0.00	0.69	0.41	0.00	0.89
Avail Cap(c_a), veh/h	365	2123	661	197	1440	448	630	0	629	684	0	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.0	20.3	18.7	49.8	35.5	37.0	47.2	0.0	47.5	31.4	0.0	36.9
Incr Delay (d2), s/veh	324.2	0.1	0.1	12.2	1.5	12.0	4.4	0.0	6.0	0.6	0.0	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	43.5	4.2	1.5	2.1	8.4	10.8	2.6	0.0	3.0	4.9	0.0	12.1
LnGrp Delay(d),s/veh	366.2	20.4	18.8	62.0	37.0	48.9	51.6	0.0	53.5	32.0	0.0	48.4
LnGrp LOS	F	C	B	E	D	D	D		D	C		D
Approach Vol, veh/h		1345			1342			184			584	
Approach Delay, s/veh		179.2			41.2			52.6			42.8	
Approach LOS		F			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	50.7		33.8	26.0	33.7		12.5
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	11.9	40.4		* 41	22.0	30.3		38.0
Max Q Clear Time (g_c+I1), s	5.7	11.0		26.8	24.0	23.8		7.7
Green Ext Time (p_c), s	0.0	5.2		2.3	0.0	3.9		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	95.8
HCM 2010 LOS	F

Notes

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	8	108	57	4	81	79	57	142	7	73	125	10
Future Vol, veh/h	8	108	57	4	81	79	57	142	7	73	125	10
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	11	146	77	5	109	107	77	192	9	99	169	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.4	12	13.7	13.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	5%	2%	35%
Vol Thru, %	69%	62%	49%	60%
Vol Right, %	3%	33%	48%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	206	173	164	208
LT Vol	57	8	4	73
Through Vol	142	108	81	125
RT Vol	7	57	79	10
Lane Flow Rate	278	234	222	281
Geometry Grp	1	1	1	1
Degree of Util (X)	0.451	0.377	0.353	0.455
Departure Headway (Hd)	5.826	5.807	5.741	5.827
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	612	615	621	613
Service Time	3.908	3.897	3.833	3.91
HCM Lane V/C Ratio	0.454	0.38	0.357	0.458
HCM Control Delay	13.7	12.4	12	13.7
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.3	1.8	1.6	2.4

Intersection	
Intersection Delay, s/veh	55.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	128	68	21	50	111	111	23	228	31	38	107	27
Future Vol, veh/h	128	68	21	50	111	111	23	228	31	38	107	27
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	197	105	32	77	171	171	35	351	48	58	165	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	41.6	63.1	74	29
HCM LOS	E	F	F	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	59%	18%	22%
Vol Thru, %	81%	31%	41%	62%
Vol Right, %	11%	10%	41%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	282	217	272	172
LT Vol	23	128	50	38
Through Vol	228	68	111	107
RT Vol	31	21	111	27
Lane Flow Rate	434	334	418	265
Geometry Grp	1	1	1	1
Degree of Util (X)	1.004	0.819	0.96	0.669
Departure Headway (Hd)	8.327	8.948	8.358	9.216
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	434	407	435	394
Service Time	6.425	6.948	6.358	7.216
HCM Lane V/C Ratio	1	0.821	0.961	0.673
HCM Control Delay	74	41.6	63.1	29
HCM Lane LOS	F	E	F	D
HCM 95th-tile Q	12.8	7.5	11.4	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	673	318	241	721	24	329	31	213	17	41	31
Future Volume (veh/h)	30	673	318	241	721	24	329	31	213	17	41	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	37	831	0	298	890	30	406	38	263	21	51	38
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	0	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	49	1038	464	341	1599	54	669	362	308	33	81	99
Arrive On Green	0.03	0.30	0.00	0.19	0.46	0.46	0.20	0.20	0.20	0.06	0.06	0.06
Sat Flow, veh/h	1757	3505	1568	1757	3460	117	3408	1845	1568	530	1288	1568
Grp Volume(v), veh/h	37	831	0	298	451	469	406	38	263	72	0	38
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1824	1704	1845	1568	1818	0	1568
Q Serve(g_s), s	1.7	17.3	0.0	13.0	14.7	14.7	8.6	1.3	12.8	3.1	0.0	1.8
Cycle Q Clear(g_c), s	1.7	17.3	0.0	13.0	14.7	14.7	8.6	1.3	12.8	3.1	0.0	1.8
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.29		1.00
Lane Grp Cap(c), veh/h	49	1038	464	341	810	843	669	362	308	114	0	99
V/C Ratio(X)	0.75	0.80	0.00	0.87	0.56	0.56	0.61	0.10	0.85	0.63	0.00	0.39
Avail Cap(c_a), veh/h	147	1308	585	422	920	958	737	399	339	575	0	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.1	25.7	0.0	30.9	15.4	15.4	29.0	26.1	30.7	36.1	0.0	35.6
Incr Delay (d2), s/veh	19.9	2.9	0.0	15.5	0.6	0.6	1.2	0.1	17.5	5.6	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	8.7	0.0	7.8	7.3	7.6	4.2	0.7	7.0	1.7	0.0	0.9
LnGrp Delay(d),s/veh	58.0	28.6	0.0	46.4	16.0	16.0	30.2	26.2	48.2	41.7	0.0	38.0
LnGrp LOS	E	C		D	B	B	C	C	D	D		D
Approach Vol, veh/h		868			1218			707			110	
Approach Delay, s/veh		29.8			23.4			36.7			40.4	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.3	29.2		9.6	6.2	42.3		20.9
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	19.0	* 30		25.0	6.6	41.5		17.1
Max Q Clear Time (g_c+I1), s	15.0	19.3		5.1	3.7	16.7		14.8
Green Ext Time (p_c), s	0.3	4.1		0.4	0.0	6.5		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	652	27	7	748	99	25	14	3	267	0	154
Future Volume (veh/h)	161	652	27	7	748	99	25	14	3	267	0	154
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	175	709	29	8	813	108	27	15	3	290	0	167
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	164	1065	905	14	784	104	54	30	6	322	0	287
Arrive On Green	0.09	0.58	0.58	0.01	0.49	0.49	0.05	0.05	0.05	0.18	0.00	0.18
Sat Flow, veh/h	1757	1845	1568	1757	1595	212	1062	590	118	1757	0	1568
Grp Volume(v), veh/h	175	709	29	8	0	921	45	0	0	290	0	167
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1807	1771	0	0	1757	0	1568
Q Serve(g_s), s	9.0	25.4	0.8	0.4	0.0	47.3	2.4	0.0	0.0	15.5	0.0	9.4
Cycle Q Clear(g_c), s	9.0	25.4	0.8	0.4	0.0	47.3	2.4	0.0	0.0	15.5	0.0	9.4
Prop In Lane	1.00		1.00	1.00		0.12	0.60		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	164	1065	905	14	0	889	90	0	0	322	0	287
V/C Ratio(X)	1.06	0.67	0.03	0.57	0.00	1.04	0.50	0.00	0.00	0.90	0.00	0.58
Avail Cap(c_a), veh/h	164	1065	905	100	0	889	340	0	0	325	0	290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.6	14.0	8.8	47.6	0.0	24.5	44.5	0.0	0.0	38.5	0.0	35.9
Incr Delay (d2), s/veh	88.5	1.6	0.0	31.4	0.0	40.0	4.2	0.0	0.0	26.7	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	13.3	0.3	0.3	0.0	33.3	1.3	0.0	0.0	9.9	0.0	4.3
LnGrp Delay(d),s/veh	132.1	15.6	8.8	79.0	0.0	64.5	48.7	0.0	0.0	65.1	0.0	38.8
LnGrp LOS	F	B	A	E		F	D			E		D
Approach Vol, veh/h		913			929			45			457	
Approach Delay, s/veh		37.7			64.6			48.7			55.5	
Approach LOS		D			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	60.2		22.3	13.0	52.0		8.9
Change Period (Y+Rc), s	4.0	* 4.7		* 4.7	4.0	* 4.7		4.0
Max Green Setting (Gmax), s	5.5	* 51		* 18	9.0	* 47		18.5
Max Q Clear Time (g_c+I1), s	2.4	27.4		17.5	11.0	49.3		4.4
Green Ext Time (p_c), s	0.0	5.4		0.1	0.0	0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	52.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	686	170	28	793	0	135	0	63	0	0	0
Future Volume (veh/h)	0	686	170	28	793	0	135	0	63	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	0	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	0	847	210	35	979	0	167	0	78	0	0	0
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	0	3	3	3	3	3	3
Cap, veh/h	3	1038	882	80	1260	0	241	0	215	0	3	0
Arrive On Green	0.00	0.56	0.56	0.05	0.68	0.00	0.14	0.00	0.14	0.00	0.00	0.00
Sat Flow, veh/h	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Grp Volume(v), veh/h	0	847	210	35	979	0	167	0	78	0	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Q Serve(g_s), s	0.0	19.8	3.6	1.0	19.1	0.0	4.8	0.0	2.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	19.8	3.6	1.0	19.1	0.0	4.8	0.0	2.4	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	3	1038	882	80	1260	0	241	0	215	0	3	0
V/C Ratio(X)	0.00	0.82	0.24	0.44	0.78	0.00	0.69	0.00	0.36	0.00	0.00	0.00
Avail Cap(c_a), veh/h	214	1707	1451	214	1707	0	592	0	529	0	639	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	9.4	5.9	24.8	5.7	0.0	22.0	0.0	20.9	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.6	0.1	3.7	1.6	0.0	3.6	0.0	1.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.4	1.6	0.6	10.1	0.0	2.6	0.0	1.1	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	11.1	6.0	28.6	7.3	0.0	25.5	0.0	21.9	0.0	0.0	0.0
LnGrp LOS		B	A	C	A		C		C			
Approach Vol, veh/h		1057			1014			245			0	
Approach Delay, s/veh		10.1			8.1			24.4			0.0	
Approach LOS		B			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	35.0		0.0	0.0	41.5		11.9
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.6
Max Green Setting (Gmax), s	6.5	49.4		18.5	6.5	49.4		18.0
Max Q Clear Time (g_c+I1), s	3.0	21.8		0.0	0.0	21.1		6.8
Green Ext Time (p_c), s	0.0	8.2		0.0	0.0	9.5		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	21.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	71	139	32	86	115	94	88	140	150	152	1
Future Vol, veh/h	2	71	139	32	86	115	94	88	140	150	152	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	85	165	38	102	137	112	105	167	179	181	1
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	14.1	13.3	27.2	28.4
HCM LOS	B	B	D	D

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	29%	100%	0%	0%	100%	0%	0%	50%
Vol Thru, %	27%	0%	100%	15%	0%	100%	20%	50%
Vol Right, %	43%	0%	0%	85%	0%	0%	80%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	322	2	47	163	32	57	144	303
LT Vol	94	2	0	0	32	0	0	150
Through Vol	88	0	47	24	0	57	29	152
RT Vol	140	0	0	139	0	0	115	1
Lane Flow Rate	383	2	56	194	38	68	171	361
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.741	0.006	0.124	0.394	0.089	0.15	0.347	0.739
Departure Headway (Hd)	6.962	8.465	7.942	7.318	8.415	7.893	7.308	7.374
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	517	421	449	490	424	452	489	487
Service Time	4.739	6.252	5.73	5.104	6.205	5.682	5.097	5.152
HCM Lane V/C Ratio	0.741	0.005	0.125	0.396	0.09	0.15	0.35	0.741
HCM Control Delay	27.2	11.3	11.9	14.8	12	12.1	14	28.4
HCM Lane LOS	D	B	B	B	B	B	B	D
HCM 95th-tile Q	6.2	0	0.4	1.9	0.3	0.5	1.5	6.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	309	961	1524	247	76	253
Future Volume (veh/h)	309	961	1524	247	76	253
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	336	1045	1657	268	83	275
Adj No. of Lanes	2	3	3	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	416	3274	2113	340	360	321
Arrive On Green	0.12	0.65	0.48	0.48	0.20	0.20
Sat Flow, veh/h	3408	5202	4540	704	1757	1568
Grp Volume(v), veh/h	336	1045	1270	655	83	275
Grp Sat Flow(s),veh/h/ln	1704	1679	1679	1720	1757	1568
Q Serve(g_s), s	8.5	8.1	28.0	28.3	3.5	15.0
Cycle Q Clear(g_c), s	8.5	8.1	28.0	28.3	3.5	15.0
Prop In Lane	1.00			0.41	1.00	1.00
Lane Grp Cap(c), veh/h	416	3274	1622	831	360	321
V/C Ratio(X)	0.81	0.32	0.78	0.79	0.23	0.86
Avail Cap(c_a), veh/h	506	3684	1807	926	829	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	6.9	19.1	19.2	29.5	34.1
Incr Delay (d2), s/veh	7.9	0.1	2.1	4.2	0.3	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	3.8	13.3	14.3	1.7	12.7
LnGrp Delay(d),s/veh	45.9	6.9	21.2	23.4	29.9	40.7
LnGrp LOS	D	A	C	C	C	D
Approach Vol, veh/h		1381	1925		358	
Approach Delay, s/veh		16.4	22.0		38.2	
Approach LOS		B	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		64.7		24.3	14.9	49.8		
Change Period (Y+Rc), s		6.8		6.1	4.0	6.8		
Max Green Setting (Gmax), s		65.1		42.0	13.2	47.9		
Max Q Clear Time (g_c+I1), s		10.1		17.0	10.5	30.3		
Green Ext Time (p_c), s		9.9		1.2	0.3	12.7		

Intersection Summary			
HCM 2010 Ctrl Delay			21.4
HCM 2010 LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	602	288	114	1098	269	315	360	61	128	531	422
Future Volume (veh/h)	209	602	288	114	1098	269	315	360	61	128	531	422
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	227	654	313	124	1193	292	342	391	66	139	577	276
Adj No. of Lanes	2	2	1	2	2	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	238	1308	585	176	1243	556	341	965	162	166	774	346
Arrive On Green	0.07	0.37	0.37	0.05	0.35	0.35	0.19	0.32	0.32	0.09	0.22	0.22
Sat Flow, veh/h	3408	3505	1568	3408	3505	1568	1757	3005	503	1757	3505	1568
Grp Volume(v), veh/h	227	654	313	124	1193	292	342	227	230	139	577	276
Grp Sat Flow(s),veh/h/ln	1704	1752	1568	1704	1752	1568	1757	1752	1756	1757	1752	1568
Q Serve(g_s), s	8.5	18.5	20.1	4.6	42.8	19.0	25.0	13.0	13.2	10.0	19.7	21.4
Cycle Q Clear(g_c), s	8.5	18.5	20.1	4.6	42.8	19.0	25.0	13.0	13.2	10.0	19.7	21.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	238	1308	585	176	1243	556	341	562	564	166	774	346
V/C Ratio(X)	0.95	0.50	0.54	0.71	0.96	0.53	1.00	0.40	0.41	0.84	0.75	0.80
Avail Cap(c_a), veh/h	238	1308	585	265	1248	558	341	670	672	279	1226	549
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	31.1	31.6	60.0	40.6	32.9	51.8	34.1	34.1	57.3	46.7	47.4
Incr Delay (d2), s/veh	44.9	0.3	1.0	5.1	16.7	0.9	49.1	0.5	0.5	10.7	1.5	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	9.0	8.8	2.3	23.6	8.3	16.7	6.4	6.5	5.4	9.7	9.7
LnGrp Delay(d),s/veh	104.5	31.4	32.5	65.2	57.4	33.8	100.9	34.5	34.6	67.9	48.2	51.7
LnGrp LOS	F	C	C	E	E	C	F	C	C	E	D	D
Approach Vol, veh/h		1194			1609			799			992	
Approach Delay, s/veh		45.6			53.7			63.0			51.9	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	54.8	29.0	34.2	13.0	52.4	16.1	47.1
Change Period (Y+Rc), s	4.0	* 6.8	4.0	* 5.8	4.0	6.8	4.0	5.8
Max Green Setting (Gmax), s	10.0	* 45	25.0	* 45	9.0	45.8	20.4	49.2
Max Q Clear Time (g_c+I1), s	6.6	22.1	27.0	23.4	10.5	44.8	12.0	15.2
Green Ext Time (p_c), s	0.1	5.9	0.0	5.0	0.0	0.8	0.2	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	52.8
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	0	54	30	0	34
Future Vol, veh/h	8	0	54	30	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	9	9	9	9	9
Mvmt Flow	9	0	59	33	0	37

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	113	76	0	0	92	0
Stage 1	76	-	-	-	-	-
Stage 2	37	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.19	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.281	-
Pot Cap-1 Maneuver	867	966	-	-	1460	-
Stage 1	930	-	-	-	-	-
Stage 2	968	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	867	966	-	-	1460	-
Mov Cap-2 Maneuver	867	-	-	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	968	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	867	1460	-
HCM Lane V/C Ratio	-	-	0.01	-	-
HCM Control Delay (s)	-	-	9.2	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection						
Int Delay, s/veh	0.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	6	522	24	22	277
Future Vol, veh/h	7	6	522	24	22	277
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	9	9	9	9	9
Mvmt Flow	8	7	567	26	24	301

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	929	580	0	0	593	0
Stage 1	580	-	-	-	-	-
Stage 2	349	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.19	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.281	-
Pot Cap-1 Maneuver	289	501	-	-	949	-
Stage 1	546	-	-	-	-	-
Stage 2	699	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	280	501	-	-	949	-
Mov Cap-2 Maneuver	280	-	-	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	678	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	352	949	-
HCM Lane V/C Ratio	-	-	0.04	0.025	-
HCM Control Delay (s)	-	-	15.7	8.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	6	73	20	17	40	128	401	15	31	438	101
Future Volume (veh/h)	59	6	73	20	17	40	128	401	15	31	438	101
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	74	0	85	23	20	47	149	466	17	36	509	117
Adj No. of Lanes	2	0	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	320	0	143	58	51	95	196	1273	46	57	821	188
Arrive On Green	0.09	0.00	0.09	0.06	0.06	0.06	0.11	0.37	0.37	0.03	0.29	0.29
Sat Flow, veh/h	3514	0	1568	961	836	1568	1757	3449	126	1757	2834	648
Grp Volume(v), veh/h	74	0	85	43	0	47	149	236	247	36	314	312
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1797	0	1568	1757	1752	1822	1757	1752	1730
Q Serve(g_s), s	0.9	0.0	2.3	1.0	0.0	1.3	3.6	4.3	4.3	0.9	6.8	6.8
Cycle Q Clear(g_c), s	0.9	0.0	2.3	1.0	0.0	1.3	3.6	4.3	4.3	0.9	6.8	6.8
Prop In Lane	1.00		1.00	0.53		1.00	1.00		0.07	1.00		0.37
Lane Grp Cap(c), veh/h	320	0	143	109	0	95	196	647	672	57	507	501
V/C Ratio(X)	0.23	0.00	0.60	0.39	0.00	0.49	0.76	0.37	0.37	0.63	0.62	0.62
Avail Cap(c_a), veh/h	1401	0	625	1235	0	1078	604	1470	1528	262	1128	1114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.4	0.0	19.1	19.7	0.0	19.8	18.8	10.0	10.1	20.9	13.4	13.4
Incr Delay (d2), s/veh	0.4	0.0	3.9	2.3	0.0	3.9	5.9	0.3	0.3	11.0	1.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.1	0.6	0.0	0.7	2.1	2.1	2.2	0.6	3.4	3.4
LnGrp Delay(d),s/veh	18.8	0.0	23.0	22.0	0.0	23.7	24.7	10.4	10.4	31.9	14.6	14.7
LnGrp LOS	B		C	C		C	C	B	B	C	B	B
Approach Vol, veh/h		159			90			632			662	
Approach Delay, s/veh		21.0			22.9			13.8			15.6	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	22.5		9.1	8.9	19.0		6.7
Change Period (Y+Rc), s	4.0	6.4		5.1	4.0	6.4		4.0
Max Green Setting (Gmax), s	6.5	36.6		17.4	15.0	28.1		30.0
Max Q Clear Time (g_c+I1), s	2.9	6.3		4.3	5.6	8.8		3.3
Green Ext Time (p_c), s	0.0	3.1		0.4	0.2	3.8		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.8
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	836	126	19	854	4	76	2	18	5	1	10
Future Volume (veh/h)	33	836	126	19	854	4	76	2	18	5	1	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	37	929	140	21	949	4	84	2	20	6	1	11
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	63	999	150	42	1147	5	111	3	26	11	2	21
Arrive On Green	0.04	0.64	0.64	0.02	0.62	0.62	0.08	0.08	0.08	0.02	0.02	0.02
Sat Flow, veh/h	1757	1567	236	1757	1836	8	1362	32	324	547	91	1002
Grp Volume(v), veh/h	37	0	1069	21	0	953	106	0	0	18	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1803	1757	0	1843	1719	0	0	1640	0	0
Q Serve(g_s), s	1.5	0.0	38.7	0.9	0.0	29.4	4.4	0.0	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.0	38.7	0.9	0.0	29.4	4.4	0.0	0.0	0.8	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.00	0.79		0.19	0.33		0.61
Lane Grp Cap(c), veh/h	63	0	1149	42	0	1152	140	0	0	34	0	0
V/C Ratio(X)	0.58	0.00	0.93	0.50	0.00	0.83	0.75	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	132	0	1249	132	0	1277	423	0	0	415	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	34.7	0.0	11.8	35.3	0.0	10.7	32.9	0.0	0.0	35.5	0.0	0.0
Incr Delay (d2), s/veh	8.2	0.0	11.8	9.1	0.0	4.3	8.0	0.0	0.0	11.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	22.5	0.5	0.0	15.9	2.4	0.0	0.0	0.5	0.0	0.0
LnGrp Delay(d),s/veh	42.9	0.0	23.6	44.4	0.0	14.9	40.8	0.0	0.0	47.3	0.0	0.0
LnGrp LOS	D		C	D		B	D			D		
Approach Vol, veh/h		1106			974			106			18	
Approach Delay, s/veh		24.3			15.6			40.8			47.3	
Approach LOS		C			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	51.3		5.5	6.6	50.4		10.6
Change Period (Y+Rc), s	4.0	* 4.7		4.0	4.0	* 4.7		4.6
Max Green Setting (Gmax), s	5.5	* 51		18.5	5.5	* 51		18.0
Max Q Clear Time (g_c+I1), s	2.9	40.7		2.8	3.5	31.4		6.4
Green Ext Time (p_c), s	0.0	6.0		0.0	0.0	7.7		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	21.4
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	86	24	542	49	15	992
Future Vol, veh/h	86	24	542	49	15	992
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	92	26	583	53	16	1067

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1176	318	0	0	636	0
Stage 1	610	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	183	675	-	-	937	-
Stage 1	502	-	-	-	-	-
Stage 2	529	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	180	675	-	-	937	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	520	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	40.8	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	214	937	-
HCM Lane V/C Ratio	-	-	0.553	0.017	-
HCM Control Delay (s)	-	-	40.8	8.9	-
HCM Lane LOS	-	-	E	A	-
HCM 95th %tile Q(veh)	-	-	3	0.1	-

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	1013	1765	34	44	24
Future Volume (veh/h)	34	1013	1765	34	44	24
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	39	1151	2006	39	50	27
Adj No. of Lanes	1	3	3	0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	69	4022	3499	68	103	92
Arrive On Green	0.04	0.80	0.69	0.69	0.06	0.06
Sat Flow, veh/h	1757	5202	5252	99	1757	1568
Grp Volume(v), veh/h	39	1151	1324	721	50	27
Grp Sat Flow(s),veh/h/ln	1757	1679	1679	1827	1757	1568
Q Serve(g_s), s	1.4	3.8	12.8	12.8	1.7	1.0
Cycle Q Clear(g_c), s	1.4	3.8	12.8	12.8	1.7	1.0
Prop In Lane	1.00			0.05	1.00	1.00
Lane Grp Cap(c), veh/h	69	4022	2310	1257	103	92
V/C Ratio(X)	0.57	0.29	0.57	0.57	0.48	0.29
Avail Cap(c_a), veh/h	265	7064	3964	2158	627	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	1.7	5.1	5.1	28.8	28.4
Incr Delay (d2), s/veh	7.1	0.0	0.2	0.4	3.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.7	5.8	6.4	0.9	1.0
LnGrp Delay(d),s/veh	36.9	1.7	5.3	5.5	32.3	30.2
LnGrp LOS	D	A	A	A	C	C
Approach Vol, veh/h		1190	2045		77	
Approach Delay, s/veh		2.8	5.4		31.5	
Approach LOS		A	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				54.9		8.2	7.0	47.9
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				88.5		22.5	9.5	74.5
Max Q Clear Time (g_c+I1), s				5.8		3.7	3.4	14.8
Green Ext Time (p_c), s				11.7		0.2	0.0	28.6

Intersection Summary	
HCM 2010 Ctrl Delay	5.1
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	150	223	10	0	391	149	25	42	1	77	15	176
Future Volume (veh/h)	150	223	10	0	391	149	25	42	1	77	15	176
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	165	245	11	0	430	164	27	46	1	85	16	193
Adj No. of Lanes	2	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	327	986	44	3	513	196	63	459	10	130	296	265
Arrive On Green	0.10	0.56	0.56	0.00	0.40	0.40	0.04	0.13	0.13	0.07	0.17	0.17
Sat Flow, veh/h	3408	1752	79	1757	1273	486	1757	3508	76	1757	1752	1568
Grp Volume(v), veh/h	165	0	256	0	0	594	27	23	24	85	16	193
Grp Sat Flow(s),veh/h/ln	1704	0	1831	1757	0	1759	1757	1752	1831	1757	1752	1568
Q Serve(g_s), s	2.9	0.0	4.4	0.0	0.0	19.0	0.9	0.7	0.7	2.9	0.5	7.3
Cycle Q Clear(g_c), s	2.9	0.0	4.4	0.0	0.0	19.0	0.9	0.7	0.7	2.9	0.5	7.3
Prop In Lane	1.00		0.04	1.00		0.28	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	327	0	1031	3	0	709	63	230	240	130	296	265
V/C Ratio(X)	0.50	0.00	0.25	0.00	0.00	0.84	0.43	0.10	0.10	0.65	0.05	0.73
Avail Cap(c_a), veh/h	1014	0	1582	183	0	1179	186	805	841	354	965	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	0.0	6.9	0.0	0.0	16.8	29.5	23.9	23.9	28.2	21.8	24.6
Incr Delay (d2), s/veh	1.2	0.0	0.1	0.0	0.0	2.8	4.5	0.2	0.2	5.4	0.1	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.2	0.0	0.0	9.6	0.5	0.4	0.4	1.6	0.2	3.4
LnGrp Delay(d),s/veh	28.0	0.0	7.1	0.0	0.0	19.6	34.0	24.1	24.1	33.6	21.8	28.4
LnGrp LOS	C		A			B	C	C	C	C	C	C
Approach Vol, veh/h		421			594			74			294	
Approach Delay, s/veh		15.3			19.6			27.7			29.5	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	13.6	0.0	40.3	6.2	16.0	10.0	30.3
Change Period (Y+Rc), s	4.0	* 5.4	4.0	5.1	4.0	5.4	4.0	5.1
Max Green Setting (Gmax), s	12.6	* 29	6.5	54.0	6.6	34.4	18.6	41.9
Max Q Clear Time (g_c+I1), s	4.9	2.7	0.0	6.4	2.9	9.3	4.9	21.0
Green Ext Time (p_c), s	0.1	0.2	0.0	1.7	0.0	1.3	0.4	4.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C

Notes

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	76	31	672	92	38	322
Future Volume (veh/h)	76	31	672	92	38	322
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	83	34	730	100	41	350
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	162	144	953	810	81	1250
Arrive On Green	0.09	0.09	0.52	0.52	0.05	0.68
Sat Flow, veh/h	1757	1568	1845	1568	1757	1845
Grp Volume(v), veh/h	83	34	730	100	41	350
Grp Sat Flow(s),veh/h/ln	1757	1568	1845	1568	1757	1845
Q Serve(g_s), s	1.8	0.8	12.4	1.3	0.9	2.9
Cycle Q Clear(g_c), s	1.8	0.8	12.4	1.3	0.9	2.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	162	144	953	810	81	1250
V/C Ratio(X)	0.51	0.24	0.77	0.12	0.51	0.28
Avail Cap(c_a), veh/h	921	822	3657	3109	382	4271
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	16.5	7.6	4.9	18.2	2.5
Incr Delay (d2), s/veh	2.5	0.8	1.3	0.1	4.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.4	6.4	0.6	0.5	1.5
LnGrp Delay(d),s/veh	19.4	17.3	8.9	4.9	23.1	2.6
LnGrp LOS	B	B	A	A	C	A
Approach Vol, veh/h	117		830			391
Approach Delay, s/veh	18.8		8.4			4.8
Approach LOS	B		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.3	24.7				31.0		8.1
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	8.5	77.5				90.5		20.5
Max Q Clear Time (g_c+I1), s	2.9	14.4				4.9		3.8
Green Ext Time (p_c), s	0.0	5.8				2.0		0.3

Intersection Summary		
HCM 2010 Ctrl Delay		8.2
HCM 2010 LOS		A

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	358	50	32	174	30	14
Future Vol, veh/h	358	50	32	174	30	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	407	57	36	198	34	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	464	0	706	436
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	270	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1092	-	401	618
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	773	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1092	-	388	618
Mov Cap-2 Maneuver	-	-	-	-	388	-
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	747	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	14.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	440	-	-	1092	-
HCM Lane V/C Ratio	0.114	-	-	0.033	-
HCM Control Delay (s)	14.2	-	-	8.4	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.1					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	387	206	0	2	1
Future Vol, veh/h	0	387	206	0	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	445	237	0	2	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	237	0	-	0	682	237
Stage 1	-	-	-	-	237	-
Stage 2	-	-	-	-	445	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1324	-	-	-	414	800
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	644	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1324	-	-	-	414	800
Mov Cap-2 Maneuver	-	-	-	-	414	-
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	644	-

Approach	EB		WB		SB	
HCM Control Delay, s	0		0		12.4	
HCM LOS					B	

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1324	-	-	-	493
HCM Lane V/C Ratio	-	-	-	-	0.007
HCM Control Delay (s)	0	-	-	-	12.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	301	150	151	210	0	0	0	0	56	1	50
Future Vol, veh/h	0	301	150	151	210	0	0	0	0	56	1	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	75	-	-	-	-	-	-	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	334	167	168	233	0	0	0	0	62	1	56

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	501	0	0				987	1070	117
Stage 1	-	-	-	-	-	-				569	569	-
Stage 2	-	-	-	-	-	-				418	501	-
Critical Hdwy	-	-	-	4.235	-	-				6.735	6.635	7.035
Critical Hdwy Stg 1	-	-	-	-	-	-				5.935	5.635	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.535	5.635	-
Follow-up Hdwy	-	-	-	2.2855	-	-				3.5855	4.0855	3.3855
Pot Cap-1 Maneuver	0	-	-	1020	-	0				249	212	893
Stage 1	0	-	-	-	-	0				515	491	-
Stage 2	0	-	-	-	-	0				646	527	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1020	-	-				208	0	893
Mov Cap-2 Maneuver	-	-	-	-	-	-				208	0	-
Stage 1	-	-	-	-	-	-				515	0	-
Stage 2	-	-	-	-	-	-				539	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	3.9	20.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1020	-	208	893
HCM Lane V/C Ratio	-	-	0.164	-	0.304	0.062
HCM Control Delay (s)	-	-	9.2	-	29.7	9.3
HCM Lane LOS	-	-	A	-	D	A
HCM 95th %tile Q(veh)	-	-	0.6	-	1.2	0.2

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	68	285	0	0	296	96	70	4	67	0	0	0
Future Vol, veh/h	68	285	0	0	296	96	70	4	67	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	75	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	76	320	0	0	333	108	79	4	75	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	441	0	-	-	-	0	639	913	160
Stage 1	-	-	-	-	-	-	472	472	-
Stage 2	-	-	-	-	-	-	167	441	-
Critical Hdwy	4.28	-	-	-	-	-	6.98	6.68	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	5.98	5.68	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.98	5.68	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.59	4.09	3.39
Pot Cap-1 Maneuver	1067	-	0	0	-	-	393	260	835
Stage 1	-	-	0	0	-	-	574	540	-
Stage 2	-	-	0	0	-	-	825	558	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1067	-	-	-	-	-	365	0	835
Mov Cap-2 Maneuver	-	-	-	-	-	-	365	0	-
Stage 1	-	-	-	-	-	-	533	0	-
Stage 2	-	-	-	-	-	-	825	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.7	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	365	835	1067	-	-	-
HCM Lane V/C Ratio	0.228	0.09	0.072	-	-	-
HCM Control Delay (s)	17.7	9.7	8.6	-	-	-
HCM Lane LOS	C	A	A	-	-	-
HCM 95th %tile Q(veh)	0.9	0.3	0.2	-	-	-

Intersection	
Intersection Delay, s/veh	40.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	50	314	150	138	0	198	63	56	0	129	97
Future Vol, veh/h	38	50	314	150	138	0	198	63	56	0	129	97
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	44	57	361	172	159	0	228	72	64	0	148	111
Number of Lanes	1	1	0	1	2	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	3	2
HCM Control Delay	64	17.9	37.4	29.4
HCM LOS	F	C	E	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	76%	0%	100%	0%	100%	0%	0%	0%
Vol Thru, %	24%	0%	0%	14%	0%	100%	100%	57%
Vol Right, %	0%	100%	0%	86%	0%	0%	0%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	261	56	38	364	150	69	69	226
LT Vol	198	0	38	0	150	0	0	0
Through Vol	63	0	0	50	0	69	69	129
RT Vol	0	56	0	314	0	0	0	97
Lane Flow Rate	300	64	44	418	172	79	79	260
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.808	0.153	0.117	0.985	0.483	0.211	0.168	0.673
Departure Headway (Hd)	9.695	8.577	9.631	8.475	10.083	9.561	7.624	9.329
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	375	419	373	431	357	375	470	387
Service Time	7.423	6.305	7.353	6.197	7.848	7.325	5.388	7.095
HCM Lane V/C Ratio	0.8	0.153	0.118	0.97	0.482	0.211	0.168	0.672
HCM Control Delay	42.7	12.9	13.6	69.3	22	14.9	11.9	29.4
HCM Lane LOS	E	B	B	F	C	B	B	D
HCM 95th-tile Q	7	0.5	0.4	12.1	2.5	0.8	0.6	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	505	50	6	404	31	57	5	7	53	26	68
Future Volume (veh/h)	57	505	50	6	404	31	57	5	7	53	26	68
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	60	532	53	6	425	33	60	5	7	56	27	72
Adj No. of Lanes	1	2	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	104	1373	614	14	576	45	108	9	104	77	37	99
Arrive On Green	0.06	0.39	0.39	0.01	0.34	0.34	0.07	0.07	0.07	0.13	0.13	0.13
Sat Flow, veh/h	1757	3505	1568	1757	1690	131	1628	136	1568	606	292	779
Grp Volume(v), veh/h	60	532	53	6	0	458	65	0	7	155	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	0	1821	1763	0	1568	1677	0	0
Q Serve(g_s), s	1.5	4.8	0.9	0.2	0.0	9.8	1.6	0.0	0.2	3.9	0.0	0.0
Cycle Q Clear(g_c), s	1.5	4.8	0.9	0.2	0.0	9.8	1.6	0.0	0.2	3.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.07	0.92		1.00	0.36		0.46
Lane Grp Cap(c), veh/h	104	1373	614	14	0	621	117	0	104	213	0	0
V/C Ratio(X)	0.58	0.39	0.09	0.43	0.00	0.74	0.56	0.00	0.07	0.73	0.00	0.00
Avail Cap(c_a), veh/h	456	4553	2037	218	0	2119	737	0	655	777	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.3	9.7	8.5	21.9	0.0	12.8	20.0	0.0	19.4	18.6	0.0	0.0
Incr Delay (d2), s/veh	5.0	0.2	0.1	19.0	0.0	1.7	4.1	0.0	0.3	4.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.3	0.4	0.1	0.0	5.1	0.9	0.0	0.1	2.1	0.0	0.0
LnGrp Delay(d),s/veh	25.3	9.8	8.5	40.8	0.0	14.6	24.1	0.0	19.6	23.2	0.0	0.0
LnGrp LOS	C	A	A	D		B	C		B	C		
Approach Vol, veh/h		645			464			72			155	
Approach Delay, s/veh		11.2			14.9			23.7			23.2	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	21.8		10.1	7.1	19.6		7.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.5	57.5		20.5	11.5	51.5		18.5
Max Q Clear Time (g_c+I1), s	2.2	6.8		5.9	3.5	11.8		3.6
Green Ext Time (p_c), s	0.0	4.3		0.7	0.1	3.3		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	466	166	560	394	45	33	14	143	34	39	19
Future Volume (veh/h)	18	466	166	560	394	45	33	14	143	34	39	19
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	20	507	180	609	428	49	36	15	155	37	42	21
Adj No. of Lanes	1	2	0	2	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	41	732	258	804	1753	784	66	20	210	67	170	85
Arrive On Green	0.02	0.29	0.29	0.24	0.50	0.50	0.04	0.15	0.15	0.04	0.15	0.15
Sat Flow, veh/h	1757	2541	898	3408	3505	1568	1757	140	1449	1757	1161	581
Grp Volume(v), veh/h	20	349	338	609	428	49	36	0	170	37	0	63
Grp Sat Flow(s),veh/h/ln	1757	1752	1686	1704	1752	1568	1757	0	1589	1757	0	1742
Q Serve(g_s), s	0.7	10.9	11.0	10.2	4.3	1.0	1.2	0.0	6.3	1.3	0.0	2.0
Cycle Q Clear(g_c), s	0.7	10.9	11.0	10.2	4.3	1.0	1.2	0.0	6.3	1.3	0.0	2.0
Prop In Lane	1.00		0.53	1.00		1.00	1.00		0.91	1.00		0.33
Lane Grp Cap(c), veh/h	41	504	485	804	1753	784	66	0	231	67	0	254
V/C Ratio(X)	0.48	0.69	0.70	0.76	0.24	0.06	0.55	0.00	0.74	0.55	0.00	0.25
Avail Cap(c_a), veh/h	186	1127	1084	1914	3850	1722	214	0	530	214	0	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.6	19.5	19.5	21.8	8.7	7.9	29.1	0.0	25.1	29.0	0.0	23.3
Incr Delay (d2), s/veh	8.5	1.7	1.8	1.5	0.1	0.0	7.0	0.0	4.5	6.9	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.5	5.3	5.0	2.0	0.4	0.7	0.0	3.0	0.7	0.0	1.0
LnGrp Delay(d),s/veh	38.1	21.2	21.3	23.3	8.8	8.0	36.0	0.0	29.7	36.0	0.0	23.8
LnGrp LOS	D	C	C	C	A	A	D		C	D		C
Approach Vol, veh/h		707			1086			206			100	
Approach Delay, s/veh		21.7			16.9			30.8			28.3	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	22.2	6.8	13.5	5.9	35.2	6.8	13.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	34.5	39.5	7.5	20.5	6.5	67.5	7.5	20.5
Max Q Clear Time (g_c+I1), s	12.2	13.0	3.2	4.0	2.7	6.3	3.3	8.3
Green Ext Time (p_c), s	2.3	4.7	0.0	0.2	0.0	3.4	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	20.4
HCM 2010 LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	702	39	129	806	141	824		
Future Volume (veh/h)	702	39	129	806	141	824		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1743	1900	1743	1743	1743	1743		
Adj Flow Rate, veh/h	867	48	159	995	174	1017		
Adj No. of Lanes	3	0	1	3	1	2		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81		
Percent Heavy Veh, %	9	9	9	9	9	9		
Cap, veh/h	1253	69	197	2121	735	1155		
Arrive On Green	0.27	0.27	0.12	0.45	0.44	0.44		
Sat Flow, veh/h	4773	255	1660	4916	1660	2608		
Grp Volume(v), veh/h	595	320	159	995	174	1017		
Grp Sat Flow(s),veh/h/ln	1586	1698	1660	1586	1660	1304		
Q Serve(g_s), s	13.6	13.7	7.6	11.9	5.3	28.8		
Cycle Q Clear(g_c), s	13.6	13.7	7.6	11.9	5.3	28.8		
Prop In Lane		0.15	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	861	461	197	2121	735	1155		
V/C Ratio(X)	0.69	0.69	0.81	0.47	0.24	0.88		
Avail Cap(c_a), veh/h	1432	766	462	3736	975	1531		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	26.4	26.5	34.7	15.7	14.0	20.6		
Incr Delay (d2), s/veh	1.0	1.9	7.6	0.2	0.2	5.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	6.1	6.6	3.9	5.2	2.5	11.1		
LnGrp Delay(d),s/veh	27.4	28.3	42.3	15.9	14.2	25.5		
LnGrp LOS	C	C	D	B	B	C		
Approach Vol, veh/h	915			1154	1191			
Approach Delay, s/veh	27.7			19.5	23.9			
Approach LOS	C			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.1	26.4				40.6		40.3
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	22.5	36.5				63.5		47.5
Max Q Clear Time (g_c+I1), s	9.6	15.7				13.9		30.8
Green Ext Time (p_c), s	0.3	6.3				9.2		5.0

Intersection Summary	
HCM 2010 Ctrl Delay	23.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	1225	158	59	689	231	124	95	47	435	179	84
Future Volume (veh/h)	170	1225	158	59	689	231	124	95	47	435	179	84
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	181	1303	168	63	733	246	132	101	50	463	190	89
Adj No. of Lanes	1	3	0	1	3	1	2	1	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	149	1568	202	95	1594	496	247	138	68	560	388	330
Arrive On Green	0.09	0.37	0.37	0.06	0.33	0.33	0.08	0.13	0.13	0.17	0.22	0.22
Sat Flow, veh/h	1660	4268	550	1660	4759	1482	3221	1102	545	3221	1743	1482
Grp Volume(v), veh/h	181	969	502	63	733	246	132	0	151	463	190	89
Grp Sat Flow(s),veh/h/ln	1660	1586	1646	1660	1586	1482	1610	0	1647	1610	1743	1482
Q Serve(g_s), s	7.0	21.7	21.7	2.9	9.5	10.4	3.1	0.0	6.9	10.9	7.4	3.9
Cycle Q Clear(g_c), s	7.0	21.7	21.7	2.9	9.5	10.4	3.1	0.0	6.9	10.9	7.4	3.9
Prop In Lane	1.00		0.33	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	149	1165	605	95	1594	496	247	0	207	560	388	330
V/C Ratio(X)	1.22	0.83	0.83	0.66	0.46	0.50	0.53	0.00	0.73	0.83	0.49	0.27
Avail Cap(c_a), veh/h	149	1249	648	138	1843	574	1812	0	926	704	388	330
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	22.5	22.5	36.1	20.4	20.7	34.8	0.0	32.9	31.2	26.5	25.1
Incr Delay (d2), s/veh	144.3	4.6	8.5	7.7	0.2	0.8	1.8	0.0	4.9	6.6	1.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	10.2	11.2	1.5	4.2	4.3	1.4	0.0	3.4	5.3	3.7	1.6
LnGrp Delay(d),s/veh	179.9	27.2	31.1	43.8	20.7	21.5	36.6	0.0	37.8	37.8	27.5	25.6
LnGrp LOS	F	C	C	D	C	C	D		D	D	C	C
Approach Vol, veh/h		1652			1042			283			742	
Approach Delay, s/veh		45.1			22.3			37.2			33.7	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	35.5	11.4	22.8	11.0	33.0	19.0	15.2
Change Period (Y+Rc), s	4.0	6.8	5.4	5.4	4.0	6.8	5.4	5.4
Max Green Setting (Gmax), s	6.5	30.8	44.0	17.1	7.0	30.3	17.1	44.0
Max Q Clear Time (g_c+I1), s	4.9	23.7	5.1	9.4	9.0	12.4	12.9	8.9
Green Ext Time (p_c), s	0.0	5.0	0.5	0.8	0.0	5.8	0.7	0.9

Intersection Summary			
HCM 2010 Ctrl Delay			35.8
HCM 2010 LOS			D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	346	1519	159	28	943	448	61	269	45	458	499	239
Future Volume (veh/h)	346	1519	159	28	943	448	61	269	45	458	499	239
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1900	1743	1743	1900	1743	1743	1900
Adj Flow Rate, veh/h	360	1582	166	29	982	405	64	280	47	477	520	218
Adj No. of Lanes	1	3	1	1	3	0	1	2	0	2	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	360	2403	748	51	1054	435	107	366	61	537	528	220
Arrive On Green	0.22	0.50	0.50	0.03	0.32	0.32	0.06	0.13	0.13	0.17	0.23	0.23
Sat Flow, veh/h	1660	4759	1482	1660	3310	1365	1660	2844	472	3221	2279	952
Grp Volume(v), veh/h	360	1582	166	29	941	446	64	162	165	477	377	361
Grp Sat Flow(s),veh/h/ln	1660	1586	1482	1660	1586	1502	1660	1656	1660	1610	1656	1575
Q Serve(g_s), s	27.0	30.7	7.8	2.1	35.8	35.8	4.7	11.7	12.0	18.0	28.2	28.4
Cycle Q Clear(g_c), s	27.0	30.7	7.8	2.1	35.8	35.8	4.7	11.7	12.0	18.0	28.2	28.4
Prop In Lane	1.00		1.00	1.00		0.91	1.00		0.28	1.00		0.60
Lane Grp Cap(c), veh/h	360	2403	748	51	1011	479	107	213	214	537	383	365
V/C Ratio(X)	1.00	0.66	0.22	0.57	0.93	0.93	0.60	0.76	0.77	0.89	0.98	0.99
Avail Cap(c_a), veh/h	360	2403	748	80	1025	485	240	302	303	624	383	365
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	22.8	17.2	59.5	41.1	41.1	56.7	52.3	52.4	50.7	47.6	47.7
Incr Delay (d2), s/veh	47.3	0.7	0.1	9.8	14.4	24.8	5.3	6.7	7.7	13.2	41.6	44.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.0	13.5	3.2	1.1	17.7	18.2	2.3	5.8	6.0	9.0	17.3	16.8
LnGrp Delay(d),s/veh	96.0	23.5	17.3	69.3	55.5	65.9	62.0	59.0	60.2	63.9	89.2	91.9
LnGrp LOS	F	C	B	E	E	E	E	E	E	E	F	F
Approach Vol, veh/h		2108			1416			391			1215	
Approach Delay, s/veh		35.4			59.0			60.0			80.1	
Approach LOS		D			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	68.8	12.5	33.3	33.0	45.6	25.3	20.5
Change Period (Y+Rc), s	6.0	6.0	4.5	4.5	6.0	6.0	4.5	4.5
Max Green Setting (Gmax), s	6.0	61.2	18.0	28.8	27.0	40.2	24.1	22.7
Max Q Clear Time (g_c+I1), s	4.1	32.7	6.7	30.4	29.0	37.8	20.0	14.0
Green Ext Time (p_c), s	0.0	15.5	0.1	0.0	0.0	1.9	0.7	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	54.4
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	359	1046	122	88	608	109	77	70	88	312	89	582
Future Volume (veh/h)	359	1046	122	88	608	109	77	70	88	312	89	582
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	378	1101	128	93	640	115	81	74	93	328	94	613
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	332	1491	464	117	872	272	218	92	116	487	139	553
Arrive On Green	0.19	0.30	0.30	0.07	0.17	0.17	0.12	0.12	0.12	0.35	0.35	0.35
Sat Flow, veh/h	1757	5036	1568	1757	5036	1568	1757	744	935	1380	396	1568
Grp Volume(v), veh/h	378	1101	128	93	640	115	81	0	167	422	0	613
Grp Sat Flow(s),veh/h/ln	1757	1679	1568	1757	1679	1568	1757	0	1680	1776	0	1568
Q Serve(g_s), s	22.0	22.9	7.3	6.1	14.0	7.6	4.9	0.0	11.2	23.5	0.0	41.0
Cycle Q Clear(g_c), s	22.0	22.9	7.3	6.1	14.0	7.6	4.9	0.0	11.2	23.5	0.0	41.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	0.78		1.00
Lane Grp Cap(c), veh/h	332	1491	464	117	872	272	218	0	209	626	0	553
V/C Ratio(X)	1.14	0.74	0.28	0.80	0.73	0.42	0.37	0.00	0.80	0.67	0.00	1.11
Avail Cap(c_a), veh/h	332	1771	551	172	1312	409	574	0	549	626	0	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.1	36.9	31.4	53.5	45.5	42.9	46.8	0.0	49.5	32.0	0.0	37.6
Incr Delay (d2), s/veh	91.9	1.4	0.3	14.6	1.2	1.0	1.0	0.0	6.9	2.9	0.0	71.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.1	10.8	3.2	3.4	6.6	3.4	2.4	0.0	5.6	12.0	0.0	28.7
LnGrp Delay(d),s/veh	139.1	38.2	31.7	68.1	46.7	43.9	47.8	0.0	56.5	34.8	0.0	109.3
LnGrp LOS	F	D	C	E	D	D	D		E	C		F
Approach Vol, veh/h		1607			848			248			1035	
Approach Delay, s/veh		61.4			48.7			53.6			78.9	
Approach LOS		E			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.7	40.4		45.7	26.0	26.1		18.4
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	11.4	40.9		* 41	22.0	30.3		38.0
Max Q Clear Time (g_c+I1), s	18.1	24.9		43.0	24.0	16.0		13.2
Green Ext Time (p_c), s	0.1	7.5		0.0	0.0	4.1		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	62.9
HCM 2010 LOS	E

Notes

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	9	73	44	8	54	54	33	84	0	118	216	19
Future Vol, veh/h	9	73	44	8	54	54	33	84	0	118	216	19
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	10	82	49	9	61	61	37	94	0	133	243	21
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.8	9.6	9.6	13.7
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	7%	7%	33%
Vol Thru, %	72%	58%	47%	61%
Vol Right, %	0%	35%	47%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	117	126	116	353
LT Vol	33	9	8	118
Through Vol	84	73	54	216
RT Vol	0	44	54	19
Lane Flow Rate	131	142	130	397
Geometry Grp	1	1	1	1
Degree of Util (X)	0.194	0.21	0.191	0.545
Departure Headway (Hd)	5.311	5.337	5.288	4.948
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	677	672	678	734
Service Time	3.337	3.369	3.322	2.948
HCM Lane V/C Ratio	0.194	0.211	0.192	0.541
HCM Control Delay	9.6	9.8	9.6	13.7
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.7	0.8	0.7	3.3

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	4	154	51	50	111	24	13	70	57	46	87	6
Future Vol, veh/h	4	154	51	50	111	24	13	70	57	46	87	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	162	54	53	117	25	14	74	60	48	92	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	9.8	9.3	9.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	2%	27%	33%
Vol Thru, %	50%	74%	60%	63%
Vol Right, %	41%	24%	13%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	209	185	139
LT Vol	13	4	50	46
Through Vol	70	154	111	87
RT Vol	57	51	24	6
Lane Flow Rate	147	220	195	146
Geometry Grp	1	1	1	1
Degree of Util (X)	0.201	0.293	0.267	0.211
Departure Headway (Hd)	4.922	4.792	4.935	5.181
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	721	744	721	686
Service Time	3.01	2.867	3.014	3.268
HCM Lane V/C Ratio	0.204	0.296	0.27	0.213
HCM Control Delay	9.3	9.9	9.8	9.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	1.2	1.1	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	1223	427	254	606	14	335	45	171	13	20	19
Future Volume (veh/h)	76	1223	427	254	606	14	335	45	171	13	20	19
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	80	1287	0	267	638	15	353	47	180	14	21	20
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	103	1448	648	280	1799	42	511	277	235	25	38	55
Arrive On Green	0.06	0.41	0.00	0.16	0.51	0.51	0.15	0.15	0.15	0.03	0.03	0.03
Sat Flow, veh/h	1757	3505	1568	1757	3500	82	3408	1845	1568	723	1085	1568
Grp Volume(v), veh/h	80	1287	0	267	319	334	353	47	180	35	0	20
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1757	1752	1830	1704	1845	1568	1808	0	1568
Q Serve(g_s), s	3.7	27.8	0.0	12.3	8.8	8.8	8.0	1.8	9.0	1.6	0.0	1.0
Cycle Q Clear(g_c), s	3.7	27.8	0.0	12.3	8.8	8.8	8.0	1.8	9.0	1.6	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	103	1448	648	280	900	940	511	277	235	63	0	55
V/C Ratio(X)	0.78	0.89	0.00	0.95	0.35	0.35	0.69	0.17	0.77	0.55	0.00	0.37
Avail Cap(c_a), veh/h	228	1525	682	280	900	940	714	387	329	554	0	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.9	22.2	0.0	34.0	11.8	11.8	32.9	30.3	33.3	38.8	0.0	38.5
Incr Delay (d2), s/veh	11.7	6.6	0.0	41.3	0.2	0.2	1.7	0.3	6.8	7.4	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	14.7	0.0	9.1	4.3	4.5	3.9	0.9	4.3	0.9	0.0	0.5
LnGrp Delay(d),s/veh	49.6	28.8	0.0	75.3	12.0	12.0	34.6	30.5	40.2	46.1	0.0	42.5
LnGrp LOS	D	C		E	B	B	C	C	D	D		D
Approach Vol, veh/h		1367			920			580			55	
Approach Delay, s/veh		30.0			30.4			36.0			44.8	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	39.5		7.5	8.8	47.7		17.6
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	13.0	* 36		25.0	10.6	37.5		17.1
Max Q Clear Time (g_c+I1), s	14.3	29.8		3.6	5.7	10.8		11.0
Green Ext Time (p_c), s	0.0	3.9		0.2	0.1	4.3		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	31.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	1070	7	22	741	109	22	9	4	186	12	122
Future Volume (veh/h)	177	1070	7	22	741	109	22	9	4	186	12	122
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	184	1115	7	23	772	114	23	9	4	194	12	127
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	177	1098	933	34	807	119	52	20	9	240	15	226
Arrive On Green	0.10	0.60	0.60	0.02	0.51	0.51	0.05	0.05	0.05	0.14	0.14	0.14
Sat Flow, veh/h	1757	1845	1568	1757	1572	232	1121	439	195	1659	103	1568
Grp Volume(v), veh/h	184	1115	7	23	0	886	36	0	0	206	0	127
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1804	1754	0	0	1762	0	1568
Q Serve(g_s), s	9.0	53.2	0.2	1.2	0.0	41.9	1.8	0.0	0.0	10.1	0.0	6.7
Cycle Q Clear(g_c), s	9.0	53.2	0.2	1.2	0.0	41.9	1.8	0.0	0.0	10.1	0.0	6.7
Prop In Lane	1.00		1.00	1.00		0.13	0.64		0.11	0.94		1.00
Lane Grp Cap(c), veh/h	177	1098	933	34	0	927	81	0	0	254	0	226
V/C Ratio(X)	1.04	1.02	0.01	0.67	0.00	0.96	0.44	0.00	0.00	0.81	0.00	0.56
Avail Cap(c_a), veh/h	177	1098	933	108	0	955	363	0	0	351	0	312
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.2	18.1	7.4	43.5	0.0	20.8	41.5	0.0	0.0	37.0	0.0	35.6
Incr Delay (d2), s/veh	78.5	31.2	0.0	20.5	0.0	19.1	3.8	0.0	0.0	9.5	0.0	2.2
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	36.0	0.1	0.8	0.0	25.6	0.9	0.0	0.0	5.6	0.0	3.0
LnGrp Delay(d),s/veh	118.7	49.3	7.4	64.0	0.0	39.8	45.2	0.0	0.0	46.6	0.0	37.7
LnGrp LOS	F	F	A	E		D	D			D		D
Approach Vol, veh/h		1306			909			36			333	
Approach Delay, s/veh		58.8			40.4			45.2			43.2	
Approach LOS		E			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	57.9		17.6	13.0	50.6		8.1				
Change Period (Y+Rc), s	4.0	* 4.7		* 4.7	4.0	* 4.7		4.0				
Max Green Setting (Gmax), s	5.5	* 51		* 18	9.0	* 47		18.5				
Max Q Clear Time (g_c+I1), s	13.2	55.2		12.1	11.0	43.9		3.8				
Green Ext Time (p_c), s	0.0	0.0		0.8	0.0	2.0		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			50.2									
HCM 2010 LOS			D									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	743	187	49	787	0	135	0	63	0	0	0
Future Volume (veh/h)	0	743	187	49	787	0	135	0	63	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	0	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	0	917	231	60	972	0	167	0	78	0	0	0
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	0	3	3	3	3	3	3
Cap, veh/h	3	1077	915	110	1312	0	232	0	207	0	3	0
Arrive On Green	0.00	0.58	0.58	0.06	0.71	0.00	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Grp Volume(v), veh/h	0	917	231	60	972	0	167	0	78	0	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	0	1757	0	1568	0	1845	0
Q Serve(g_s), s	0.0	25.3	4.4	2.0	19.7	0.0	5.6	0.0	2.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	25.3	4.4	2.0	19.7	0.0	5.6	0.0	2.8	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	3	1077	915	110	1312	0	232	0	207	0	3	0
V/C Ratio(X)	0.00	0.85	0.25	0.55	0.74	0.00	0.72	0.00	0.38	0.00	0.00	0.00
Avail Cap(c_a), veh/h	186	1483	1261	186	1483	0	515	0	459	0	556	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.6	6.2	27.9	5.4	0.0	25.6	0.0	24.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.7	0.1	4.2	1.8	0.0	4.1	0.0	1.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.6	1.9	1.1	10.4	0.0	3.0	0.0	1.3	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	14.2	6.4	32.1	7.2	0.0	29.7	0.0	25.5	0.0	0.0	0.0
LnGrp LOS		B	A	C	A		C		C			
Approach Vol, veh/h		1148			1032			245			0	
Approach Delay, s/veh		12.7			8.6			28.3			0.0	
Approach LOS		B			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	40.9		0.0	0.0	48.7		12.7				
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.6				
Max Green Setting (Gmax), s	6.5	49.4		18.5	6.5	49.4		18.0				
Max Q Clear Time (g_c+I1), s	4.0	27.3		0.0	0.0	21.7		7.6				
Green Ext Time (p_c), s	0.0	8.6		0.0	0.0	9.3		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			12.5									
HCM 2010 LOS			B									

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	44	98	73	81	168	85	105	66	105	76	5
Future Vol, veh/h	2	44	98	73	81	168	85	105	66	105	76	5
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	51	113	84	93	193	98	121	76	121	87	6
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.7	11.6	16	14.2
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	33%	100%	0%	0%	100%	0%	0%	56%
Vol Thru, %	41%	0%	100%	13%	0%	100%	14%	41%
Vol Right, %	26%	0%	0%	87%	0%	0%	86%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	256	2	29	113	73	54	195	186
LT Vol	85	2	0	0	73	0	0	105
Through Vol	105	0	29	15	0	54	27	76
RT Vol	66	0	0	98	0	0	168	5
Lane Flow Rate	294	2	34	130	84	62	224	214
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.522	0.005	0.065	0.226	0.165	0.113	0.369	0.404
Departure Headway (Hd)	6.389	7.412	6.897	6.27	7.06	6.547	5.928	6.799
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	562	479	515	567	505	544	603	526
Service Time	4.165	5.209	4.694	4.066	4.843	4.329	3.71	4.581
HCM Lane V/C Ratio	0.523	0.004	0.066	0.229	0.166	0.114	0.371	0.407
HCM Control Delay	16	10.2	10.2	10.9	11.2	10.2	12.2	14.2
HCM Lane LOS	C	B	B	B	B	B	B	B
HCM 95th-tile Q	3	0	0.2	0.9	0.6	0.4	1.7	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	294	1949	1170	103	128	211
Future Volume (veh/h)	294	1949	1170	103	128	211
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	320	2118	1272	112	139	229
Adj No. of Lanes	2	3	3	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	433	3254	2195	193	320	286
Arrive On Green	0.13	0.65	0.47	0.47	0.18	0.18
Sat Flow, veh/h	3408	5202	4880	415	1757	1568
Grp Volume(v), veh/h	320	2118	906	478	139	229
Grp Sat Flow(s),veh/h/ln	1704	1679	1679	1771	1757	1568
Q Serve(g_s), s	6.8	19.3	14.8	14.8	5.3	10.5
Cycle Q Clear(g_c), s	6.8	19.3	14.8	14.8	5.3	10.5
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	433	3254	1564	825	320	286
V/C Ratio(X)	0.74	0.65	0.58	0.58	0.43	0.80
Avail Cap(c_a), veh/h	816	4361	1925	1016	981	876
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	8.1	14.7	14.7	27.3	29.4
Incr Delay (d2), s/veh	2.5	0.2	0.3	0.6	0.9	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	8.9	6.9	7.3	2.6	9.1
LnGrp Delay(d),s/veh	34.1	8.3	15.0	15.3	28.2	34.6
LnGrp LOS	C	A	B	B	C	C
Approach Vol, veh/h		2438	1384		368	
Approach Delay, s/veh		11.7	15.1		32.2	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		55.4		19.8	13.6	41.8		
Change Period (Y+Rc), s		6.8		6.1	4.0	6.8		
Max Green Setting (Gmax), s		65.1		42.0	18.0	43.1		
Max Q Clear Time (g_c+I1), s		21.3		12.5	8.8	16.8		
Green Ext Time (p_c), s		27.3		1.2	0.8	11.3		

Intersection Summary		
HCM 2010 Ctrl Delay		14.7
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	557	1287	384	148	760	133	228	445	160	101	405	357
Future Volume (veh/h)	557	1287	384	148	760	133	228	445	160	101	405	357
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	605	1399	417	161	826	145	248	484	174	110	440	225
Adj No. of Lanes	2	2	1	2	2	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	658	1510	676	202	1041	466	273	667	238	136	648	290
Arrive On Green	0.19	0.43	0.43	0.06	0.30	0.30	0.16	0.26	0.26	0.08	0.19	0.19
Sat Flow, veh/h	3408	3505	1568	3408	3505	1568	1757	2533	905	1757	3505	1568
Grp Volume(v), veh/h	605	1399	417	161	826	145	248	334	324	110	440	225
Grp Sat Flow(s),veh/h/ln	1704	1752	1568	1704	1752	1568	1757	1752	1685	1757	1752	1568
Q Serve(g_s), s	21.2	46.0	25.1	5.7	26.4	8.7	16.9	21.1	21.3	7.5	14.2	16.6
Cycle Q Clear(g_c), s	21.2	46.0	25.1	5.7	26.4	8.7	16.9	21.1	21.3	7.5	14.2	16.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.54	1.00		1.00
Lane Grp Cap(c), veh/h	658	1510	676	202	1041	466	273	462	444	136	648	290
V/C Ratio(X)	0.92	0.93	0.62	0.80	0.79	0.31	0.91	0.72	0.73	0.81	0.68	0.78
Avail Cap(c_a), veh/h	678	1541	690	202	1041	466	282	684	658	240	1297	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	32.8	26.8	56.5	39.3	33.1	50.5	40.8	40.9	55.2	46.2	47.2
Incr Delay (d2), s/veh	17.5	9.9	1.6	19.8	4.3	0.4	30.3	2.2	2.3	10.9	1.3	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	24.2	11.1	3.2	13.4	3.8	10.5	10.5	10.2	4.0	7.0	7.6
LnGrp Delay(d),s/veh	65.7	42.7	28.5	76.3	43.6	33.5	80.8	42.9	43.2	66.1	47.5	51.6
LnGrp LOS	E	D	C	E	D	C	F	D	D	E	D	D
Approach Vol, veh/h		2421			1132			906			775	
Approach Delay, s/veh		46.0			47.0			53.4			51.3	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	59.2	22.9	28.3	27.5	42.9	13.4	37.8
Change Period (Y+Rc), s	4.0	* 6.8	4.0	* 5.8	4.0	6.8	4.0	5.8
Max Green Setting (Gmax), s	7.2	* 54	19.5	* 45	24.2	36.1	16.6	47.5
Max Q Clear Time (g_c+I1), s	7.7	48.0	18.9	18.6	23.2	28.4	9.5	23.3
Green Ext Time (p_c), s	0.0	4.4	0.0	3.9	0.3	3.7	0.1	4.4

Intersection Summary	
HCM 2010 Ctrl Delay	48.3
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	0	25	15	0	66
Future Vol, veh/h	37	0	25	15	0	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	9	9	9	9	9
Mvmt Flow	40	0	27	16	0	72

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	107	35	0	0	43	0
Stage 1	35	-	-	-	-	-
Stage 2	72	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.19	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.281	-
Pot Cap-1 Maneuver	874	1018	-	-	1522	-
Stage 1	970	-	-	-	-	-
Stage 2	933	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	874	1018	-	-	1522	-
Mov Cap-2 Maneuver	874	-	-	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	933	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	874	1522	-
HCM Lane V/C Ratio	-	-	0.046	-	-
HCM Control Delay (s)	-	-	9.3	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection						
Int Delay, s/veh	1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	27	290	11	10	583
Future Vol, veh/h	30	27	290	11	10	583
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	9	9	9	9	9
Mvmt Flow	33	29	315	12	11	634

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	977	321	0	0	327	0
Stage 1	321	-	-	-	-	-
Stage 2	656	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.19	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.281	-
Pot Cap-1 Maneuver	270	704	-	-	1194	-
Stage 1	720	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	266	704	-	-	1194	-
Mov Cap-2 Maneuver	266	-	-	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	496	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.4	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	377	1194	-
HCM Lane V/C Ratio	-	-	0.164	0.009	-
HCM Control Delay (s)	-	-	16.4	8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	47	113	84	40	68	109	444	15	89	495	75
Future Volume (veh/h)	79	47	113	84	40	68	109	444	15	89	495	75
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	68	75	123	91	43	74	118	483	16	97	538	82
Adj No. of Lanes	1	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	222	233	198	149	71	193	155	995	33	126	826	125
Arrive On Green	0.13	0.13	0.13	0.12	0.12	0.12	0.09	0.29	0.29	0.07	0.27	0.27
Sat Flow, veh/h	1757	1845	1568	1212	573	1568	1757	3462	115	1757	3052	464
Grp Volume(v), veh/h	68	75	123	134	0	74	118	244	255	97	308	312
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1784	0	1568	1757	1752	1824	1757	1752	1763
Q Serve(g_s), s	1.8	1.8	3.7	3.5	0.0	2.2	3.3	5.7	5.8	2.7	7.7	7.8
Cycle Q Clear(g_c), s	1.8	1.8	3.7	3.5	0.0	2.2	3.3	5.7	5.8	2.7	7.7	7.8
Prop In Lane	1.00		1.00	0.68		1.00	1.00		0.06	1.00		0.26
Lane Grp Cap(c), veh/h	222	233	198	220	0	193	155	503	524	126	474	477
V/C Ratio(X)	0.31	0.32	0.62	0.61	0.00	0.38	0.76	0.49	0.49	0.77	0.65	0.65
Avail Cap(c_a), veh/h	614	645	548	1075	0	945	529	1070	1114	448	989	995
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.8	19.8	20.6	20.7	0.0	20.1	22.2	14.7	14.7	22.7	16.1	16.1
Incr Delay (d2), s/veh	0.8	0.8	3.2	2.7	0.0	1.2	7.5	0.7	0.7	9.6	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	1.8	1.9	0.0	1.0	1.9	2.9	3.0	1.6	3.9	4.0
LnGrp Delay(d),s/veh	20.5	20.6	23.8	23.4	0.0	21.3	29.7	15.4	15.4	32.3	17.6	17.6
LnGrp LOS	C	C	C	C		C	C	B	B	C	B	B
Approach Vol, veh/h		266			208			617			717	
Approach Delay, s/veh		22.1			22.7			18.1			19.6	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	20.7		11.4	8.4	19.9		10.1
Change Period (Y+Rc), s	4.0	6.4		5.1	4.0	6.4		4.0
Max Green Setting (Gmax), s	12.7	30.4		17.4	15.0	28.1		30.0
Max Q Clear Time (g_c+I1), s	4.7	7.8		5.7	5.3	9.8		5.5
Green Ext Time (p_c), s	0.1	3.0		0.7	0.2	3.7		1.0

Intersection Summary		
HCM 2010 Ctrl Delay		19.8
HCM 2010 LOS		B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1074	51	17	855	5	40	1	17	17	4	52
Future Volume (veh/h)	30	1074	51	17	855	5	40	1	17	17	4	52
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	32	1143	54	18	910	5	43	1	18	18	4	55
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	56	1134	54	36	1169	6	56	1	23	23	5	71
Arrive On Green	0.03	0.65	0.65	0.02	0.64	0.64	0.05	0.05	0.05	0.06	0.06	0.06
Sat Flow, veh/h	1757	1748	83	1757	1833	10	1178	27	493	379	84	1158
Grp Volume(v), veh/h	32	0	1197	18	0	915	62	0	0	77	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1830	1757	0	1843	1699	0	0	1621	0	0
Q Serve(g_s), s	1.4	0.0	50.7	0.8	0.0	27.9	2.8	0.0	0.0	3.7	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	50.7	0.8	0.0	27.9	2.8	0.0	0.0	3.7	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.01	0.69		0.29	0.23		0.71
Lane Grp Cap(c), veh/h	56	0	1188	36	0	1175	80	0	0	99	0	0
V/C Ratio(X)	0.57	0.00	1.01	0.50	0.00	0.78	0.77	0.00	0.00	0.77	0.00	0.00
Avail Cap(c_a), veh/h	124	0	1188	124	0	1196	391	0	0	384	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	37.3	0.0	13.7	37.8	0.0	10.2	36.8	0.0	0.0	36.1	0.0	0.0
Incr Delay (d2), s/veh	8.7	0.0	28.0	10.0	0.0	3.3	14.3	0.0	0.0	12.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	34.3	0.5	0.0	15.1	1.6	0.0	0.0	2.0	0.0	0.0
LnGrp Delay(d),s/veh	46.0	0.0	41.7	47.9	0.0	13.5	51.1	0.0	0.0	48.1	0.0	0.0
LnGrp LOS	D		F	D		B	D			D		
Approach Vol, veh/h		1229			933			62			77	
Approach Delay, s/veh		41.8			14.1			51.1			48.1	
Approach LOS		D			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	55.4		8.8	6.5	54.5		8.3
Change Period (Y+Rc), s	4.0	* 4.7		4.0	4.0	* 4.7		4.6
Max Green Setting (Gmax), s	5.5	* 51		18.5	5.5	* 51		18.0
Max Q Clear Time (g_c+I1), s	2.8	52.7		5.7	3.4	29.9		4.8
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	7.5		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	31.0
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	5.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	54	27	1031	142	39	870
Future Vol, veh/h	54	27	1031	142	39	870
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	59	29	1121	154	42	946

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1755	638	0	0	1275	0
Stage 1	1198	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	75	417	-	-	535	-
Stage 1	247	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	69	417	-	-	535	-
Mov Cap-2 Maneuver	69	-	-	-	-	-
Stage 1	247	-	-	-	-	-
Stage 2	493	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	149.6		0		0.5	
HCM LOS	F					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	96	535	-
HCM Lane V/C Ratio	-	-	0.917	0.079	-
HCM Control Delay (s)	-	-	149.6	12.3	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	5.3	0.3	-

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	58	2027	1279	57	71	19
Future Volume (veh/h)	58	2027	1279	57	71	19
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	66	2303	1453	65	81	22
Adj No. of Lanes	1	3	3	0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	91	4044	3390	152	117	104
Arrive On Green	0.05	0.80	0.69	0.69	0.07	0.07
Sat Flow, veh/h	1757	5202	5108	221	1757	1568
Grp Volume(v), veh/h	66	2303	987	531	81	22
Grp Sat Flow(s),veh/h/ln	1757	1679	1679	1806	1757	1568
Q Serve(g_s), s	2.6	11.5	9.0	9.0	3.1	0.9
Cycle Q Clear(g_c), s	2.6	11.5	9.0	9.0	3.1	0.9
Prop In Lane	1.00			0.12	1.00	1.00
Lane Grp Cap(c), veh/h	91	4044	2303	1239	117	104
V/C Ratio(X)	0.72	0.57	0.43	0.43	0.69	0.21
Avail Cap(c_a), veh/h	369	6381	3330	1791	598	534
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	2.5	4.8	4.8	31.5	30.5
Incr Delay (d2), s/veh	10.2	0.1	0.1	0.2	7.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	5.2	4.2	4.5	1.7	0.8
LnGrp Delay(d),s/veh	42.5	2.6	5.0	5.1	38.7	31.5
LnGrp LOS	D	A	A	A	D	C
Approach Vol, veh/h		2369	1518		103	
Approach Delay, s/veh		3.7	5.0		37.1	
Approach LOS		A	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				60.0		9.1	8.1	51.9
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				87.5		23.5	14.5	68.5
Max Q Clear Time (g_c+I1), s				13.5		5.1	4.6	11.0
Green Ext Time (p_c), s				42.0		0.2	0.1	16.6

Intersection Summary	
HCM 2010 Ctrl Delay	5.1
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	321	33	2	303	143	22	20	5	136	25	234
Future Volume (veh/h)	175	321	33	2	303	143	22	20	5	136	25	234
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	186	341	35	2	322	152	23	21	5	145	27	249
Adj No. of Lanes	2	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	349	718	74	6	400	189	56	391	90	188	374	334
Arrive On Green	0.10	0.44	0.44	0.00	0.34	0.34	0.03	0.14	0.14	0.11	0.21	0.21
Sat Flow, veh/h	3408	1646	169	1757	1186	560	1757	2833	650	1757	1752	1568
Grp Volume(v), veh/h	186	0	376	2	0	474	23	13	13	145	27	249
Grp Sat Flow(s),veh/h/ln	1704	0	1815	1757	0	1746	1757	1752	1730	1757	1752	1568
Q Serve(g_s), s	3.0	0.0	8.6	0.1	0.0	14.5	0.8	0.4	0.4	4.7	0.7	8.7
Cycle Q Clear(g_c), s	3.0	0.0	8.6	0.1	0.0	14.5	0.8	0.4	0.4	4.7	0.7	8.7
Prop In Lane	1.00		0.09	1.00		0.32	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	349	0	791	6	0	588	56	242	239	188	374	334
V/C Ratio(X)	0.53	0.00	0.48	0.35	0.00	0.81	0.41	0.05	0.06	0.77	0.07	0.74
Avail Cap(c_a), veh/h	1081	0	1638	198	0	1218	198	786	776	479	1058	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	0.0	11.8	29.2	0.0	17.7	27.8	21.9	22.0	25.5	18.4	21.6
Incr Delay (d2), s/veh	1.3	0.0	0.4	32.3	0.0	2.7	4.7	0.1	0.1	6.5	0.1	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	4.4	0.1	0.0	7.4	0.4	0.2	0.2	2.6	0.4	4.0
LnGrp Delay(d),s/veh	26.3	0.0	12.2	61.5	0.0	20.3	32.6	22.0	22.1	31.9	18.5	24.9
LnGrp LOS	C		B	E		C	C	C	C	C	B	C
Approach Vol, veh/h		562			476			49			421	
Approach Delay, s/veh		16.9			20.5			27.0			26.9	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	13.5	4.2	30.7	5.9	17.9	10.0	24.9
Change Period (Y+Rc), s	4.0	* 5.4	4.0	5.1	4.0	5.4	4.0	5.1
Max Green Setting (Gmax), s	16.0	* 26	6.6	52.9	6.6	35.4	18.6	40.9
Max Q Clear Time (g_c+I1), s	6.7	2.4	2.1	10.6	2.8	10.7	5.0	16.5
Green Ext Time (p_c), s	0.2	0.1	0.0	2.6	0.0	1.8	0.5	3.3

Intersection Summary	
HCM 2010 Ctrl Delay	21.1
HCM 2010 LOS	C

Notes

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	194	79	324	189	78	673
Future Volume (veh/h)	194	79	324	189	78	673
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	211	86	352	205	85	732
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	327	292	580	493	145	989
Arrive On Green	0.19	0.19	0.31	0.31	0.08	0.54
Sat Flow, veh/h	1757	1568	1845	1568	1757	1845
Grp Volume(v), veh/h	211	86	352	205	85	732
Grp Sat Flow(s),veh/h/ln	1757	1568	1845	1568	1757	1845
Q Serve(g_s), s	3.6	1.5	5.2	3.3	1.5	9.9
Cycle Q Clear(g_c), s	3.6	1.5	5.2	3.3	1.5	9.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	327	292	580	493	145	989
V/C Ratio(X)	0.64	0.29	0.61	0.42	0.59	0.74
Avail Cap(c_a), veh/h	1653	1475	3443	2927	840	4581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.2	11.4	9.4	8.8	14.3	5.8
Incr Delay (d2), s/veh	2.1	0.6	1.0	0.6	3.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.7	2.8	1.5	0.9	5.2
LnGrp Delay(d),s/veh	14.3	11.9	10.4	9.3	18.1	6.9
LnGrp LOS	B	B	B	A	B	A
Approach Vol, veh/h	297		557			817
Approach Delay, s/veh	13.6		10.0			8.1
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	7.2	14.7				21.9		10.5
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	15.5	60.5				80.5		30.5
Max Q Clear Time (g_c+I1), s	3.5	7.2				11.9		5.6
Green Ext Time (p_c), s	0.1	2.7				5.5		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	103	906	75	1217	181	202	123	170	61	108
v/c Ratio	0.39	0.71	0.55	0.61	0.25	0.48	0.52	0.44	0.29	0.33
Control Delay	40.6	24.5	53.3	21.0	4.1	36.2	35.4	36.5	35.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.6	24.5	53.3	21.0	4.1	36.2	35.4	36.5	35.6	4.2
Queue Length 50th (ft)	25	189	36	174	0	47	48	40	28	0
Queue Length 95th (ft)	52	287	#96	247	38	81	99	72	63	11
Internal Link Dist (ft)		410		540			2568		2090	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	265	1279	136	1999	727	1795	940	697	378	454
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.71	0.55	0.61	0.25	0.11	0.13	0.24	0.16	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	701	96	66	1071	159	178	77	31	150	54	95
Future Volume (veh/h)	91	701	96	66	1071	159	178	77	31	150	54	95
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	103	797	109	75	1217	181	202	88	35	170	61	108
Adj No. of Lanes	2	2	0	1	3	1	2	1	0	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	253	1123	154	115	1779	554	330	139	55	301	188	160
Arrive On Green	0.08	0.38	0.38	0.07	0.37	0.37	0.10	0.12	0.12	0.09	0.11	0.11
Sat Flow, veh/h	3221	2928	400	1660	4759	1482	3221	1187	472	3221	1743	1482
Grp Volume(v), veh/h	103	451	455	75	1217	181	202	0	123	170	61	108
Grp Sat Flow(s),veh/h/ln	1610	1656	1672	1660	1586	1482	1610	0	1660	1610	1743	1482
Q Serve(g_s), s	2.0	14.8	14.8	2.8	13.8	5.6	3.8	0.0	4.5	3.2	2.1	4.5
Cycle Q Clear(g_c), s	2.0	14.8	14.8	2.8	13.8	5.6	3.8	0.0	4.5	3.2	2.1	4.5
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	253	635	641	115	1779	554	330	0	194	301	188	160
V/C Ratio(X)	0.41	0.71	0.71	0.65	0.68	0.33	0.61	0.00	0.63	0.56	0.32	0.67
Avail Cap(c_a), veh/h	327	796	804	168	2286	712	2211	0	1139	859	465	395
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.1	16.7	16.7	29.1	16.9	14.3	27.5	0.0	27.0	27.8	26.4	27.5
Incr Delay (d2), s/veh	1.0	2.2	2.2	6.2	0.6	0.3	1.8	0.0	3.4	1.7	1.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	7.1	7.2	1.5	6.1	2.3	1.8	0.0	2.3	1.5	1.1	2.1
LnGrp Delay(d),s/veh	29.2	18.9	18.9	35.3	17.5	14.7	29.4	0.0	30.4	29.5	27.4	32.4
LnGrp LOS	C	B	B	D	B	B	C		C	C	C	C
Approach Vol, veh/h		1009			1473			325			339	
Approach Delay, s/veh		20.0			18.0			29.8			30.0	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	31.4	12.0	12.3	9.0	30.8	11.4	12.9
Change Period (Y+Rc), s	4.0	6.8	5.4	5.4	4.0	6.8	5.4	5.4
Max Green Setting (Gmax), s	6.5	30.8	44.0	17.1	6.5	30.8	17.1	44.0
Max Q Clear Time (g_c+I1), s	4.8	16.8	5.8	6.5	4.0	15.8	5.2	6.5
Green Ext Time (p_c), s	0.0	5.1	0.7	0.4	0.1	8.2	0.4	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	21.2
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	31	706	330	252	766	340	32	226	60	32
v/c Ratio	0.21	0.62	0.45	0.50	0.48	0.54	0.09	0.48	0.30	0.10
Control Delay	43.6	25.6	4.8	37.1	18.0	34.4	31.3	8.7	40.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	25.6	4.8	37.1	18.0	34.4	31.3	8.7	40.8	0.7
Queue Length 50th (ft)	15	155	0	60	153	79	13	0	28	0
Queue Length 95th (ft)	43	210	36	101	199	126	38	42	65	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	152	1677	922	670	2033	842	456	558	640	656
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.42	0.36	0.38	0.38	0.40	0.07	0.41	0.09	0.05

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	572	267	204	600	20	275	26	183	14	35	26
Future Volume (veh/h)	25	572	267	204	600	20	275	26	183	14	35	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	31	706	0	252	741	25	340	32	226	17	43	32
Adj No. of Lanes	1	2	1	2	2	0	2	1	1	0	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	48	1043	466	382	1323	45	664	360	306	29	73	88
Arrive On Green	0.03	0.30	0.00	0.11	0.38	0.38	0.19	0.19	0.19	0.06	0.06	0.06
Sat Flow, veh/h	1757	3505	1568	3408	3460	117	3408	1845	1568	515	1304	1568
Grp Volume(v), veh/h	31	706	0	252	375	391	340	32	226	60	0	32
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1704	1752	1824	1704	1845	1568	1819	0	1568
Q Serve(g_s), s	1.0	10.3	0.0	4.1	9.8	9.8	5.2	0.8	7.9	1.9	0.0	1.1
Cycle Q Clear(g_c), s	1.0	10.3	0.0	4.1	9.8	9.8	5.2	0.8	7.9	1.9	0.0	1.1
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.28		1.00
Lane Grp Cap(c), veh/h	48	1043	466	382	670	698	664	360	306	102	0	88
V/C Ratio(X)	0.65	0.68	0.00	0.66	0.56	0.56	0.51	0.09	0.74	0.59	0.00	0.37
Avail Cap(c_a), veh/h	187	2044	914	818	1244	1295	1029	557	473	780	0	672
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.1	18.0	0.0	24.8	14.1	14.1	21.0	19.2	22.1	26.9	0.0	26.5
Incr Delay (d2), s/veh	14.0	0.8	0.0	1.9	0.7	0.7	0.6	0.1	3.5	5.3	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.1	0.0	2.0	4.8	5.0	2.5	0.4	3.7	1.1	0.0	0.6
LnGrp Delay(d),s/veh	42.1	18.8	0.0	26.8	14.9	14.9	21.6	19.3	25.6	32.2	0.0	29.1
LnGrp LOS	D	B		C	B	B	C	B	C	C		C
Approach Vol, veh/h		737			1018			598			92	
Approach Delay, s/veh		19.8			17.8			23.0			31.1	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.5	23.1		7.9	5.6	28.1		16.8
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	14.0	* 34		25.0	6.2	41.4		17.6
Max Q Clear Time (g_c+I1), s	6.1	12.3		3.9	3.0	11.8		9.9
Green Ext Time (p_c), s	0.5	5.0		0.3	0.0	5.4		1.5

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

Notes

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	123	1262	53	633	111	114	82	210	80	40
v/c Ratio	0.42	0.88	0.35	0.34	0.16	0.31	0.39	0.47	0.34	0.12
Control Delay	39.4	31.1	41.9	16.8	1.9	34.9	24.2	34.3	35.1	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	31.1	41.9	16.8	1.9	34.9	24.2	34.3	35.1	0.7
Queue Length 50th (ft)	29	297	24	73	0	26	18	48	36	0
Queue Length 95th (ft)	59	#507	63	116	16	53	59	84	77	0
Internal Link Dist (ft)		410		540			2568		2090	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	297	1434	153	2087	737	2013	1022	782	424	489
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.88	0.35	0.30	0.15	0.06	0.08	0.27	0.19	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	1050	136	50	595	104	107	37	40	197	75	38
Future Volume (veh/h)	116	1050	136	50	595	104	107	37	40	197	75	38
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	123	1117	145	53	633	111	114	39	43	210	80	40
Adj No. of Lanes	2	2	0	1	3	1	2	1	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	259	1274	165	93	1939	604	288	68	75	322	174	148
Arrive On Green	0.08	0.43	0.43	0.06	0.41	0.41	0.09	0.09	0.09	0.10	0.10	0.10
Sat Flow, veh/h	3221	2949	382	1660	4759	1482	3221	759	837	3221	1743	1482
Grp Volume(v), veh/h	123	626	636	53	633	111	114	0	82	210	80	40
Grp Sat Flow(s),veh/h/ln	1610	1656	1676	1660	1586	1482	1610	0	1595	1610	1743	1482
Q Serve(g_s), s	2.4	23.1	23.3	2.1	6.1	3.2	2.2	0.0	3.3	4.2	2.9	1.7
Cycle Q Clear(g_c), s	2.4	23.1	23.3	2.1	6.1	3.2	2.2	0.0	3.3	4.2	2.9	1.7
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	259	715	724	93	1939	604	288	0	143	322	174	148
V/C Ratio(X)	0.47	0.88	0.88	0.57	0.33	0.18	0.40	0.00	0.58	0.65	0.46	0.27
Avail Cap(c_a), veh/h	313	762	771	161	2188	681	2116	0	1048	822	445	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	17.4	17.4	30.8	13.6	12.7	28.8	0.0	29.3	29.0	28.4	27.9
Incr Delay (d2), s/veh	1.3	10.7	10.9	5.3	0.1	0.1	0.9	0.0	3.6	2.2	1.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	12.6	12.8	1.1	2.7	1.3	1.0	0.0	1.6	2.0	1.5	0.7
LnGrp Delay(d),s/veh	30.8	28.1	28.3	36.2	13.7	12.9	29.7	0.0	32.9	31.2	30.3	28.9
LnGrp LOS	C	C	C	D	B	B	C		C	C	C	C
Approach Vol, veh/h		1385			797			196			330	
Approach Delay, s/veh		28.4			15.0			31.0			30.7	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	35.7	11.4	12.1	9.4	34.1	12.1	11.4
Change Period (Y+Rc), s	4.0	6.8	5.4	5.4	4.0	6.8	5.4	5.4
Max Green Setting (Gmax), s	6.5	30.8	44.0	17.1	6.5	30.8	17.1	44.0
Max Q Clear Time (g_c+I1), s	4.1	25.3	4.2	4.9	4.4	8.1	6.2	5.3
Green Ext Time (p_c), s	0.0	3.7	0.4	0.3	0.1	4.9	0.5	0.5

Intersection Summary			
HCM 2010 Ctrl Delay			25.0
HCM 2010 LOS			C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	67	1075	374	229	557	296	40	154	30	17
v/c Ratio	0.36	0.71	0.43	0.54	0.33	0.53	0.13	0.40	0.18	0.07
Control Delay	43.3	22.9	5.0	41.0	16.0	35.8	32.9	9.4	41.1	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.3	22.9	5.0	41.0	16.0	35.8	32.9	9.4	41.1	0.5
Queue Length 50th (ft)	36	251	13	63	104	79	20	0	16	0
Queue Length 95th (ft)	79	360	73	107	163	123	49	52	44	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	228	1795	965	458	1792	775	420	476	602	603
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.60	0.39	0.50	0.31	0.38	0.10	0.32	0.05	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	1021	355	218	517	12	281	38	146	11	17	16
Future Volume (veh/h)	64	1021	355	218	517	12	281	38	146	11	17	16
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	67	1075	0	229	544	13	296	40	154	12	18	17
Adj No. of Lanes	1	2	1	2	2	0	2	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	85	1450	649	336	1622	39	492	266	226	26	38	55
Arrive On Green	0.05	0.41	0.00	0.10	0.46	0.46	0.14	0.14	0.14	0.04	0.04	0.04
Sat Flow, veh/h	1757	3505	1568	3408	3499	84	3408	1845	1568	723	1085	1568
Grp Volume(v), veh/h	67	1075	0	229	272	285	296	40	154	30	0	17
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1704	1752	1830	1704	1845	1568	1808	0	1568
Q Serve(g_s), s	2.4	16.7	0.0	4.2	6.3	6.4	5.2	1.2	6.0	1.0	0.0	0.7
Cycle Q Clear(g_c), s	2.4	16.7	0.0	4.2	6.3	6.4	5.2	1.2	6.0	1.0	0.0	0.7
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	85	1450	649	336	813	849	492	266	226	64	0	55
V/C Ratio(X)	0.79	0.74	0.00	0.68	0.34	0.34	0.60	0.15	0.68	0.47	0.00	0.31
Avail Cap(c_a), veh/h	268	2094	937	535	1044	1090	907	491	417	703	0	610
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.3	15.9	0.0	28.0	10.9	10.9	25.8	24.1	26.1	30.4	0.0	30.2
Incr Delay (d2), s/veh	14.5	0.8	0.0	2.4	0.2	0.2	1.2	0.3	3.6	5.3	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.1	0.0	2.1	3.1	3.2	2.5	0.6	2.8	0.6	0.0	0.3
LnGrp Delay(d),s/veh	44.8	16.8	0.0	30.4	11.2	11.2	27.0	24.3	29.7	35.7	0.0	33.3
LnGrp LOS	D	B		C	B	B	C	C	C	D		C
Approach Vol, veh/h		1142			786			490			47	
Approach Delay, s/veh		18.4			16.8			27.6			34.8	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.3	32.4		6.9	7.1	35.6		14.7
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	10.1	* 38		25.0	9.8	38.3		17.1
Max Q Clear Time (g_c+I1), s	6.2	18.7		3.0	4.4	8.4		8.0
Green Ext Time (p_c), s	0.3	7.9		0.1	0.0	3.6		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	C

Notes

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	118	906	75	1217	256	202	160	194	72	113
v/c Ratio	0.46	0.73	0.57	0.68	0.36	0.49	0.59	0.48	0.28	0.31
Control Delay	44.0	27.1	57.2	24.6	4.4	37.9	39.3	38.3	33.9	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	27.1	57.2	24.6	4.4	37.9	39.3	38.3	33.9	3.8
Queue Length 50th (ft)	30	202	38	186	0	50	71	48	33	0
Queue Length 95th (ft)	60	310	#103	268	47	85	131	83	71	13
Internal Link Dist (ft)		410		540			2568		2090	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	255	1233	131	1794	718	1730	914	672	366	445
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.73	0.57	0.68	0.36	0.12	0.18	0.29	0.20	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	701	96	66	1071	225	178	110	31	171	63	99
Future Volume (veh/h)	104	701	96	66	1071	225	178	110	31	171	63	99
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	118	797	109	75	1217	256	202	125	35	194	72	112
Adj No. of Lanes	2	2	0	1	3	1	2	1	0	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	256	1114	152	112	1752	545	325	178	50	305	226	192
Arrive On Green	0.08	0.38	0.38	0.07	0.37	0.37	0.10	0.14	0.14	0.09	0.13	0.13
Sat Flow, veh/h	3221	2928	400	1660	4759	1482	3221	1311	367	3221	1743	1482
Grp Volume(v), veh/h	118	451	455	75	1217	256	202	0	160	194	72	112
Grp Sat Flow(s),veh/h/ln	1610	1656	1672	1660	1586	1482	1610	0	1678	1610	1743	1482
Q Serve(g_s), s	2.3	15.5	15.5	3.0	14.6	8.8	4.0	0.0	6.1	3.9	2.5	4.8
Cycle Q Clear(g_c), s	2.3	15.5	15.5	3.0	14.6	8.8	4.0	0.0	6.1	3.9	2.5	4.8
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	256	630	636	112	1752	545	325	0	227	305	226	192
V/C Ratio(X)	0.46	0.72	0.72	0.67	0.69	0.47	0.62	0.00	0.70	0.64	0.32	0.58
Avail Cap(c_a), veh/h	312	761	768	161	2186	681	2113	0	1101	821	445	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.5	17.7	17.7	30.5	18.0	16.2	28.9	0.0	27.7	29.2	26.5	27.5
Incr Delay (d2), s/veh	1.3	2.5	2.5	6.8	0.7	0.6	2.0	0.0	3.9	2.2	0.8	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	7.5	7.5	1.6	6.4	3.7	1.9	0.0	3.1	1.8	1.3	2.1
LnGrp Delay(d),s/veh	30.8	20.2	20.2	37.3	18.7	16.8	30.9	0.0	31.6	31.4	27.3	30.3
LnGrp LOS	C	C	C	D	B	B	C		C	C	C	C
Approach Vol, veh/h		1024			1548			362			378	
Approach Delay, s/veh		21.4			19.3			31.2			30.3	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	32.3	12.2	14.1	9.3	31.5	11.8	14.5
Change Period (Y+Rc), s	4.0	6.8	5.4	5.4	4.0	6.8	5.4	5.4
Max Green Setting (Gmax), s	6.5	30.8	44.0	17.1	6.5	30.8	17.1	44.0
Max Q Clear Time (g_c+I1), s	5.0	17.5	6.0	6.8	4.3	16.6	5.9	8.1
Green Ext Time (p_c), s	0.0	4.9	0.7	0.5	0.1	8.1	0.5	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	31	716	331	252	799	343	32	226	60	32
v/c Ratio	0.21	0.62	0.45	0.50	0.50	0.54	0.09	0.48	0.30	0.10
Control Delay	43.8	25.6	4.8	37.2	18.3	34.6	31.3	8.7	40.9	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	25.6	4.8	37.2	18.3	34.6	31.3	8.7	40.9	0.7
Queue Length 50th (ft)	15	158	0	60	162	80	13	0	28	0
Queue Length 95th (ft)	43	213	35	101	209	127	38	42	65	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	152	1669	920	667	2024	838	455	556	637	653
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.43	0.36	0.38	0.39	0.41	0.07	0.41	0.09	0.05

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	580	268	204	627	20	278	26	183	14	35	26
Future Volume (veh/h)	25	580	268	204	627	20	278	26	183	14	35	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	31	716	0	252	774	25	343	32	226	17	43	32
Adj No. of Lanes	1	2	1	2	2	0	2	1	1	0	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	48	1052	471	381	1335	43	663	359	305	29	73	88
Arrive On Green	0.03	0.30	0.00	0.11	0.39	0.39	0.19	0.19	0.19	0.06	0.06	0.06
Sat Flow, veh/h	1757	3505	1568	3408	3465	112	3408	1845	1568	515	1304	1568
Grp Volume(v), veh/h	31	716	0	252	391	408	343	32	226	60	0	32
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1704	1752	1825	1704	1845	1568	1819	0	1568
Q Serve(g_s), s	1.0	10.5	0.0	4.2	10.4	10.4	5.3	0.8	8.0	1.9	0.0	1.2
Cycle Q Clear(g_c), s	1.0	10.5	0.0	4.2	10.4	10.4	5.3	0.8	8.0	1.9	0.0	1.2
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.28		1.00
Lane Grp Cap(c), veh/h	48	1052	471	381	675	703	663	359	305	102	0	88
V/C Ratio(X)	0.65	0.68	0.00	0.66	0.58	0.58	0.52	0.09	0.74	0.59	0.00	0.37
Avail Cap(c_a), veh/h	186	2030	908	813	1236	1287	1022	553	470	775	0	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.3	18.1	0.0	25.0	14.3	14.3	21.2	19.4	22.2	27.1	0.0	26.7
Incr Delay (d2), s/veh	14.1	0.8	0.0	2.0	0.8	0.8	0.6	0.1	3.5	5.4	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.2	0.0	2.1	5.1	5.4	2.5	0.4	3.7	1.1	0.0	0.6
LnGrp Delay(d),s/veh	42.4	18.8	0.0	27.0	15.1	15.0	21.8	19.5	25.8	32.4	0.0	29.2
LnGrp LOS	D	B		C	B	B	C	B	C	C		C
Approach Vol, veh/h		747			1051			601			92	
Approach Delay, s/veh		19.8			17.9			23.2			31.3	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.6	23.4		7.9	5.6	28.4		16.8
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	14.0	* 34		25.0	6.2	41.4		17.6
Max Q Clear Time (g_c+I1), s	6.2	12.5		3.9	3.0	12.4		10.0
Green Ext Time (p_c), s	0.5	5.1		0.3	0.0	5.6		1.5

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

Notes

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	131	1262	53	633	144	114	99	298	124	57
v/c Ratio	0.46	0.92	0.37	0.35	0.22	0.32	0.45	0.57	0.42	0.15
Control Delay	42.5	36.6	44.8	18.7	4.0	37.1	30.4	35.5	34.8	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	36.6	44.8	18.7	4.0	37.1	30.4	35.5	34.8	0.8
Queue Length 50th (ft)	32	~324	26	80	0	27	30	72	57	0
Queue Length 95th (ft)	65	#554	66	126	33	55	79	117	109	0
Internal Link Dist (ft)		410		540			2568		2090	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	285	1377	147	2003	714	1932	994	751	413	480
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.92	0.36	0.32	0.20	0.06	0.10	0.40	0.30	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	1050	136	50	595	135	107	53	40	280	117	54
Future Volume (veh/h)	123	1050	136	50	595	135	107	53	40	280	117	54
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	131	1117	145	53	633	144	114	56	43	298	124	57
Adj No. of Lanes	2	2	0	1	3	1	2	1	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	252	1235	160	91	1882	586	272	87	67	409	240	204
Arrive On Green	0.08	0.42	0.42	0.05	0.40	0.40	0.08	0.10	0.10	0.13	0.14	0.14
Sat Flow, veh/h	3221	2949	382	1660	4759	1482	3221	916	703	3221	1743	1482
Grp Volume(v), veh/h	131	626	636	53	633	144	114	0	99	298	124	57
Grp Sat Flow(s),veh/h/ln	1610	1656	1676	1660	1586	1482	1610	0	1619	1610	1743	1482
Q Serve(g_s), s	2.8	25.1	25.2	2.2	6.6	4.6	2.4	0.0	4.2	6.3	4.7	2.4
Cycle Q Clear(g_c), s	2.8	25.1	25.2	2.2	6.6	4.6	2.4	0.0	4.2	6.3	4.7	2.4
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	252	693	702	91	1882	586	272	0	154	409	240	204
V/C Ratio(X)	0.52	0.90	0.91	0.58	0.34	0.25	0.42	0.00	0.64	0.73	0.52	0.28
Avail Cap(c_a), veh/h	295	718	727	152	2065	643	1996	0	1003	776	420	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	19.3	19.3	32.8	15.0	14.4	30.8	0.0	30.9	29.8	28.4	27.4
Incr Delay (d2), s/veh	1.7	14.5	14.8	5.8	0.1	0.2	1.0	0.0	4.4	2.5	1.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	14.1	14.4	1.2	2.9	1.9	1.1	0.0	2.1	3.0	2.4	1.0
LnGrp Delay(d),s/veh	33.1	33.8	34.1	38.5	15.1	14.6	31.9	0.0	35.4	32.3	30.1	28.2
LnGrp LOS	C	C	C	D	B	B	C		D	C	C	C
Approach Vol, veh/h		1393			830			213			479	
Approach Delay, s/veh		33.9			16.5			33.5			31.3	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	36.5	11.4	15.2	9.5	34.9	14.4	12.2
Change Period (Y+Rc), s	4.0	6.8	5.4	5.4	4.0	6.8	5.4	5.4
Max Green Setting (Gmax), s	6.5	30.8	44.0	17.1	6.5	30.8	17.1	44.0
Max Q Clear Time (g_c+I1), s	4.2	27.2	4.4	6.7	4.8	8.6	8.3	6.2
Green Ext Time (p_c), s	0.0	2.5	0.4	0.5	0.1	5.0	0.7	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	67	1111	378	229	571	297	40	154	30	17
v/c Ratio	0.37	0.72	0.43	0.58	0.34	0.53	0.13	0.40	0.19	0.07
Control Delay	43.5	22.3	5.0	43.5	16.1	36.0	32.9	9.4	41.2	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	22.3	5.0	43.5	16.1	36.0	32.9	9.4	41.2	0.5
Queue Length 50th (ft)	36	256	15	64	107	79	20	0	16	0
Queue Length 95th (ft)	79	368	74	#117	167	123	49	52	44	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	225	1821	973	402	1769	764	415	472	594	596
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.61	0.39	0.57	0.32	0.39	0.10	0.33	0.05	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	1055	359	218	530	12	282	38	146	11	17	16
Future Volume (veh/h)	64	1055	359	218	530	12	282	38	146	11	17	16
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	67	1111	0	229	558	13	297	40	154	12	18	17
Adj No. of Lanes	1	2	1	2	2	0	2	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	85	1485	664	331	1653	38	488	264	225	25	38	55
Arrive On Green	0.05	0.42	0.00	0.10	0.47	0.47	0.14	0.14	0.14	0.04	0.04	0.04
Sat Flow, veh/h	1757	3505	1568	3408	3501	82	3408	1845	1568	723	1085	1568
Grp Volume(v), veh/h	67	1111	0	229	279	292	297	40	154	30	0	17
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1704	1752	1830	1704	1845	1568	1808	0	1568
Q Serve(g_s), s	2.5	17.6	0.0	4.3	6.6	6.6	5.4	1.2	6.1	1.1	0.0	0.7
Cycle Q Clear(g_c), s	2.5	17.6	0.0	4.3	6.6	6.6	5.4	1.2	6.1	1.1	0.0	0.7
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	85	1485	664	331	827	864	488	264	225	63	0	55
V/C Ratio(X)	0.78	0.75	0.00	0.69	0.34	0.34	0.61	0.15	0.69	0.47	0.00	0.31
Avail Cap(c_a), veh/h	262	2105	942	466	1021	1066	886	480	408	688	0	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.9	16.0	0.0	28.7	10.9	10.9	26.4	24.7	26.8	31.1	0.0	31.0
Incr Delay (d2), s/veh	14.4	0.9	0.0	2.6	0.2	0.2	1.2	0.3	3.7	5.4	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.7	0.0	2.1	3.2	3.4	2.6	0.7	2.9	0.6	0.0	0.3
LnGrp Delay(d),s/veh	45.4	16.9	0.0	31.3	11.1	11.1	27.7	24.9	30.4	36.5	0.0	34.1
LnGrp LOS	D	B		C	B	B	C	C	C	D		C
Approach Vol, veh/h		1178			800			491			47	
Approach Delay, s/veh		18.5			16.9			28.3			35.6	
Approach LOS		B			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.4	33.7		6.9	7.2	36.8		14.8
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	9.0	* 40		25.0	9.8	38.3		17.1
Max Q Clear Time (g_c+I1), s	6.3	19.6		3.1	4.5	8.6		8.1
Green Ext Time (p_c), s	0.2	8.3		0.1	0.0	3.7		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.3
HCM 2010 LOS	C

Notes

Lane Group	EBL	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	64	204	1	441	1	117
v/c Ratio	0.19	0.42	0.00	0.70	0.00	0.14
Control Delay	18.6	6.0	22.0	14.2	0.0	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	6.0	22.0	14.2	0.0	3.8
Queue Length 50th (ft)	8	0	0	41	0	4
Queue Length 95th (ft)	54	39	2	191	0	29
Internal Link Dist (ft)		204	767	348		732
Turn Bay Length (ft)					150	
Base Capacity (vph)	471	1066	1786	1184	1412	1561
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.19	0.00	0.37	0.00	0.07

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	1	179	0	1	0	278	110	1	0	58	45
Future Volume (veh/h)	56	1	179	0	1	0	278	110	1	0	58	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1900	1900	1743	1743	1900	1743	1900
Adj Flow Rate, veh/h	64	1	203	0	1	0	316	125	1	0	66	51
Adj No. of Lanes	1	1	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	107	2	441	4	385	0	558	165	689	0	425	328
Arrive On Green	0.06	0.30	0.30	0.00	0.12	0.00	0.47	0.47	0.47	0.00	0.47	0.47
Sat Flow, veh/h	1660	7	1475	1660	3399	0	852	355	1482	0	913	706
Grp Volume(v), veh/h	64	0	204	0	1	0	441	0	1	0	0	117
Grp Sat Flow(s),veh/h/ln	1660	0	1483	1660	1656	0	1207	0	1482	0	0	1619
Q Serve(g_s), s	1.4	0.0	4.3	0.0	0.0	0.0	10.8	0.0	0.0	0.0	0.0	1.6
Cycle Q Clear(g_c), s	1.4	0.0	4.3	0.0	0.0	0.0	12.4	0.0	0.0	0.0	0.0	1.6
Prop In Lane	1.00		1.00	1.00		0.00	0.72		1.00	0.00		0.44
Lane Grp Cap(c), veh/h	107	0	443	4	385	0	723	0	689	0	0	753
V/C Ratio(X)	0.60	0.00	0.46	0.00	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.16
Avail Cap(c_a), veh/h	414	0	875	218	1564	0	1794	0	1904	0	0	2080
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	17.4	0.0	10.9	0.0	14.9	0.0	9.3	0.0	5.5	0.0	0.0	5.9
Incr Delay (d2), s/veh	5.2	0.0	0.7	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.8	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.7
LnGrp Delay(d),s/veh	22.6	0.0	11.6	0.0	14.9	0.0	10.2	0.0	5.5	0.0	0.0	6.0
LnGrp LOS	C		B		B		B		A			A
Approach Vol, veh/h		268			1			442			117	
Approach Delay, s/veh		14.2			14.9			10.2			6.0	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		22.2	0.0	15.9		22.2	7.0	8.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		49.0	5.0	22.5		49.0	9.5	18.0
Max Q Clear Time (g_c+I1), s		14.4	0.0	6.3		3.6	3.4	2.0
Green Ext Time (p_c), s		3.4	0.0	1.1		0.7	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	10.9
HCM 2010 LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	147	1056	88	1422	322	232	169	232	84	147
v/c Ratio	0.64	0.78	0.67	0.70	0.40	0.56	0.65	0.57	0.33	0.42
Control Delay	58.6	29.8	70.0	25.9	4.0	45.3	47.3	45.6	40.2	9.2
Queue Delay	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	30.5	70.0	25.9	4.0	45.3	47.3	45.6	40.2	9.2
Queue Length 50th (ft)	45	280	53	252	0	69	90	69	46	0
Queue Length 95th (ft)	#92	414	#138	352	50	110	159	110	91	44
Internal Link Dist (ft)		410		540			2568		580	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	229	1362	132	2022	814	1483	782	576	324	402
Starvation Cap Reductn	0	92	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.83	0.67	0.70	0.40	0.16	0.22	0.40	0.26	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	821	108	77	1251	283	204	113	36	204	74	129
Future Volume (veh/h)	129	821	108	77	1251	283	204	113	36	204	74	129
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	147	933	123	88	1422	322	232	128	41	232	84	147
Adj No. of Lanes	2	2	0	1	3	1	2	1	0	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	234	1247	164	111	1987	619	339	172	55	327	230	195
Arrive On Green	0.07	0.42	0.42	0.07	0.42	0.42	0.11	0.14	0.14	0.10	0.13	0.13
Sat Flow, veh/h	3221	2943	388	1660	4759	1482	3221	1266	406	3221	1743	1482
Grp Volume(v), veh/h	147	525	531	88	1422	322	232	0	169	232	84	147
Grp Sat Flow(s),veh/h/ln	1610	1656	1675	1660	1586	1482	1610	0	1672	1610	1743	1482
Q Serve(g_s), s	3.5	21.2	21.2	4.1	19.7	12.8	5.5	0.0	7.7	5.5	3.5	7.6
Cycle Q Clear(g_c), s	3.5	21.2	21.2	4.1	19.7	12.8	5.5	0.0	7.7	5.5	3.5	7.6
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	234	702	710	111	1987	619	339	0	226	327	230	195
V/C Ratio(X)	0.63	0.75	0.75	0.80	0.72	0.52	0.68	0.00	0.75	0.71	0.37	0.75
Avail Cap(c_a), veh/h	276	830	839	159	2432	757	1788	0	928	695	376	320
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	19.3	19.3	36.5	19.2	17.2	34.2	0.0	32.9	34.5	31.4	33.1
Incr Delay (d2), s/veh	3.4	3.1	3.1	16.2	0.8	0.7	2.4	0.0	4.8	2.8	1.0	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	10.2	10.4	2.4	8.7	5.3	2.6	0.0	3.9	2.6	1.7	3.4
LnGrp Delay(d),s/veh	39.1	22.4	22.4	52.6	20.0	17.9	36.6	0.0	37.8	37.3	32.3	38.9
LnGrp LOS	D	C	C	D	B	B	D		D	D	C	D
Approach Vol, veh/h		1203			1832			401			463	
Approach Delay, s/veh		24.4			21.2			37.1			36.9	
Approach LOS		C			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	40.4	13.7	15.9	9.8	39.9	13.5	16.1				
Change Period (Y+Rc), s	4.0	6.8	5.4	5.4	4.0	6.8	5.4	5.4				
Max Green Setting (Gmax), s	7.6	39.7	44.0	17.1	6.8	40.5	17.1	44.0				
Max Q Clear Time (g_c+I1), s	6.1	23.2	7.5	9.6	5.5	21.7	7.5	9.7				
Green Ext Time (p_c), s	0.0	6.6	0.8	0.5	0.1	11.4	0.5	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			25.7									
HCM 2010 LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	616	632	85	62	905	342	87	97	201	376
v/c Ratio	0.76	0.28	0.11	0.39	0.64	0.60	0.47	0.48	0.63	0.47
Control Delay	43.5	19.5	5.5	51.9	34.2	18.8	51.3	45.6	46.8	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	19.5	5.5	51.9	34.2	18.8	51.3	45.6	46.8	6.8
Queue Length 50th (ft)	187	90	0	37	178	76	52	50	119	5
Queue Length 95th (ft)	#319	153	33	86	264	196	109	109	201	47
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	810	2275	755	216	1530	608	690	703	752	1379
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.28	0.11	0.29	0.59	0.56	0.13	0.14	0.27	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	573	588	79	58	842	318	81	64	26	160	27	350
Future Volume (veh/h)	573	588	79	58	842	318	81	64	26	160	27	350
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	616	632	85	62	905	342	87	69	28	172	29	376
Adj No. of Lanes	2	3	1	1	3	1	1	1	0	0	1	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	730	2256	702	96	1453	453	151	107	43	283	48	515
Arrive On Green	0.21	0.45	0.45	0.05	0.29	0.29	0.09	0.09	0.09	0.19	0.19	0.19
Sat Flow, veh/h	3408	5036	1568	1757	5036	1568	1757	1249	507	1514	255	2760
Grp Volume(v), veh/h	616	632	85	62	905	342	87	0	97	201	0	376
Grp Sat Flow(s),veh/h/ln	1704	1679	1568	1757	1679	1568	1757	0	1755	1769	0	1380
Q Serve(g_s), s	14.4	6.6	2.6	2.9	13.0	16.5	4.0	0.0	4.5	8.7	0.0	10.7
Cycle Q Clear(g_c), s	14.4	6.6	2.6	2.9	13.0	16.5	4.0	0.0	4.5	8.7	0.0	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	0.86		1.00
Lane Grp Cap(c), veh/h	730	2256	702	96	1453	453	151	0	151	330	0	515
V/C Ratio(X)	0.84	0.28	0.12	0.64	0.62	0.76	0.58	0.00	0.64	0.61	0.00	0.73
Avail Cap(c_a), veh/h	942	2444	761	251	1772	552	802	0	801	871	0	1359
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.4	14.5	13.4	38.5	25.7	26.9	36.6	0.0	36.8	31.1	0.0	31.9
Incr Delay (d2), s/veh	5.6	0.1	0.1	7.0	0.5	4.8	3.5	0.0	4.5	1.8	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	3.1	1.1	1.6	6.1	7.7	2.1	0.0	2.3	4.4	0.0	4.2
LnGrp Delay(d),s/veh	37.0	14.6	13.5	45.5	26.2	31.7	40.1	0.0	41.4	32.9	0.0	33.9
LnGrp LOS	D	B	B	D	C	C	D		D	C		C
Approach Vol, veh/h		1333			1309			184			577	
Approach Delay, s/veh		24.9			28.5			40.8			33.5	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.6	43.3		20.2	21.8	30.0		11.1
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	11.9	40.4		* 41	23.0	29.3		38.0
Max Q Clear Time (g_c+I1), s	4.9	8.6		12.7	16.4	18.5		6.5
Green Ext Time (p_c), s	0.1	5.2		2.9	1.4	5.5		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	28.6
HCM 2010 LOS	C

Notes

Intersection	
Intersection Delay, s/veh	24.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	128	68	21	50	111	111	23	198	31	38	97	27
Future Vol, veh/h	128	68	21	50	111	111	23	198	31	38	97	27
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	197	105	32	77	171	171	35	305	48	58	149	42
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	27.4	17.8	32.3	19.6
HCM LOS	D	C	D	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	9%	59%	31%	0%	23%
Vol Thru, %	79%	31%	69%	0%	60%
Vol Right, %	12%	10%	0%	100%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	252	217	161	111	162
LT Vol	23	128	50	0	38
Through Vol	198	68	111	0	97
RT Vol	31	21	0	111	27
Lane Flow Rate	388	334	248	171	249
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.785	0.709	0.556	0.341	0.538
Departure Headway (Hd)	7.293	7.648	8.075	7.193	7.764
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	496	471	446	499	464
Service Time	5.361	5.723	5.849	4.966	5.845
HCM Lane V/C Ratio	0.782	0.709	0.556	0.343	0.537
HCM Control Delay	32.3	27.4	20.6	13.7	19.6
HCM Lane LOS	D	D	C	B	C
HCM 95th-tile Q	7.1	5.5	3.3	1.5	3.1

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	37	821	391	298	887	402	38	263	72	38
v/c Ratio	0.27	0.68	0.49	0.59	0.54	0.63	0.11	0.52	0.36	0.12
Control Delay	46.8	27.7	4.8	40.9	19.3	38.3	33.1	8.7	43.9	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	27.7	4.8	40.9	19.3	38.3	33.1	8.7	43.9	0.8
Queue Length 50th (ft)	21	210	0	84	204	110	18	0	40	0
Queue Length 95th (ft)	49	253	36	119	243	150	43	44	75	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	148	1531	905	611	1842	768	417	558	584	613
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.54	0.43	0.49	0.48	0.52	0.09	0.47	0.12	0.06

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	665	317	241	694	24	326	31	213	17	41	31
Future Volume (veh/h)	30	665	317	241	694	24	326	31	213	17	41	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	37	821	0	298	857	30	402	38	263	21	51	38
Adj No. of Lanes	1	2	1	2	2	0	2	1	1	0	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	52	1115	499	412	1415	50	707	382	325	34	83	101
Arrive On Green	0.03	0.32	0.00	0.12	0.41	0.41	0.21	0.21	0.21	0.06	0.06	0.06
Sat Flow, veh/h	1757	3505	1568	3408	3455	121	3408	1845	1568	530	1288	1568
Grp Volume(v), veh/h	37	821	0	298	435	452	402	38	263	72	0	38
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1704	1752	1823	1704	1845	1568	1818	0	1568
Q Serve(g_s), s	1.4	14.3	0.0	5.8	13.3	13.3	7.3	1.1	11.0	2.6	0.0	1.6
Cycle Q Clear(g_c), s	1.4	14.3	0.0	5.8	13.3	13.3	7.3	1.1	11.0	2.6	0.0	1.6
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	0.29		1.00
Lane Grp Cap(c), veh/h	52	1115	499	412	718	747	707	382	325	118	0	101
V/C Ratio(X)	0.71	0.74	0.00	0.72	0.61	0.61	0.57	0.10	0.81	0.61	0.00	0.37
Avail Cap(c_a), veh/h	169	1738	778	696	1048	1091	875	474	403	663	0	572
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.0	20.8	0.0	29.0	15.9	15.9	24.4	22.0	25.9	31.2	0.0	30.7
Incr Delay (d2), s/veh	16.6	1.0	0.0	2.4	0.8	0.8	0.7	0.1	9.6	5.1	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	7.0	0.0	2.8	6.6	6.8	3.5	0.6	5.6	1.5	0.0	0.8
LnGrp Delay(d),s/veh	49.5	21.8	0.0	31.4	16.7	16.7	25.1	22.1	35.5	36.3	0.0	33.0
LnGrp LOS	D	C		C	B	B	C	C	D	D		C
Approach Vol, veh/h		858			1185			703			110	
Approach Delay, s/veh		23.0			20.4			28.9			35.2	
Approach LOS		C			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.3	27.6		9.0	6.0	33.9		19.6				
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4				
Max Green Setting (Gmax), s	14.0	* 34		25.0	6.6	41.0		17.6				
Max Q Clear Time (g_c+I1), s	7.8	16.3		4.6	3.4	15.3		13.0				
Green Ext Time (p_c), s	0.6	5.5		0.4	0.0	6.2		1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			23.8									
HCM 2010 LOS			C									
Notes												

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	36	349	1	5	260	217
v/c Ratio	0.08	0.35	0.00	0.01	0.48	0.28
Control Delay	13.4	1.0	16.0	15.0	10.5	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	1.0	16.0	15.0	10.5	5.6
Queue Length 50th (ft)	4	0	0	0	20	10
Queue Length 95th (ft)	27	0	4	4	102	56
Internal Link Dist (ft)		204		767	348	732
Turn Bay Length (ft)			150			
Base Capacity (vph)	630	1362	408	2424	1117	1636
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.26	0.00	0.00	0.23	0.13

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	0	304	1	4	0	171	55	0	0	110	79
Future Volume (veh/h)	31	0	304	1	4	0	171	55	0	0	110	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1900	1900	1743	1743	1900	1743	1900
Adj Flow Rate, veh/h	36	0	349	1	5	0	197	63	0	0	126	91
Adj No. of Lanes	1	1	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	68	0	450	4	874	0	397	105	543	0	345	249
Arrive On Green	0.04	0.00	0.30	0.00	0.26	0.00	0.37	0.37	0.00	0.00	0.37	0.37
Sat Flow, veh/h	1660	0	1482	1660	3399	0	663	286	1482	0	942	681
Grp Volume(v), veh/h	36	0	349	1	5	0	260	0	0	0	0	217
Grp Sat Flow(s),veh/h/ln	1660	0	1482	1660	1656	0	950	0	1482	0	0	1623
Q Serve(g_s), s	0.9	0.0	8.8	0.0	0.0	0.0	7.2	0.0	0.0	0.0	0.0	4.0
Cycle Q Clear(g_c), s	0.9	0.0	8.8	0.0	0.0	0.0	11.2	0.0	0.0	0.0	0.0	4.0
Prop In Lane	1.00		1.00	1.00		0.00	0.76		1.00	0.00		0.42
Lane Grp Cap(c), veh/h	68	0	450	4	874	0	502	0	543	0	0	595
V/C Ratio(X)	0.53	0.00	0.78	0.25	0.01	0.00	0.52	0.00	0.00	0.00	0.00	0.36
Avail Cap(c_a), veh/h	344	0	812	222	1573	0	1475	0	1750	0	0	1917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	19.3	0.0	13.0	20.5	11.1	0.0	12.8	0.0	0.0	0.0	0.0	9.5
Incr Delay (d2), s/veh	6.2	0.0	2.9	29.1	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	4.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	1.8
LnGrp Delay(d),s/veh	25.5	0.0	16.0	49.6	11.1	0.0	13.7	0.0	0.0	0.0	0.0	9.9
LnGrp LOS	C		B	D	B		B					A
Approach Vol, veh/h		385			6			260			217	
Approach Delay, s/veh		16.8			17.6			13.7			9.9	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		19.6	4.6	17.0		19.6	6.2	15.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		48.5	5.5	22.5		48.5	8.5	19.5
Max Q Clear Time (g_c+I1), s		13.2	2.0	10.8		6.0	2.9	2.0
Green Ext Time (p_c), s		1.9	0.0	1.8		1.5	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.2
HCM 2010 LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	173	1471	63	733	213	132	134	374	146	72
v/c Ratio	0.50	1.04	0.55	0.42	0.31	0.42	0.59	0.69	0.43	0.16
Control Delay	46.3	62.6	64.7	24.0	4.7	45.7	43.7	45.4	38.8	0.8
Queue Delay	0.0	25.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	87.8	64.7	24.0	4.7	45.7	43.7	45.4	38.8	0.8
Queue Length 50th (ft)	53	~540	39	121	0	40	65	113	80	0
Queue Length 95th (ft)	89	#735	#101	173	50	71	125	171	143	0
Internal Link Dist (ft)		410		540			2568		580	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	420	1419	114	1824	699	1504	783	584	355	453
Starvation Cap Reductn	0	92	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	1.11	0.55	0.40	0.30	0.09	0.17	0.64	0.41	0.16

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	1225	158	59	689	200	124	79	47	352	137	68
Future Volume (veh/h)	163	1225	158	59	689	200	124	79	47	352	137	68
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	173	1303	168	63	733	213	132	84	50	374	146	72
Adj No. of Lanes	2	2	0	1	3	1	2	1	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	246	1341	172	88	2049	638	216	113	67	458	323	275
Arrive On Green	0.08	0.45	0.45	0.05	0.43	0.43	0.07	0.11	0.11	0.14	0.19	0.19
Sat Flow, veh/h	3221	2954	379	1660	4759	1482	3221	1025	610	3221	1743	1482
Grp Volume(v), veh/h	173	727	744	63	733	213	132	0	134	374	146	72
Grp Sat Flow(s),veh/h/ln	1610	1656	1676	1660	1586	1482	1610	0	1635	1610	1743	1482
Q Serve(g_s), s	4.7	38.4	39.1	3.4	9.3	8.6	3.6	0.0	7.1	10.1	6.7	3.7
Cycle Q Clear(g_c), s	4.7	38.4	39.1	3.4	9.3	8.6	3.6	0.0	7.1	10.1	6.7	3.7
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	246	752	761	88	2049	638	216	0	181	458	323	275
V/C Ratio(X)	0.70	0.97	0.98	0.72	0.36	0.33	0.61	0.00	0.74	0.82	0.45	0.26
Avail Cap(c_a), veh/h	441	752	761	120	2049	638	1577	0	801	613	332	282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	23.9	24.1	41.9	17.2	17.0	40.8	0.0	38.7	37.4	32.5	31.3
Incr Delay (d2), s/veh	3.6	24.9	26.9	12.1	0.1	0.3	2.8	0.0	5.9	6.4	1.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	22.6	23.7	1.8	4.1	3.6	1.7	0.0	3.5	4.9	3.3	1.6
LnGrp Delay(d),s/veh	44.1	48.8	51.0	54.0	17.3	17.3	43.5	0.0	44.6	43.8	33.5	31.8
LnGrp LOS	D	D	D	D	B	B	D		D	D	C	C
Approach Vol, veh/h		1644			1009			266			592	
Approach Delay, s/veh		49.3			19.6			44.1			39.8	
Approach LOS		D			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	47.6	11.4	22.1	10.9	45.5	18.2	15.3
Change Period (Y+Rc), s	4.0	6.8	5.4	5.4	4.0	6.8	5.4	5.4
Max Green Setting (Gmax), s	6.5	40.8	44.0	17.1	12.3	35.0	17.1	44.0
Max Q Clear Time (g_c+I1), s	5.4	41.1	5.6	8.7	6.7	11.3	12.1	9.1
Green Ext Time (p_c), s	0.0	0.0	0.5	0.6	0.2	6.3	0.6	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	38.8
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	369	1061	128	93	625	115	81	167	422	609
v/c Ratio	0.70	0.71	0.24	0.56	0.53	0.26	0.36	0.67	0.76	0.58
Control Delay	55.8	40.0	12.4	68.2	41.3	12.1	53.7	51.4	47.1	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	40.0	12.4	68.2	41.3	12.1	53.7	51.4	47.1	20.2
Queue Length 50th (ft)	142	269	18	70	156	9	59	96	293	118
Queue Length 95th (ft)	215	358	71	#141	219	61	114	179	458	201
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	617	1783	617	190	1417	513	604	609	682	1232
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.60	0.21	0.49	0.44	0.22	0.13	0.27	0.62	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	351	1008	122	88	594	109	77	70	88	312	89	579
Future Volume (veh/h)	351	1008	122	88	594	109	77	70	88	312	89	579
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	369	1061	128	93	625	115	81	74	93	328	94	609
Adj No. of Lanes	2	3	1	1	3	1	1	1	0	0	1	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	464	1499	467	119	1155	360	230	97	122	413	118	827
Arrive On Green	0.14	0.30	0.30	0.07	0.23	0.23	0.13	0.13	0.13	0.30	0.30	0.30
Sat Flow, veh/h	3408	5036	1568	1757	5036	1568	1757	744	935	1380	396	2760
Grp Volume(v), veh/h	369	1061	128	93	625	115	81	0	167	422	0	609
Grp Sat Flow(s),veh/h/ln	1704	1679	1568	1757	1679	1568	1757	0	1680	1776	0	1380
Q Serve(g_s), s	9.6	17.2	5.7	4.8	10.0	5.6	3.9	0.0	8.8	20.0	0.0	18.2
Cycle Q Clear(g_c), s	9.6	17.2	5.7	4.8	10.0	5.6	3.9	0.0	8.8	20.0	0.0	18.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	0.78		1.00
Lane Grp Cap(c), veh/h	464	1499	467	119	1155	360	230	0	220	532	0	827
V/C Ratio(X)	0.79	0.71	0.27	0.78	0.54	0.32	0.35	0.00	0.76	0.79	0.00	0.74
Avail Cap(c_a), veh/h	743	2142	667	230	1702	530	728	0	696	819	0	1273
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.4	28.6	24.6	42.1	31.1	29.4	36.3	0.0	38.5	29.5	0.0	28.9
Incr Delay (d2), s/veh	3.1	0.6	0.3	10.5	0.4	0.5	0.9	0.0	5.3	3.0	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	8.0	2.5	2.7	4.7	2.5	1.9	0.0	4.4	10.3	0.0	7.0
LnGrp Delay(d),s/veh	41.5	29.3	24.9	52.6	31.5	29.9	37.2	0.0	43.8	32.5	0.0	30.2
LnGrp LOS	D	C	C	D	C	C	D		D	C		C
Approach Vol, veh/h		1558			833			248			1031	
Approach Delay, s/veh		31.8			33.6			41.6			31.1	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.2	33.3		32.2	16.5	27.0		16.0
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	12.0	39.0		* 42	20.0	31.0		38.0
Max Q Clear Time (g_c+I1), s	6.8	19.2		22.0	11.6	12.0		10.8
Green Ext Time (p_c), s	0.1	8.1		5.4	0.9	4.6		1.2

Intersection Summary			
HCM 2010 Ctrl Delay			32.7
HCM 2010 LOS			C

Notes

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	154	51	50	111	24	13	56	57	46	50	6
Future Vol, veh/h	4	154	51	50	111	24	13	56	57	46	50	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	162	54	53	117	25	14	59	60	48	53	6
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	9.8	9.9	9	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	10%	2%	31%	0%	45%
Vol Thru, %	44%	74%	69%	0%	49%
Vol Right, %	45%	24%	0%	100%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	126	209	161	24	102
LT Vol	13	4	50	0	46
Through Vol	56	154	111	0	50
RT Vol	57	51	0	24	6
Lane Flow Rate	133	220	169	25	107
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.179	0.291	0.259	0.033	0.155
Departure Headway (Hd)	4.87	4.767	5.511	4.649	5.203
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	731	748	647	764	684
Service Time	2.938	2.831	3.277	2.414	3.275
HCM Lane V/C Ratio	0.182	0.294	0.261	0.033	0.156
HCM Control Delay	9	9.8	10.2	7.6	9.2
HCM Lane LOS	A	A	B	A	A
HCM 95th-tile Q	0.6	1.2	1	0.1	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	80	1252	445	267	639	352	47	180	35	20
v/c Ratio	0.44	0.77	0.49	0.72	0.37	0.63	0.15	0.44	0.23	0.08
Control Delay	46.2	24.7	6.6	50.9	17.1	39.3	33.3	9.1	42.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	24.7	6.6	50.9	17.1	39.3	33.3	9.1	42.7	0.7
Queue Length 50th (ft)	44	322	34	78	130	96	23	0	19	0
Queue Length 95th (ft)	91	443	114	#145	194	145	55	55	50	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	220	1635	915	371	1730	690	374	461	536	550
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.77	0.49	0.72	0.37	0.51	0.13	0.39	0.07	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	1189	423	254	593	14	334	45	171	13	20	19
Future Volume (veh/h)	76	1189	423	254	593	14	334	45	171	13	20	19
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	80	1252	0	267	624	15	352	47	180	14	21	20
Adj No. of Lanes	1	2	1	2	2	0	2	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	103	1543	690	356	1700	41	526	285	242	26	40	57
Arrive On Green	0.06	0.44	0.00	0.10	0.49	0.49	0.15	0.15	0.15	0.04	0.04	0.04
Sat Flow, veh/h	1757	3505	1568	3408	3498	84	3408	1845	1568	723	1085	1568
Grp Volume(v), veh/h	80	1252	0	267	312	327	352	47	180	35	0	20
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1704	1752	1830	1704	1845	1568	1808	0	1568
Q Serve(g_s), s	3.4	23.3	0.0	5.7	8.3	8.4	7.3	1.7	8.2	1.4	0.0	0.9
Cycle Q Clear(g_c), s	3.4	23.3	0.0	5.7	8.3	8.4	7.3	1.7	8.2	1.4	0.0	0.9
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	103	1543	690	356	852	889	526	285	242	66	0	57
V/C Ratio(X)	0.78	0.81	0.00	0.75	0.37	0.37	0.67	0.17	0.74	0.53	0.00	0.35
Avail Cap(c_a), veh/h	249	1841	823	419	878	917	779	422	358	604	0	524
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.7	18.2	0.0	32.6	12.0	12.0	29.8	27.5	30.2	35.4	0.0	35.2
Incr Delay (d2), s/veh	11.7	2.4	0.0	6.2	0.3	0.3	1.5	0.3	4.6	6.5	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	11.6	0.0	3.0	4.1	4.2	3.5	0.9	3.9	0.8	0.0	0.5
LnGrp Delay(d),s/veh	46.4	20.7	0.0	38.8	12.3	12.3	31.3	27.7	34.8	41.9	0.0	38.8
LnGrp LOS	D	C		D	B	B	C	C	C	D		D
Approach Vol, veh/h		1332			906			579			55	
Approach Delay, s/veh		22.2			20.1			32.1			40.8	
Approach LOS		C			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.8	38.8		7.3	8.4	42.2		16.9				
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4				
Max Green Setting (Gmax), s	9.2	* 39		25.0	10.6	37.5		17.1				
Max Q Clear Time (g_c+I1), s	7.7	25.3		3.4	5.4	10.4		10.2				
Green Ext Time (p_c), s	0.1	7.7		0.2	0.1	4.2		1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			23.9									
HCM 2010 LOS			C									
Notes												

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	80	352	40	38	466	135	126
v/c Ratio	0.24	0.71	0.23	0.05	0.78	0.17	0.16
Control Delay	31.4	26.6	39.9	27.4	25.4	2.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	26.6	39.9	27.4	25.4	2.8	7.0
Queue Length 50th (ft)	20	94	16	7	155	0	15
Queue Length 95th (ft)	86	225	54	22	301	24	44
Internal Link Dist (ft)		204		767	348		732
Turn Bay Length (ft)			150			150	
Base Capacity (vph)	415	775	177	1207	949	1159	1260
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.45	0.23	0.03	0.49	0.12	0.10

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	109	201	35	33	0	284	126	119	0	62	49
Future Volume (veh/h)	70	109	201	35	33	0	284	126	119	0	62	49
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1900	1900	1743	1743	1900	1743	1900
Adj Flow Rate, veh/h	80	124	228	40	38	0	323	143	135	0	70	56
Adj No. of Lanes	1	1	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	102	149	273	67	825	0	482	168	687	0	417	333
Arrive On Green	0.06	0.27	0.27	0.04	0.25	0.00	0.46	0.46	0.46	0.00	0.46	0.46
Sat Flow, veh/h	1660	551	1013	1660	3399	0	818	362	1482	0	898	718
Grp Volume(v), veh/h	80	0	352	40	38	0	466	0	135	0	0	126
Grp Sat Flow(s),veh/h/ln	1660	0	1564	1660	1656	0	1181	0	1482	0	0	1616
Q Serve(g_s), s	2.8	0.0	12.7	1.4	0.5	0.0	19.2	0.0	3.2	0.0	0.0	2.7
Cycle Q Clear(g_c), s	2.8	0.0	12.7	1.4	0.5	0.0	21.9	0.0	3.2	0.0	0.0	2.7
Prop In Lane	1.00		0.65	1.00		0.00	0.69		1.00	0.00		0.44
Lane Grp Cap(c), veh/h	102	0	422	67	825	0	650	0	687	0	0	750
V/C Ratio(X)	0.78	0.00	0.83	0.59	0.05	0.00	0.72	0.00	0.20	0.00	0.00	0.17
Avail Cap(c_a), veh/h	286	0	615	153	1035	0	1082	0	1176	0	0	1283
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	27.7	0.0	20.6	28.2	17.1	0.0	15.7	0.0	9.5	0.0	0.0	9.3
Incr Delay (d2), s/veh	12.3	0.0	6.5	8.1	0.0	0.0	1.5	0.0	0.1	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	6.2	0.8	0.2	0.0	7.1	0.0	1.3	0.0	0.0	1.2
LnGrp Delay(d),s/veh	40.0	0.0	27.1	36.3	17.1	0.0	17.2	0.0	9.6	0.0	0.0	9.4
LnGrp LOS	D		C	D	B		B		A			A
Approach Vol, veh/h		432			78			601			126	
Approach Delay, s/veh		29.5			26.9			15.5			9.4	
Approach LOS		C			C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		32.2	6.9	20.6		32.2	8.2	19.4
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		47.5	5.5	23.5		47.5	10.3	18.7
Max Q Clear Time (g_c+I1), s		23.9	3.4	14.7		4.7	4.8	2.5
Green Ext Time (p_c), s		3.8	0.0	1.5		0.8	0.1	0.1

Intersection Summary			
HCM 2010 Ctrl Delay			20.5
HCM 2010 LOS			C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	161	1056	88	1422	397	232	207	256	94	151
v/c Ratio	0.69	0.80	0.69	0.74	0.47	0.57	0.70	0.61	0.31	0.39
Control Delay	62.7	33.0	74.8	28.9	4.5	47.3	50.0	47.8	38.5	8.5
Queue Delay	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	34.0	74.8	28.9	4.5	47.3	50.0	47.8	38.5	8.5
Queue Length 50th (ft)	52	301	55	272	0	72	118	79	52	0
Queue Length 95th (ft)	#107	#455	#144	380	57	115	196	125	99	46
Internal Link Dist (ft)		410		540			2568		580	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	233	1315	127	1931	837	1431	758	556	338	413
Starvation Cap Reductn	0	89	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.86	0.69	0.74	0.47	0.16	0.27	0.46	0.28	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	821	108	77	1251	349	204	146	36	225	83	133
Future Volume (veh/h)	142	821	108	77	1251	349	204	146	36	225	83	133
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	161	933	123	88	1422	397	232	166	41	256	94	151
Adj No. of Lanes	2	2	0	1	3	1	2	1	0	2	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	231	1210	160	110	1933	602	333	212	52	347	281	239
Arrive On Green	0.07	0.41	0.41	0.07	0.41	0.41	0.10	0.16	0.16	0.11	0.16	0.16
Sat Flow, veh/h	3221	2943	388	1660	4759	1482	3221	1351	334	3221	1743	1482
Grp Volume(v), veh/h	161	525	531	88	1422	397	232	0	207	256	94	151
Grp Sat Flow(s),veh/h/ln	1610	1656	1675	1660	1586	1482	1610	0	1684	1610	1743	1482
Q Serve(g_s), s	4.1	22.9	22.9	4.4	21.2	18.2	5.8	0.0	9.9	6.5	4.0	8.0
Cycle Q Clear(g_c), s	4.1	22.9	22.9	4.4	21.2	18.2	5.8	0.0	9.9	6.5	4.0	8.0
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	231	681	689	110	1933	602	333	0	265	347	281	239
V/C Ratio(X)	0.70	0.77	0.77	0.80	0.74	0.66	0.70	0.00	0.78	0.74	0.33	0.63
Avail Cap(c_a), veh/h	276	783	792	150	2274	708	1688	0	883	656	355	302
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	21.3	21.3	38.6	21.1	20.2	36.4	0.0	34.0	36.3	31.2	32.9
Incr Delay (d2), s/veh	6.0	4.1	4.1	18.6	1.1	1.8	2.6	0.0	5.0	3.1	0.7	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	11.3	11.4	2.6	9.4	7.7	2.7	0.0	5.0	3.0	2.0	3.4
LnGrp Delay(d),s/veh	44.1	25.4	25.4	57.2	22.2	22.0	39.0	0.0	39.0	39.4	31.9	35.6
LnGrp LOS	D	C	C	E	C	C	D		D	D	C	D
Approach Vol, veh/h		1217			1907			439			501	
Approach Delay, s/veh		27.9			23.7			39.0			36.8	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	41.3	14.1	18.9	10.0	40.9	14.4	18.6
Change Period (Y+Rc), s	4.0	6.8	5.4	5.4	4.0	6.8	5.4	5.4
Max Green Setting (Gmax), s	7.6	39.7	44.0	17.1	7.2	40.1	17.1	44.0
Max Q Clear Time (g_c+I1), s	6.4	24.9	7.8	10.0	6.1	23.2	8.5	11.9
Green Ext Time (p_c), s	0.0	6.2	0.8	0.5	0.1	10.9	0.6	1.3

Intersection Summary		
HCM 2010 Ctrl Delay		28.2
HCM 2010 LOS		C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	618	642	85	62	938	342	87	97	201	383
v/c Ratio	0.77	0.28	0.11	0.39	0.65	0.59	0.47	0.49	0.63	0.48
Control Delay	44.2	19.5	5.5	52.1	34.3	19.2	51.6	45.8	47.2	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	19.5	5.5	52.1	34.3	19.2	51.6	45.8	47.2	6.8
Queue Length 50th (ft)	188	92	0	37	185	79	52	50	119	5
Queue Length 95th (ft)	#321	156	33	86	274	201	109	109	201	47
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	803	2293	760	214	1516	600	684	697	745	1374
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.28	0.11	0.29	0.62	0.57	0.13	0.14	0.27	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	575	597	79	58	872	318	81	64	26	160	27	356
Future Volume (veh/h)	575	597	79	58	872	318	81	64	26	160	27	356
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	618	642	85	62	938	342	87	69	28	172	29	383
Adj No. of Lanes	2	3	1	1	3	1	1	1	0	0	1	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	730	2258	703	96	1454	453	150	107	43	286	48	522
Arrive On Green	0.21	0.45	0.45	0.05	0.29	0.29	0.09	0.09	0.09	0.19	0.19	0.19
Sat Flow, veh/h	3408	5036	1568	1757	5036	1568	1757	1249	507	1514	255	2760
Grp Volume(v), veh/h	618	642	85	62	938	342	87	0	97	201	0	383
Grp Sat Flow(s),veh/h/ln	1704	1679	1568	1757	1679	1568	1757	0	1755	1769	0	1380
Q Serve(g_s), s	14.6	6.8	2.7	2.9	13.7	16.7	4.0	0.0	4.5	8.7	0.0	11.0
Cycle Q Clear(g_c), s	14.6	6.8	2.7	2.9	13.7	16.7	4.0	0.0	4.5	8.7	0.0	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	0.86		1.00
Lane Grp Cap(c), veh/h	730	2258	703	96	1454	453	150	0	150	334	0	522
V/C Ratio(X)	0.85	0.28	0.12	0.65	0.64	0.76	0.58	0.00	0.65	0.60	0.00	0.73
Avail Cap(c_a), veh/h	933	2420	754	249	1755	547	794	0	793	863	0	1346
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.7	14.7	13.5	38.9	26.1	27.2	37.0	0.0	37.2	31.2	0.0	32.1
Incr Delay (d2), s/veh	5.9	0.1	0.1	7.1	0.6	4.9	3.5	0.0	4.6	1.7	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	3.2	1.2	1.6	6.4	7.8	2.1	0.0	2.4	4.4	0.0	4.3
LnGrp Delay(d),s/veh	37.6	14.7	13.6	46.0	26.7	32.0	40.5	0.0	41.8	32.9	0.0	34.1
LnGrp LOS	D	B	B	D	C	C	D		D	C		C
Approach Vol, veh/h		1345			1342			184			584	
Approach Delay, s/veh		25.2			29.0			41.2			33.7	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.6	43.7		20.6	22.0	30.3		11.2
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	11.9	40.4		* 41	23.0	29.3		38.0
Max Q Clear Time (g_c+I1), s	4.9	8.8		13.0	16.6	18.7		6.5
Green Ext Time (p_c), s	0.1	5.3		2.9	1.4	5.6		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	28.9
HCM 2010 LOS	C

Notes

Intersection	
Intersection Delay, s/veh	33.4
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	128	68	21	50	111	111	23	228	31	38	107	27
Future Vol, veh/h	128	68	21	50	111	111	23	228	31	38	107	27
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	197	105	32	77	171	171	35	351	48	58	165	42
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	33.1	19.8	53	23.4
HCM LOS	D	C	F	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	8%	59%	31%	0%	22%
Vol Thru, %	81%	31%	69%	0%	62%
Vol Right, %	11%	10%	0%	100%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	282	217	161	111	172
LT Vol	23	128	50	0	38
Through Vol	228	68	111	0	107
RT Vol	31	21	0	111	27
Lane Flow Rate	434	334	248	171	265
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.926	0.76	0.592	0.366	0.607
Departure Headway (Hd)	7.685	8.198	8.609	7.723	8.258
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	473	441	419	464	437
Service Time	5.685	6.272	6.382	5.495	6.336
HCM Lane V/C Ratio	0.918	0.757	0.592	0.369	0.606
HCM Control Delay	53	33.1	23.2	14.9	23.4
HCM Lane LOS	F	D	C	B	C
HCM 95th-tile Q	10.8	6.4	3.7	1.7	3.9

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	37	831	393	298	920	406	38	263	72	38
v/c Ratio	0.27	0.69	0.49	0.59	0.56	0.62	0.11	0.51	0.36	0.12
Control Delay	47.0	28.5	4.9	41.1	20.1	37.6	32.5	8.5	44.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	28.5	4.9	41.1	20.1	37.6	32.5	8.5	44.1	0.8
Queue Length 50th (ft)	21	214	0	85	216	112	18	0	40	0
Queue Length 95th (ft)	49	260	37	119	259	150	43	43	75	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	147	1479	889	608	1801	808	438	573	581	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.56	0.44	0.49	0.51	0.50	0.09	0.46	0.12	0.06

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	673	318	241	721	24	329	31	213	17	41	31
Future Volume (veh/h)	30	673	318	241	721	24	329	31	213	17	41	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	37	831	0	298	890	30	406	38	263	21	51	38
Adj No. of Lanes	1	2	1	2	2	0	2	1	1	0	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	52	1117	500	412	1419	48	713	386	328	34	83	101
Arrive On Green	0.03	0.32	0.00	0.12	0.41	0.41	0.21	0.21	0.21	0.06	0.06	0.06
Sat Flow, veh/h	1757	3505	1568	3408	3460	117	3408	1845	1568	530	1288	1568
Grp Volume(v), veh/h	37	831	0	298	451	469	406	38	263	72	0	38
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1704	1752	1824	1704	1845	1568	1818	0	1568
Q Serve(g_s), s	1.4	14.6	0.0	5.8	14.1	14.1	7.4	1.1	11.0	2.7	0.0	1.6
Cycle Q Clear(g_c), s	1.4	14.6	0.0	5.8	14.1	14.1	7.4	1.1	11.0	2.7	0.0	1.6
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.29		1.00
Lane Grp Cap(c), veh/h	52	1117	500	412	719	748	713	386	328	117	0	101
V/C Ratio(X)	0.72	0.74	0.00	0.72	0.63	0.63	0.57	0.10	0.80	0.61	0.00	0.38
Avail Cap(c_a), veh/h	168	1675	749	691	1015	1057	918	497	422	658	0	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.2	21.0	0.0	29.3	16.2	16.2	24.5	22.0	25.9	31.5	0.0	31.0
Incr Delay (d2), s/veh	16.7	1.0	0.0	2.4	0.9	0.9	0.7	0.1	8.3	5.1	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	7.2	0.0	2.9	6.9	7.2	3.5	0.6	5.5	1.5	0.0	0.8
LnGrp Delay(d),s/veh	49.9	22.0	0.0	31.7	17.1	17.0	25.2	22.2	34.2	36.6	0.0	33.3
LnGrp LOS	D	C		C	B	B	C	C	C	D		C
Approach Vol, veh/h		868			1218			707			110	
Approach Delay, s/veh		23.2			20.6			28.4			35.4	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.3	27.8		9.1	6.0	34.1		19.8
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4
Max Green Setting (Gmax), s	14.0	* 33		25.0	6.6	40.0		18.6
Max Q Clear Time (g_c+I1), s	7.8	16.6		4.7	3.4	16.1		13.0
Green Ext Time (p_c), s	0.5	5.4		0.4	0.0	6.4		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	23.9
HCM 2010 LOS	C

Notes

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	44	418	172	159	300	64	259
v/c Ratio	0.24	0.77	0.55	0.13	0.78	0.10	0.39
Control Delay	36.7	17.2	35.3	18.5	33.1	0.4	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.7	17.2	35.3	18.5	33.1	0.4	12.9
Queue Length 50th (ft)	15	27	55	23	88	0	48
Queue Length 95th (ft)	56	125	#155	54	219	0	121
Internal Link Dist (ft)		204		767	348		732
Turn Bay Length (ft)			150			150	
Base Capacity (vph)	204	788	429	1722	699	1086	1179
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.53	0.40	0.09	0.43	0.06	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	50	314	150	138	0	198	63	56	0	129	97
Future Volume (veh/h)	38	50	314	150	138	0	198	63	56	0	129	97
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1900	1900	1743	1743	1900	1743	1900
Adj Flow Rate, veh/h	44	57	361	172	159	0	228	72	64	0	148	111
Adj No. of Lanes	1	1	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	66	59	374	210	1234	0	344	83	605	0	378	283
Arrive On Green	0.04	0.29	0.29	0.13	0.37	0.00	0.41	0.41	0.41	0.00	0.41	0.41
Sat Flow, veh/h	1660	206	1306	1660	3399	0	636	204	1482	0	926	695
Grp Volume(v), veh/h	44	0	418	172	159	0	300	0	64	0	0	259
Grp Sat Flow(s),veh/h/ln	1660	0	1513	1660	1656	0	840	0	1482	0	0	1621
Q Serve(g_s), s	2.0	0.0	20.5	7.6	2.4	0.0	18.5	0.0	2.0	0.0	0.0	8.5
Cycle Q Clear(g_c), s	2.0	0.0	20.5	7.6	2.4	0.0	26.9	0.0	2.0	0.0	0.0	8.5
Prop In Lane	1.00		0.86	1.00		0.00	0.76		1.00	0.00		0.43
Lane Grp Cap(c), veh/h	66	0	433	210	1234	0	427	0	605	0	0	661
V/C Ratio(X)	0.66	0.00	0.97	0.82	0.13	0.00	0.70	0.00	0.11	0.00	0.00	0.39
Avail Cap(c_a), veh/h	152	0	433	320	1282	0	578	0	798	0	0	873
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	35.6	0.0	26.5	32.0	15.6	0.0	25.1	0.0	13.8	0.0	0.0	15.7
Incr Delay (d2), s/veh	10.8	0.0	34.5	9.5	0.0	0.0	2.4	0.0	0.1	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	12.6	4.0	1.1	0.0	6.2	0.0	0.8	0.0	0.0	3.8
LnGrp Delay(d),s/veh	46.4	0.0	61.0	41.5	15.6	0.0	27.5	0.0	13.8	0.0	0.0	16.1
LnGrp LOS	D		E	D	B		C		B			B
Approach Vol, veh/h		462			331			364			259	
Approach Delay, s/veh		59.6			29.1			25.1			16.1	
Approach LOS		E			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		35.2	14.0	26.0		35.2	7.5	32.5
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		40.5	14.5	21.5		40.5	6.9	29.1
Max Q Clear Time (g_c+I1), s		28.9	9.6	22.5		10.5	4.0	4.4
Green Ext Time (p_c), s		1.8	0.2	0.0		1.7	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	35.6
HCM 2010 LOS	D

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	181	1471	63	733	246	132	151	463	190	89
v/c Ratio	0.52	1.07	0.57	0.43	0.36	0.42	0.63	0.81	0.51	0.19
Control Delay	47.4	72.8	67.1	25.4	4.9	46.8	46.5	52.4	40.0	0.9
Queue Delay	0.0	14.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.4	87.3	67.1	25.4	4.9	46.8	46.5	52.4	40.0	0.9
Queue Length 50th (ft)	56	~554	39	124	0	41	79	147	107	0
Queue Length 95th (ft)	94	#753	#104	179	54	72	144	#246	182	0
Internal Link Dist (ft)		410		540			2568		580	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	425	1381	111	1757	702	1464	766	569	373	467
Starvation Cap Reductn	0	90	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	1.14	0.57	0.42	0.35	0.09	0.20	0.81	0.51	0.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	1225	158	59	689	231	124	95	47	435	179	84
Future Volume (veh/h)	170	1225	158	59	689	231	124	95	47	435	179	84
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1743	1743	1743	1743	1743	1900	1743	1743	1743
Adj Flow Rate, veh/h	181	1303	168	63	733	246	132	101	50	463	190	89
Adj No. of Lanes	2	2	0	1	3	1	2	1	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	252	1281	164	85	1936	603	213	132	65	533	382	325
Arrive On Green	0.08	0.43	0.43	0.05	0.41	0.41	0.07	0.12	0.12	0.17	0.22	0.22
Sat Flow, veh/h	3221	2954	379	1660	4759	1482	3221	1102	545	3221	1743	1482
Grp Volume(v), veh/h	181	727	744	63	733	246	132	0	151	463	190	89
Grp Sat Flow(s),veh/h/ln	1610	1656	1676	1660	1586	1482	1610	0	1647	1610	1743	1482
Q Serve(g_s), s	5.2	40.8	40.8	3.5	10.2	11.1	3.8	0.0	8.4	13.2	9.0	4.7
Cycle Q Clear(g_c), s	5.2	40.8	40.8	3.5	10.2	11.1	3.8	0.0	8.4	13.2	9.0	4.7
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	252	718	727	85	1936	603	213	0	197	533	382	325
V/C Ratio(X)	0.72	1.01	1.02	0.74	0.38	0.41	0.62	0.00	0.77	0.87	0.50	0.27
Avail Cap(c_a), veh/h	438	718	727	115	1936	603	1506	0	770	585	382	325
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	26.6	26.6	44.0	19.6	19.8	42.8	0.0	40.1	38.3	32.2	30.5
Incr Delay (d2), s/veh	3.8	36.8	39.3	15.3	0.1	0.4	2.9	0.0	6.1	12.4	1.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	25.9	26.7	2.0	4.4	4.6	1.8	0.0	4.2	6.8	4.4	2.0
LnGrp Delay(d),s/veh	46.2	63.4	66.0	59.3	19.7	20.3	45.7	0.0	46.2	50.7	33.2	31.0
LnGrp LOS	D	F	F	E	B	C	D		D	D	C	C
Approach Vol, veh/h		1652			1042			283			742	
Approach Delay, s/veh		62.7			22.2			46.0			43.8	
Approach LOS		E			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	47.6	11.6	26.0	11.4	45.1	21.0	16.7
Change Period (Y+Rc), s	4.0	6.8	5.4	5.4	4.0	6.8	5.4	5.4
Max Green Setting (Gmax), s	6.5	40.8	44.0	17.1	12.8	34.5	17.1	44.0
Max Q Clear Time (g_c+I1), s	5.5	42.8	5.8	11.0	7.2	13.1	15.2	10.4
Green Ext Time (p_c), s	0.0	0.0	0.5	0.7	0.3	6.2	0.4	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	46.3
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	378	1101	128	93	640	115	81	167	422	613
v/c Ratio	0.71	0.73	0.24	0.57	0.53	0.26	0.36	0.67	0.77	0.58
Control Delay	56.3	40.4	12.8	68.8	41.6	12.1	54.1	51.9	47.8	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.3	40.4	12.8	68.8	41.6	12.1	54.1	51.9	47.8	20.4
Queue Length 50th (ft)	147	282	20	71	161	9	60	98	298	121
Queue Length 95th (ft)	221	375	73	#141	224	61	114	179	458	203
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	617	1765	610	188	1394	506	598	603	675	1224
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.62	0.21	0.49	0.46	0.23	0.14	0.28	0.63	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	359	1046	122	88	608	109	77	70	88	312	89	582
Future Volume (veh/h)	359	1046	122	88	608	109	77	70	88	312	89	582
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	378	1101	128	93	640	115	81	74	93	328	94	613
Adj No. of Lanes	2	3	1	1	3	1	1	1	0	0	1	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	471	1530	477	119	1175	366	229	97	122	412	118	823
Arrive On Green	0.14	0.30	0.30	0.07	0.23	0.23	0.13	0.13	0.13	0.30	0.30	0.30
Sat Flow, veh/h	3408	5036	1568	1757	5036	1568	1757	744	935	1380	396	2760
Grp Volume(v), veh/h	378	1101	128	93	640	115	81	0	167	422	0	613
Grp Sat Flow(s),veh/h/ln	1704	1679	1568	1757	1679	1568	1757	0	1680	1776	0	1380
Q Serve(g_s), s	10.1	18.2	5.8	4.9	10.4	5.7	3.9	0.0	9.0	20.5	0.0	18.8
Cycle Q Clear(g_c), s	10.1	18.2	5.8	4.9	10.4	5.7	3.9	0.0	9.0	20.5	0.0	18.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	0.78		1.00
Lane Grp Cap(c), veh/h	471	1530	477	119	1175	366	229	0	219	529	0	823
V/C Ratio(X)	0.80	0.72	0.27	0.78	0.54	0.31	0.35	0.00	0.76	0.80	0.00	0.74
Avail Cap(c_a), veh/h	736	2099	654	225	1658	516	714	0	682	803	0	1248
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.1	29.0	24.7	42.9	31.5	29.7	37.1	0.0	39.3	30.2	0.0	29.6
Incr Delay (d2), s/veh	3.5	0.8	0.3	10.6	0.4	0.5	0.9	0.0	5.4	3.3	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	8.6	2.5	2.7	4.9	2.5	2.0	0.0	4.5	10.4	0.0	7.3
LnGrp Delay(d),s/veh	42.6	29.8	25.0	53.5	31.9	30.2	38.0	0.0	44.7	33.5	0.0	31.0
LnGrp LOS	D	C	C	D	C	C	D		D	C		C
Approach Vol, veh/h		1607			848			248			1035	
Approach Delay, s/veh		32.4			34.0			42.5			32.0	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.3	34.4		32.6	16.9	27.8		16.2
Change Period (Y+Rc), s	4.0	6.0		* 4.7	4.0	6.0		4.0
Max Green Setting (Gmax), s	12.0	39.0		* 42	20.2	30.8		38.0
Max Q Clear Time (g_c+I1), s	6.9	20.2		22.5	12.1	12.4		11.0
Green Ext Time (p_c), s	0.1	8.2		5.4	0.9	4.6		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C

Notes

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			↰	↱		✣			✣	
Traffic Vol, veh/h	4	154	51	50	111	24	13	70	57	46	87	6
Future Vol, veh/h	4	154	51	50	111	24	13	70	57	46	87	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	162	54	53	117	25	14	74	60	48	92	6
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	10.1	10.1	9.4	9.8
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	9%	2%	31%	0%	33%
Vol Thru, %	50%	74%	69%	0%	63%
Vol Right, %	41%	24%	0%	100%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	209	161	24	139
LT Vol	13	4	50	0	46
Through Vol	70	154	111	0	87
RT Vol	57	51	0	24	6
Lane Flow Rate	147	220	169	25	146
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.204	0.301	0.267	0.034	0.213
Departure Headway (Hd)	4.975	4.92	5.666	4.803	5.232
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	713	722	627	736	679
Service Time	3.067	3.007	3.457	2.592	3.325
HCM Lane V/C Ratio	0.206	0.305	0.27	0.034	0.215
HCM Control Delay	9.4	10.1	10.5	7.8	9.8
HCM Lane LOS	A	B	B	A	A
HCM 95th-tile Q	0.8	1.3	1.1	0.1	0.8

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	80	1287	449	267	653	353	47	180	35	20
v/c Ratio	0.44	0.78	0.49	0.74	0.38	0.63	0.15	0.44	0.23	0.08
Control Delay	46.2	25.2	6.8	52.2	17.2	39.3	33.3	9.1	42.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	25.2	6.8	52.2	17.2	39.3	33.3	9.1	42.7	0.7
Queue Length 50th (ft)	44	334	37	78	134	97	23	0	19	0
Queue Length 95th (ft)	91	#471	119	#147	199	146	55	55	50	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	220	1644	915	363	1732	690	374	461	536	550
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.78	0.49	0.74	0.38	0.51	0.13	0.39	0.07	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	1223	427	254	606	14	335	45	171	13	20	19
Future Volume (veh/h)	76	1223	427	254	606	14	335	45	171	13	20	19
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1845
Adj Flow Rate, veh/h	80	1287	0	267	638	15	353	47	180	14	21	20
Adj No. of Lanes	1	2	1	2	2	0	2	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	103	1565	700	353	1720	40	523	283	241	26	39	57
Arrive On Green	0.06	0.45	0.00	0.10	0.49	0.49	0.15	0.15	0.15	0.04	0.04	0.04
Sat Flow, veh/h	1757	3505	1568	3408	3500	82	3408	1845	1568	723	1085	1568
Grp Volume(v), veh/h	80	1287	0	267	319	334	353	47	180	35	0	20
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1704	1752	1830	1704	1845	1568	1808	0	1568
Q Serve(g_s), s	3.4	24.4	0.0	5.8	8.6	8.6	7.4	1.7	8.4	1.4	0.0	0.9
Cycle Q Clear(g_c), s	3.4	24.4	0.0	5.8	8.6	8.6	7.4	1.7	8.4	1.4	0.0	0.9
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	103	1565	700	353	861	899	523	283	241	65	0	57
V/C Ratio(X)	0.78	0.82	0.00	0.76	0.37	0.37	0.68	0.17	0.75	0.54	0.00	0.35
Avail Cap(c_a), veh/h	245	1820	814	403	864	902	766	415	353	594	0	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.3	18.4	0.0	33.2	12.0	12.0	30.4	28.0	30.8	36.0	0.0	35.8
Incr Delay (d2), s/veh	11.7	2.8	0.0	7.0	0.3	0.3	1.5	0.3	5.0	6.7	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	12.4	0.0	3.0	4.2	4.4	3.6	0.9	4.0	0.8	0.0	0.5
LnGrp Delay(d),s/veh	47.0	21.2	0.0	40.1	12.3	12.3	31.9	28.2	35.7	42.7	0.0	39.5
LnGrp LOS	D	C		D	B	B	C	C	D	D		D
Approach Vol, veh/h		1367			920			580			55	
Approach Delay, s/veh		22.7			20.4			32.8			41.5	
Approach LOS		C			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.9	39.8		7.3	8.5	43.2		17.1				
Change Period (Y+Rc), s	4.0	* 5.8		4.6	4.0	5.8		5.4				
Max Green Setting (Gmax), s	9.0	* 40		25.0	10.6	37.5		17.1				
Max Q Clear Time (g_c+I1), s	7.8	26.4		3.4	5.4	10.6		10.4				
Green Ext Time (p_c), s	0.1	7.5		0.2	0.1	4.3		1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			24.3									
HCM 2010 LOS			C									
Notes												

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	30	431	39	11	588	97	9	111
v/c Ratio	0.13	0.21	0.04	0.05	0.57	0.29	0.02	0.35
Control Delay	40.1	10.9	0.1	41.5	18.7	35.0	0.2	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	10.9	0.1	41.5	18.7	35.0	0.2	27.9
Queue Length 50th (ft)	10	47	0	4	158	33	0	26
Queue Length 95th (ft)	38	88	0	20	284	84	0	71
Internal Link Dist (ft)		1326			4905	256		2628
Turn Bay Length (ft)	100		150	100			60	
Base Capacity (vph)	260	2967	1342	216	1533	732	707	721
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.15	0.03	0.05	0.38	0.13	0.01	0.15

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	438	736	449	49	12	66	17	39
v/c Ratio	0.08	0.46	0.57	0.16	0.04	0.05	0.23	0.07	0.14
Control Delay	29.9	17.0	16.6	5.1	0.6	30.4	13.4	29.9	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	17.0	16.6	5.1	0.6	30.4	13.4	29.9	23.1
Queue Length 50th (ft)	5	45	86	17	0	3	2	4	7
Queue Length 95th (ft)	29	122	207	92	3	21	37	26	39
Internal Link Dist (ft)		4905		726			339		194
Turn Bay Length (ft)	220		450		190	500			
Base Capacity (vph)	306	2232	2895	3359	1507	265	793	306	887
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.20	0.25	0.13	0.03	0.05	0.08	0.06	0.04

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	318	48	1118	145	524
v/c Ratio	0.21	0.18	0.61	0.37	0.52
Control Delay	10.0	21.6	8.4	19.5	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	21.6	8.4	19.5	4.2
Queue Length 50th (ft)	16	10	80	30	0
Queue Length 95th (ft)	63	39	145	81	26
Internal Link Dist (ft)	726		410	369	
Turn Bay Length (ft)		210		125	125
Base Capacity (vph)	3250	561	3312	1304	2166
Starvation Cap Reductn	0	0	18	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.09	0.34	0.11	0.24

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	99	757	66	1045	172	153	111	109	112	102
v/c Ratio	0.69	0.51	0.48	0.75	0.24	0.61	0.42	0.70	0.70	0.40
Control Delay	66.1	20.4	52.3	26.6	3.9	46.5	34.0	64.7	64.1	10.7
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.1	20.5	52.3	26.6	3.9	46.5	34.0	64.7	64.1	10.7
Queue Length 50th (ft)	55	162	36	255	0	82	49	64	65	0
Queue Length 95th (ft)	#136	234	79	355	36	140	96	#152	#155	35
Internal Link Dist (ft)		410		540			2568		2090	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	144	1472	144	1396	724	814	833	156	160	255
Starvation Cap Reductn	0	64	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.54	0.46	0.75	0.24	0.19	0.13	0.70	0.70	0.40

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	537	161	41	911	241	94
v/c Ratio	0.41	0.24	0.17	0.57	0.53	0.20
Control Delay	14.8	4.5	26.9	11.1	22.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	4.5	26.9	11.1	22.9	6.2
Queue Length 50th (ft)	46	0	10	90	54	0
Queue Length 95th (ft)	145	37	45	172	158	31
Internal Link Dist (ft)	1960			1797	2586	
Turn Bay Length (ft)		160	250			250
Base Capacity (vph)	2924	1327	409	3238	1368	1241
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.12	0.10	0.28	0.18	0.08

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	154	435	69	51	642	85	70	40	144	287
v/c Ratio	0.48	0.28	0.09	0.27	0.62	0.16	0.33	0.18	0.48	0.57
Control Delay	37.1	16.8	4.7	38.4	25.8	7.5	37.6	21.6	36.0	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	16.8	4.7	38.4	25.8	7.5	37.6	21.6	36.0	9.1
Queue Length 50th (ft)	64	74	0	22	133	3	30	7	61	0
Queue Length 95th (ft)	#150	131	24	63	214	35	77	38	130	66
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	329	1718	807	228	1486	708	963	937	1048	1047
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.25	0.09	0.22	0.43	0.12	0.07	0.04	0.14	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	30	591	301	233	624	312	31	193	57	31
v/c Ratio	0.19	0.59	0.45	0.81	0.39	0.49	0.09	0.43	0.28	0.10
Control Delay	39.3	25.1	5.3	57.0	16.3	30.2	27.4	8.1	36.6	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.3	25.1	5.3	57.0	16.3	30.2	27.4	8.1	36.6	0.6
Queue Length 50th (ft)	13	117	0	101	84	63	11	0	23	0
Queue Length 95th (ft)	40	170	36	#253	164	105	34	38	59	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	160	1559	864	289	1790	1277	692	709	683	689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.38	0.35	0.81	0.35	0.24	0.04	0.27	0.08	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	179	526	31	8	707	47	299	169
v/c Ratio	0.81	0.48	0.03	0.08	0.87	0.30	0.84	0.37
Control Delay	69.7	14.5	0.1	47.4	37.9	44.7	59.6	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.7	14.5	0.1	47.4	37.9	44.7	59.6	8.3
Queue Length 50th (ft)	113	176	0	5	402	26	185	0
Queue Length 95th (ft)	#220	318	0	20	#601	58	#317	47
Internal Link Dist (ft)		800			690	217	1322	
Turn Bay Length (ft)	350		350	50				200
Base Capacity (vph)	222	1106	979	101	818	349	356	454
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.48	0.03	0.08	0.86	0.13	0.84	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	632	151	15	704	107	38
v/c Ratio	0.53	0.14	0.05	0.57	0.27	0.05
Control Delay	9.6	3.3	26.2	8.1	22.1	0.1
Queue Delay	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	3.3	26.2	8.1	22.1	0.1
Queue Length 50th (ft)	87	5	3	103	22	0
Queue Length 95th (ft)	242	30	22	177	78	0
Internal Link Dist (ft)	550			203		2559
Turn Bay Length (ft)		100	80		85	
Base Capacity (vph)	1692	1446	300	1705	833	997
Starvation Cap Reductn	448	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.10	0.05	0.41	0.13	0.04

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	252	679	1259	47	209
v/c Ratio	0.44	0.21	0.60	0.20	0.53
Control Delay	28.0	4.4	15.2	29.8	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	4.4	15.2	29.8	10.4
Queue Length 50th (ft)	44	29	123	16	0
Queue Length 95th (ft)	93	50	196	51	58
Internal Link Dist (ft)		1117	1025	876	
Turn Bay Length (ft)	225				
Base Capacity (vph)	808	4770	3532	1191	1133
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.14	0.36	0.04	0.18

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	165	388	225	63	723	257	231	343	119	486	384
v/c Ratio	0.71	0.31	0.32	0.44	0.75	0.42	0.75	0.36	0.58	0.63	0.72
Control Delay	64.6	28.1	5.2	61.3	41.7	6.3	60.6	32.6	59.8	42.1	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.6	28.1	5.2	61.3	41.7	6.3	60.6	32.6	59.8	42.1	23.5
Queue Length 50th (ft)	112	106	0	43	242	0	154	99	80	164	95
Queue Length 95th (ft)	#242	168	52	96	345	58	#311	150	153	224	202
Internal Link Dist (ft)		650			1744			693		932	
Turn Bay Length (ft)	250		330	315		320	190		250		75
Base Capacity (vph)	251	1364	747	175	1199	705	335	1586	281	1507	809
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.28	0.30	0.36	0.60	0.36	0.69	0.22	0.42	0.32	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	31	31	69	34	37	120	358	29	485
v/c Ratio	0.10	0.10	0.17	0.10	0.09	0.29	0.18	0.10	0.34
Control Delay	26.6	26.6	0.9	26.4	0.4	24.3	11.0	28.2	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	26.6	0.9	26.4	0.4	24.3	11.0	28.2	17.1
Queue Length 50th (ft)	10	10	0	11	0	37	32	9	70
Queue Length 95th (ft)	35	35	0	36	0	86	77	34	123
Internal Link Dist (ft)		863		164			1173		243
Turn Bay Length (ft)	315		300			115			
Base Capacity (vph)	767	776	805	1140	1055	706	2538	310	2098
Starvation Cap Reductn	0	0	0	0	0	0	0	0	10
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.09	0.03	0.04	0.17	0.14	0.09	0.23

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	3	799	17	667	86	5
v/c Ratio	0.01	0.62	0.08	0.51	0.28	0.02
Control Delay	34.7	11.5	34.4	9.3	27.6	31.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	11.5	34.4	9.3	27.6	31.8
Queue Length 50th (ft)	1	115	5	85	21	1
Queue Length 95th (ft)	11	533	31	388	87	14
Internal Link Dist (ft)		690		550	1237	131
Turn Bay Length (ft)	55		75			
Base Capacity (vph)	213	1565	213	1598	697	716
Starvation Cap Reductn	0	0	0	27	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.51	0.08	0.42	0.12	0.01

Intersection Summary

Lane Group	EBT	WBT
Lane Group Flow (vph)	777	1338
v/c Ratio	0.15	0.27
Control Delay	0.1	0.1
Queue Delay	0.0	0.0
Total Delay	0.1	0.1
Queue Length 50th (ft)	0	0
Queue Length 95th (ft)	0	0
Internal Link Dist (ft)	1025	650
Turn Bay Length (ft)		
Base Capacity (vph)	5036	5036
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.15	0.27

Intersection Summary

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	133	205	477	16	33	68	167
v/c Ratio	0.26	0.20	0.68	0.08	0.06	0.25	0.22
Control Delay	27.9	6.9	20.7	31.5	27.6	29.0	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	6.9	20.7	31.5	27.6	29.0	7.0
Queue Length 50th (ft)	19	20	107	5	4	19	1
Queue Length 95th (ft)	56	72	270	26	20	67	28
Internal Link Dist (ft)		1036	1180		496		508
Turn Bay Length (ft)	200			225		150	
Base Capacity (vph)	613	1615	1511	211	2252	351	2144
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.13	0.32	0.08	0.01	0.19	0.08

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	43	426	42	5	367	52	6	112
v/c Ratio	0.12	0.21	0.04	0.02	0.41	0.14	0.01	0.27
Control Delay	28.7	10.3	0.3	31.2	18.1	28.2	0.0	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.7	10.3	0.3	31.2	18.1	28.2	0.0	22.5
Queue Length 50th (ft)	14	42	0	2	111	17	0	28
Queue Length 95th (ft)	50	110	2	13	230	56	0	86
Internal Link Dist (ft)		1326			4905	256		2628
Turn Bay Length (ft)	100		150	100			60	
Base Capacity (vph)	577	3040	1373	357	1518	909	854	945
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.14	0.03	0.01	0.24	0.06	0.01	0.12

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	15	550	425	342	39	29	60	30	50
v/c Ratio	0.06	0.49	0.45	0.13	0.03	0.11	0.21	0.11	0.17
Control Delay	29.9	17.1	20.5	6.8	0.1	29.1	14.8	29.0	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	17.1	20.5	6.8	0.1	29.1	14.8	29.0	22.6
Queue Length 50th (ft)	4	60	53	13	0	8	3	8	9
Queue Length 95th (ft)	25	157	137	79	1	38	39	39	47
Internal Link Dist (ft)		4905		726			339		194
Turn Bay Length (ft)	220		450		190	500			
Base Capacity (vph)	353	2617	2372	3306	1484	395	853	395	905
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.21	0.18	0.10	0.03	0.07	0.07	0.08	0.06

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	644	59	725	140	749
v/c Ratio	0.52	0.20	0.42	0.32	0.65
Control Delay	14.6	23.6	7.3	19.4	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	23.6	7.3	19.4	6.5
Queue Length 50th (ft)	75	15	48	34	14
Queue Length 95th (ft)	134	47	91	80	43
Internal Link Dist (ft)	726		410	369	
Turn Bay Length (ft)		210		125	125
Base Capacity (vph)	2896	588	3275	1478	2397
Starvation Cap Reductn	0	0	63	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.10	0.23	0.09	0.31

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	117	1051	48	493	105	91	74	135	140	38
v/c Ratio	0.78	0.75	0.33	0.42	0.18	0.42	0.30	0.53	0.53	0.11
Control Delay	73.8	25.8	43.6	20.7	5.1	39.4	22.9	39.6	39.5	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.8	25.8	43.6	20.7	5.1	39.4	22.9	39.6	39.5	0.7
Queue Length 50th (ft)	60	247	24	93	0	44	17	67	70	0
Queue Length 95th (ft)	#175	#430	62	157	33	93	58	131	134	0
Internal Link Dist (ft)		410		540			2568		2090	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	150	1410	150	1428	699	1020	1007	376	387	446
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.75	0.32	0.35	0.15	0.09	0.07	0.36	0.36	0.09

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1119	102	23	679	40	35
v/c Ratio	0.46	0.09	0.08	0.25	0.11	0.10
Control Delay	8.2	2.4	30.4	3.2	28.4	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	2.4	30.4	3.2	28.4	12.9
Queue Length 50th (ft)	84	1	6	42	10	0
Queue Length 95th (ft)	245	21	34	66	48	26
Internal Link Dist (ft)	1960			1797	2586	
Turn Bay Length (ft)		160	250			250
Base Capacity (vph)	3235	1450	450	3312	862	788
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.07	0.05	0.21	0.05	0.04

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	263	746	103	74	401	60	65	134	91	115
v/c Ratio	0.83	0.64	0.18	0.41	0.44	0.12	0.26	0.48	0.37	0.36
Control Delay	55.3	22.2	7.0	40.5	23.0	1.6	31.4	26.9	33.9	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.3	22.2	7.0	40.5	23.0	1.6	31.4	26.9	33.9	10.3
Queue Length 50th (ft)	106	134	6	29	72	0	24	34	35	0
Queue Length 95th (ft)	#306	217	38	#89	124	8	67	97	90	44
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	316	1864	872	181	1596	772	1000	985	1103	1011
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.40	0.12	0.41	0.25	0.08	0.07	0.14	0.08	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	64	913	344	196	427	268	38	136	28	16
v/c Ratio	0.35	0.69	0.43	0.63	0.25	0.50	0.13	0.36	0.17	0.06
Control Delay	42.7	24.8	4.6	43.3	14.9	35.4	33.0	7.7	40.8	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	24.8	4.6	43.3	14.9	35.4	33.0	7.7	40.8	0.4
Queue Length 50th (ft)	33	213	2	101	72	71	19	0	15	0
Queue Length 95th (ft)	77	317	59	#206	123	111	47	40	42	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	228	1597	898	357	1839	791	429	482	615	639
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.57	0.38	0.55	0.23	0.34	0.09	0.28	0.05	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	172	770	7	22	612	35	195	120
v/c Ratio	0.63	0.71	0.01	0.17	0.82	0.19	0.62	0.31
Control Delay	49.3	20.4	0.0	47.5	32.4	40.4	44.4	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	20.4	0.0	47.5	32.4	40.4	44.4	7.6
Queue Length 50th (ft)	95	280	0	12	299	17	105	0
Queue Length 95th (ft)	#214	#602	0	39	477	50	193	39
Internal Link Dist (ft)		800			690	217	1322	
Turn Bay Length (ft)	350		350	50				200
Base Capacity (vph)	302	1255	1097	128	1038	435	416	474
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.61	0.01	0.17	0.59	0.08	0.47	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	632	151	15	704	107	38
v/c Ratio	0.53	0.14	0.05	0.57	0.27	0.05
Control Delay	9.6	3.3	26.2	8.1	22.1	0.1
Queue Delay	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	3.3	26.2	8.1	22.1	0.1
Queue Length 50th (ft)	87	5	3	103	22	0
Queue Length 95th (ft)	242	30	22	177	78	0
Internal Link Dist (ft)	550			203		2559
Turn Bay Length (ft)		100	80		85	
Base Capacity (vph)	1692	1446	300	1705	833	997
Starvation Cap Reductn	448	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.10	0.05	0.41	0.13	0.04

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	239	1377	818	82	152
v/c Ratio	0.39	0.47	0.51	0.27	0.39
Control Delay	21.8	6.9	15.7	23.4	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.8	6.9	15.7	23.4	8.0
Queue Length 50th (ft)	32	72	69	22	0
Queue Length 95th (ft)	70	114	116	62	43
Internal Link Dist (ft)		1117	1025	876	
Turn Bay Length (ft)	225				
Base Capacity (vph)	990	5036	4334	1459	1331
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.27	0.19	0.06	0.11

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	482	814	295	89	425	123	136	508	94	340	310
v/c Ratio	0.99	0.58	0.37	0.47	0.61	0.30	0.80	0.69	0.60	0.47	0.57
Control Delay	75.1	25.9	4.1	51.1	38.5	7.9	78.7	38.4	62.4	35.6	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.1	25.9	4.1	51.1	38.5	7.9	78.7	38.4	62.4	35.6	10.9
Queue Length 50th (ft)	279	205	0	50	122	0	79	136	54	91	17
Queue Length 95th (ft)	#627	307	50	114	181	43	#226	218	#152	152	93
Internal Link Dist (ft)		650			1744			693		932	
Turn Bay Length (ft)	250		330	315		320	190		250		75
Base Capacity (vph)	488	1830	959	253	1345	677	169	1664	156	1691	898
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.44	0.31	0.35	0.32	0.18	0.80	0.31	0.60	0.20	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	56	98	109	59	96	376	77	460
v/c Ratio	0.18	0.18	0.26	0.29	0.14	0.27	0.27	0.23	0.34
Control Delay	28.3	28.2	7.4	27.2	0.9	27.5	19.2	28.5	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	28.2	7.4	27.2	0.9	27.5	19.2	28.5	20.2
Queue Length 50th (ft)	18	18	0	35	0	31	58	25	73
Queue Length 95th (ft)	58	58	33	91	3	83	111	73	140
Internal Link Dist (ft)		863		164			1173		243
Turn Bay Length (ft)	315		300			115			
Base Capacity (vph)	714	742	737	1042	967	603	2136	482	1993
Starvation Cap Reductn	0	0	0	0	0	0	0	0	9
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.08	0.13	0.10	0.06	0.16	0.18	0.16	0.23

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	14	845	14	644	49	29
v/c Ratio	0.08	0.59	0.08	0.45	0.21	0.14
Control Delay	37.6	11.2	37.6	8.4	28.3	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	11.2	37.6	8.5	28.3	25.9
Queue Length 50th (ft)	5	112	5	71	12	5
Queue Length 95th (ft)	28	#599	28	356	53	34
Internal Link Dist (ft)		690		550	1237	131
Turn Bay Length (ft)	55		75			
Base Capacity (vph)	179	1473	179	1482	584	591
Starvation Cap Reductn	0	0	0	50	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.57	0.08	0.45	0.08	0.05

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBT
Lane Group Flow (vph)	1591	872
v/c Ratio	0.32	0.17
Control Delay	0.2	0.1
Queue Delay	0.0	0.0
Total Delay	0.2	0.1
Queue Length 50th (ft)	0	0
Queue Length 95th (ft)	0	0
Internal Link Dist (ft)	1025	650
Turn Bay Length (ft)		
Base Capacity (vph)	5036	5036
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.32	0.17

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	150	296	2	382	16	18	116	215
v/c Ratio	0.27	0.29	0.01	0.64	0.07	0.03	0.34	0.29
Control Delay	24.9	9.5	30.5	20.8	29.3	24.5	25.2	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	9.5	30.5	20.8	29.3	24.5	25.2	6.6
Queue Length 50th (ft)	18	30	1	78	4	1	27	1
Queue Length 95th (ft)	64	163	8	242	27	13	102	32
Internal Link Dist (ft)		1036		1180		496		508
Turn Bay Length (ft)	200		250		225		150	
Base Capacity (vph)	1292	1654	231	1398	245	1825	560	2204
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.18	0.01	0.27	0.07	0.01	0.21	0.10

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	47	431	39	11	588	97	9	117
v/c Ratio	0.19	0.20	0.04	0.06	0.58	0.31	0.03	0.37
Control Delay	41.6	10.4	0.1	45.4	21.2	38.6	0.2	30.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	10.4	0.1	45.4	21.2	38.6	0.2	30.2
Queue Length 50th (ft)	21	48	0	5	234	43	0	35
Queue Length 95th (ft)	54	89	0	20	304	88	0	77
Internal Link Dist (ft)		1326			4905	256		2628
Turn Bay Length (ft)	100		150	100			60	
Base Capacity (vph)	338	2803	1273	189	1414	690	672	682
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.15	0.03	0.06	0.42	0.14	0.01	0.17

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	438	741	449	49	12	66	17	39
v/c Ratio	0.08	0.46	0.57	0.16	0.04	0.05	0.23	0.07	0.14
Control Delay	30.0	17.1	16.6	5.1	0.6	30.5	13.4	30.0	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	17.1	16.6	5.1	0.6	30.5	13.4	30.0	23.2
Queue Length 50th (ft)	5	45	87	17	0	3	2	4	7
Queue Length 95th (ft)	29	122	209	92	3	21	37	26	39
Internal Link Dist (ft)		4905		726			339		194
Turn Bay Length (ft)	220		450		190	500			
Base Capacity (vph)	305	2228	2830	3358	1506	264	792	305	886
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.20	0.26	0.13	0.03	0.05	0.08	0.06	0.04

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	318	48	1123	145	539
v/c Ratio	0.21	0.18	0.61	0.37	0.53
Control Delay	10.0	21.6	8.5	19.5	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	21.6	8.5	19.5	4.2
Queue Length 50th (ft)	16	10	81	30	0
Queue Length 95th (ft)	63	39	147	81	26
Internal Link Dist (ft)	726		410	369	
Turn Bay Length (ft)		210		125	125
Base Capacity (vph)	3237	559	3312	1331	2202
Starvation Cap Reductn	0	0	19	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.09	0.34	0.11	0.24

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	114	757	66	1045	247	153	148	125	129	107
v/c Ratio	0.89	0.59	0.52	0.86	0.35	0.59	0.54	0.57	0.57	0.34
Control Delay	99.1	24.5	55.7	35.1	4.8	43.0	38.1	45.1	44.8	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.1	24.5	55.7	35.1	4.8	43.0	38.1	45.1	44.8	8.8
Queue Length 50th (ft)	61	167	34	263	0	76	67	65	67	0
Queue Length 95th (ft)	#177	269	#94	#452	48	140	128	128	131	35
Internal Link Dist (ft)		410		540			2568		2090	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	128	1293	128	1213	699	867	892	320	329	397
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.59	0.52	0.86	0.35	0.18	0.17	0.39	0.39	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	549	172	41	951	274	94
v/c Ratio	0.46	0.27	0.18	0.58	0.58	0.19
Control Delay	17.6	4.7	29.3	11.8	24.9	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	4.7	29.3	11.8	24.9	6.0
Queue Length 50th (ft)	82	0	13	103	82	0
Queue Length 95th (ft)	156	40	47	198	182	31
Internal Link Dist (ft)	1960			1797	2586	
Turn Bay Length (ft)		160	250			250
Base Capacity (vph)	2740	1256	347	3180	1329	1208
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.14	0.12	0.30	0.21	0.08

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	156	445	69	51	674	85	70	40	144	294
v/c Ratio	0.49	0.28	0.09	0.27	0.62	0.16	0.34	0.18	0.49	0.58
Control Delay	38.0	16.7	4.7	38.6	25.6	7.4	38.3	21.9	36.8	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	16.7	4.7	38.6	25.6	7.4	38.3	21.9	36.8	9.3
Queue Length 50th (ft)	68	76	0	23	141	3	31	7	63	0
Queue Length 95th (ft)	#153	136	24	63	225	35	77	38	130	67
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	320	1662	783	239	1447	692	938	913	1021	1030
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.27	0.09	0.21	0.47	0.12	0.07	0.04	0.14	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	30	601	302	233	658	316	31	193	57	31
v/c Ratio	0.21	0.61	0.46	0.65	0.40	0.53	0.10	0.44	0.29	0.10
Control Delay	44.0	28.3	5.7	40.9	16.4	35.2	32.1	9.1	41.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	28.3	5.7	40.9	16.4	35.2	32.1	9.1	41.1	0.6
Queue Length 50th (ft)	15	141	0	110	124	77	14	0	28	0
Queue Length 95th (ft)	42	189	37	188	165	119	37	41	63	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	149	1448	825	466	2052	814	441	522	636	653
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.42	0.37	0.50	0.32	0.39	0.07	0.37	0.09	0.05

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	180	534	31	8	736	47	299	173
v/c Ratio	0.81	0.48	0.03	0.08	0.90	0.30	0.84	0.38
Control Delay	70.5	14.6	0.1	47.4	41.4	44.7	59.9	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.5	14.6	0.1	47.4	41.4	44.7	59.9	8.3
Queue Length 50th (ft)	113	180	0	5	430	26	185	0
Queue Length 95th (ft)	#220	324	0	20	#641	58	#317	47
Internal Link Dist (ft)		800			690	217	1322	
Turn Bay Length (ft)	350		350	50				200
Base Capacity (vph)	221	1108	980	101	817	348	356	456
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.48	0.03	0.08	0.90	0.14	0.84	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	638	153	15	726	115	38
v/c Ratio	0.53	0.14	0.06	0.58	0.29	0.05
Control Delay	9.7	3.4	27.1	8.4	22.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	3.4	27.1	8.4	22.7	0.1
Queue Length 50th (ft)	91	6	4	112	25	0
Queue Length 95th (ft)	249	31	22	190	84	0
Internal Link Dist (ft)	550			203		2559
Turn Bay Length (ft)		100	80		85	
Base Capacity (vph)	1680	1436	286	1697	792	971
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.11	0.05	0.43	0.15	0.04

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	282	679	1275	51	217
v/c Ratio	0.47	0.20	0.60	0.22	0.54
Control Delay	28.9	4.3	15.4	31.3	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	4.3	15.4	31.3	10.7
Queue Length 50th (ft)	51	29	128	18	0
Queue Length 95th (ft)	106	50	204	56	60
Internal Link Dist (ft)		1117	1025	876	
Turn Bay Length (ft)	225				
Base Capacity (vph)	836	4722	3419	1132	1089
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.14	0.37	0.05	0.20

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	165	392	225	63	740	257	231	346	119	488	384
v/c Ratio	0.71	0.31	0.32	0.44	0.76	0.41	0.75	0.36	0.59	0.63	0.72
Control Delay	65.1	28.2	5.2	61.5	42.2	6.2	61.1	32.7	60.2	42.2	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.1	28.2	5.2	61.5	42.2	6.2	61.1	32.7	60.2	42.2	23.6
Queue Length 50th (ft)	113	107	0	43	249	0	155	101	81	166	96
Queue Length 95th (ft)	#242	170	52	96	355	58	#311	152	153	224	203
Internal Link Dist (ft)		650			1744			693		932	
Turn Bay Length (ft)	250		330	315		320	190		250		75
Base Capacity (vph)	249	1356	744	174	1193	703	333	1578	279	1499	805
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.29	0.30	0.36	0.62	0.37	0.69	0.22	0.43	0.33	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	31	31	69	34	37	120	362	29	486
v/c Ratio	0.10	0.10	0.17	0.11	0.09	0.29	0.18	0.10	0.34
Control Delay	26.7	26.7	0.9	26.6	0.4	24.4	11.0	28.4	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	26.7	0.9	26.6	0.4	24.4	11.0	28.4	17.2
Queue Length 50th (ft)	10	10	0	11	0	37	33	9	70
Queue Length 95th (ft)	35	35	0	36	0	86	78	34	123
Internal Link Dist (ft)		863		164			1173		243
Turn Bay Length (ft)	315		300			115			
Base Capacity (vph)	752	761	792	1138	1054	733	2564	308	2070
Starvation Cap Reductn	0	0	0	0	0	0	0	0	14
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.09	0.03	0.04	0.16	0.14	0.09	0.24

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	3	806	17	693	86	5
v/c Ratio	0.01	0.63	0.08	0.53	0.29	0.02
Control Delay	34.7	11.6	34.6	9.6	28.0	31.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	11.6	34.6	9.6	28.0	31.8
Queue Length 50th (ft)	1	117	5	90	21	1
Queue Length 95th (ft)	11	543	31	412	87	14
Internal Link Dist (ft)		690		550	1237	131
Turn Bay Length (ft)	55		75			
Base Capacity (vph)	207	1556	207	1588	677	696
Starvation Cap Reductn	0	0	0	26	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.52	0.08	0.44	0.13	0.01

Intersection Summary

Lane Group	EBT	WBT
Lane Group Flow (vph)	782	1355
v/c Ratio	0.16	0.27
Control Delay	0.1	0.1
Queue Delay	0.0	0.0
Total Delay	0.1	0.1
Queue Length 50th (ft)	0	0
Queue Length 95th (ft)	0	0
Internal Link Dist (ft)	1025	650
Turn Bay Length (ft)		
Base Capacity (vph)	5036	5036
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.16	0.27

Intersection Summary

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	133	207	477	23	39	68	169
v/c Ratio	0.26	0.21	0.70	0.11	0.07	0.26	0.23
Control Delay	29.6	7.7	23.2	33.9	30.0	31.9	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	7.7	23.2	33.9	30.0	31.9	8.1
Queue Length 50th (ft)	25	39	161	9	7	26	2
Queue Length 95th (ft)	58	73	283	34	24	70	30
Internal Link Dist (ft)		1036	1180		496		508
Turn Bay Length (ft)	200			225		150	
Base Capacity (vph)	1208	1541	1292	221	2060	348	1973
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.13	0.37	0.10	0.02	0.20	0.09

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	49	426	42	5	367	52	6	128
v/c Ratio	0.14	0.21	0.04	0.02	0.41	0.14	0.01	0.30
Control Delay	29.1	10.5	0.2	32.0	18.5	29.0	0.0	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	10.5	0.2	32.0	18.5	29.0	0.0	22.0
Queue Length 50th (ft)	16	42	0	2	113	17	0	31
Queue Length 95th (ft)	56	112	2	13	237	58	0	94
Internal Link Dist (ft)		1326			4905	256		2628
Turn Bay Length (ft)	100		150	100			60	
Base Capacity (vph)	627	3007	1359	355	1486	900	867	933
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.14	0.03	0.01	0.25	0.06	0.01	0.14

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	15	550	442	342	39	29	60	30	50
v/c Ratio	0.06	0.49	0.46	0.13	0.03	0.11	0.21	0.11	0.18
Control Delay	30.2	17.3	20.6	6.8	0.1	29.4	14.9	29.4	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.2	17.3	20.6	6.8	0.1	29.4	14.9	29.4	22.9
Queue Length 50th (ft)	4	61	55	13	0	8	3	8	9
Queue Length 95th (ft)	25	158	143	79	1	38	39	39	47
Internal Link Dist (ft)		4905		726			339		194
Turn Bay Length (ft)	220		450		190	500			
Base Capacity (vph)	350	2605	2354	3293	1479	391	844	391	896
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.21	0.19	0.10	0.03	0.07	0.07	0.08	0.06

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	644	59	744	140	758
v/c Ratio	0.52	0.20	0.43	0.32	0.66
Control Delay	14.6	23.7	7.4	19.4	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	23.7	7.4	19.4	6.7
Queue Length 50th (ft)	75	15	50	34	15
Queue Length 95th (ft)	135	48	95	80	44
Internal Link Dist (ft)	726		410	369	
Turn Bay Length (ft)		210		125	125
Base Capacity (vph)	2892	587	3270	1476	2395
Starvation Cap Reductn	0	0	65	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.10	0.23	0.09	0.32

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	124	1051	48	493	138	91	91	201	206	55
v/c Ratio	0.92	0.83	0.36	0.46	0.24	0.45	0.40	0.65	0.64	0.14
Control Delay	101.7	31.3	46.5	23.3	5.0	41.9	29.5	42.3	41.7	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.7	31.3	46.5	23.3	5.0	41.9	29.5	42.3	41.7	0.8
Queue Length 50th (ft)	68	276	25	104	0	47	30	106	108	0
Queue Length 95th (ft)	#186	#430	62	157	38	93	74	#205	#207	0
Internal Link Dist (ft)		410		540			2568		2090	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	135	1265	135	1279	657	914	918	337	348	412
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.83	0.36	0.39	0.21	0.10	0.10	0.60	0.59	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1167	141	23	697	54	35
v/c Ratio	0.47	0.12	0.08	0.26	0.15	0.10
Control Delay	8.3	2.3	32.8	3.2	29.8	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	2.3	32.8	3.2	29.8	13.3
Queue Length 50th (ft)	90	1	7	44	15	0
Queue Length 95th (ft)	265	25	36	74	62	26
Internal Link Dist (ft)	1960			1797	2586	
Turn Bay Length (ft)		160	250			250
Base Capacity (vph)	3210	1440	346	3312	858	784
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.10	0.07	0.21	0.06	0.04

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	272	786	103	74	416	60	65	134	91	118
v/c Ratio	0.89	0.64	0.17	0.42	0.43	0.12	0.27	0.49	0.38	0.38
Control Delay	63.8	21.9	7.3	42.0	22.4	1.6	32.3	27.7	35.1	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.8	21.9	7.3	42.0	22.4	1.6	32.3	27.7	35.1	10.7
Queue Length 50th (ft)	114	143	7	30	75	0	25	35	36	0
Queue Length 95th (ft)	#324	231	39	#92	128	8	68	98	91	46
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	307	1810	847	176	1550	753	971	957	1071	985
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.43	0.12	0.42	0.27	0.08	0.07	0.14	0.08	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	64	948	348	196	440	269	38	136	28	16
v/c Ratio	0.35	0.71	0.43	0.63	0.26	0.50	0.13	0.36	0.17	0.06
Control Delay	42.8	25.2	5.1	43.7	14.9	35.7	33.0	7.7	40.8	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	25.2	5.1	43.7	14.9	35.7	33.0	7.7	40.8	0.4
Queue Length 50th (ft)	33	224	7	101	75	71	19	0	15	0
Queue Length 95th (ft)	77	333	66	#206	126	111	47	40	42	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	226	1581	887	354	1821	783	425	478	609	634
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.60	0.39	0.55	0.24	0.34	0.09	0.28	0.05	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	176	801	7	22	625	35	195	121
v/c Ratio	0.64	0.74	0.01	0.18	0.83	0.20	0.63	0.31
Control Delay	50.2	21.3	0.0	47.8	33.0	40.6	45.1	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	21.3	0.0	47.8	33.0	40.6	45.1	7.7
Queue Length 50th (ft)	100	300	0	13	310	17	107	0
Queue Length 95th (ft)	#219	#685	0	39	#501	50	193	39
Internal Link Dist (ft)		800			690	217	1322	
Turn Bay Length (ft)	350		350	50				200
Base Capacity (vph)	296	1241	1086	125	1018	427	408	468
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.65	0.01	0.18	0.61	0.08	0.48	0.26

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	660	159	15	715	111	38
v/c Ratio	0.54	0.15	0.05	0.57	0.28	0.05
Control Delay	9.7	3.3	27.8	8.0	23.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	3.3	27.8	8.0	23.3	0.1
Queue Length 50th (ft)	94	6	3	108	23	0
Queue Length 95th (ft)	256	32	22	181	85	0
Internal Link Dist (ft)	550			203		2559
Turn Bay Length (ft)		100	80		85	
Base Capacity (vph)	1665	1424	290	1693	804	974
Starvation Cap Reductn	8	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.11	0.05	0.42	0.14	0.04

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	253	1377	826	102	189
v/c Ratio	0.40	0.47	0.52	0.33	0.44
Control Delay	22.5	7.2	16.2	24.3	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	7.2	16.2	24.3	7.8
Queue Length 50th (ft)	36	76	72	28	0
Queue Length 95th (ft)	75	120	122	75	47
Internal Link Dist (ft)		1117	1025	876	
Turn Bay Length (ft)	225				
Base Capacity (vph)	970	5017	4245	1430	1314
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.27	0.19	0.07	0.14

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	482	835	295	89	433	123	136	509	94	344	310
v/c Ratio	1.00	0.58	0.36	0.48	0.59	0.29	0.82	0.69	0.61	0.47	0.58
Control Delay	78.9	25.9	4.0	52.3	37.9	7.7	81.1	39.3	63.9	36.3	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.9	25.9	4.0	52.3	37.9	7.7	81.1	39.3	63.9	36.3	11.4
Queue Length 50th (ft)	281	213	0	50	124	0	80	138	54	93	19
Queue Length 95th (ft)	#644	316	49	115	184	42	#231	223	#156	157	97
Internal Link Dist (ft)		650			1744			693		932	
Turn Bay Length (ft)	250		330	315		320	190		250		75
Base Capacity (vph)	482	1807	951	250	1328	670	166	1643	154	1670	889
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.46	0.31	0.36	0.33	0.18	0.82	0.31	0.61	0.21	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	56	98	109	59	96	377	77	464
v/c Ratio	0.18	0.18	0.26	0.29	0.14	0.27	0.27	0.23	0.34
Control Delay	28.4	28.3	7.5	27.3	0.8	27.6	19.2	28.6	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	28.3	7.5	27.3	0.8	27.6	19.2	28.6	20.3
Queue Length 50th (ft)	18	18	0	35	0	31	58	25	74
Queue Length 95th (ft)	58	60	33	91	3	83	111	73	141
Internal Link Dist (ft)		863		164			1173		243
Turn Bay Length (ft)	315		300			115			
Base Capacity (vph)	713	741	736	1040	966	601	2132	480	1990
Starvation Cap Reductn	0	0	0	0	0	0	0	0	12
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.08	0.13	0.10	0.06	0.16	0.18	0.16	0.23

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	14	877	14	657	49	29
v/c Ratio	0.09	0.61	0.09	0.45	0.24	0.16
Control Delay	38.4	11.5	38.4	8.4	29.2	26.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	38.4	11.5	38.4	8.5	29.2	26.3
Queue Length 50th (ft)	5	120	5	73	13	5
Queue Length 95th (ft)	28	#681	28	368	53	34
Internal Link Dist (ft)		690		550	1237	131
Turn Bay Length (ft)	55		75			
Base Capacity (vph)	153	1450	153	1460	502	508
Starvation Cap Reductn	0	0	0	106	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.60	0.09	0.49	0.10	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBT
Lane Group Flow (vph)	1613	880
v/c Ratio	0.32	0.17
Control Delay	0.2	0.1
Queue Delay	0.0	0.0
Total Delay	0.2	0.1
Queue Length 50th (ft)	0	0
Queue Length 95th (ft)	0	0
Internal Link Dist (ft)	1025	650
Turn Bay Length (ft)		
Base Capacity (vph)	5036	5036
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.32	0.17

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	150	304	2	382	19	21	116	222
v/c Ratio	0.28	0.32	0.01	0.67	0.09	0.04	0.35	0.30
Control Delay	27.0	11.0	32.5	23.5	31.6	26.7	27.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	11.0	32.5	23.5	31.6	26.7	27.5	7.3
Queue Length 50th (ft)	18	31	1	78	5	2	27	2
Queue Length 95th (ft)	64	168	8	242	30	15	102	34
Internal Link Dist (ft)		1036		1180		496		508
Turn Bay Length (ft)	200		250		225		150	
Base Capacity (vph)	1250	1587	223	1354	237	1774	542	2151
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.19	0.01	0.28	0.08	0.01	0.21	0.10

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	31	453	40	11	619	102	9	117
v/c Ratio	0.14	0.21	0.04	0.06	0.61	0.32	0.02	0.37
Control Delay	44.1	10.6	0.1	45.6	20.9	38.5	0.2	31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	10.6	0.1	45.6	20.9	38.5	0.2	31.0
Queue Length 50th (ft)	14	52	0	5	247	45	0	37
Queue Length 95th (ft)	41	95	0	21	312	92	0	80
Internal Link Dist (ft)		1326			4905	256		2628
Turn Bay Length (ft)	100		150	100			60	
Base Capacity (vph)	240	2803	1273	188	1446	687	669	678
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.16	0.03	0.06	0.43	0.15	0.01	0.17

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	463	847	477	51	13	120	19	41
v/c Ratio	0.10	0.53	0.65	0.20	0.05	0.07	0.40	0.10	0.14
Control Delay	36.4	21.5	20.2	7.3	0.6	37.1	13.4	36.3	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	21.5	20.2	7.3	0.6	37.1	13.4	36.3	23.5
Queue Length 50th (ft)	6	53	108	19	0	4	2	5	8
Queue Length 95th (ft)	33	144	257	96	3	25	49	31	43
Internal Link Dist (ft)		4905		726			339		194
Turn Bay Length (ft)	220		450		190	500			
Base Capacity (vph)	217	1844	2688	3234	1454	184	689	217	729
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.25	0.32	0.15	0.04	0.07	0.17	0.09	0.06

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	388	137	1255	152	612
v/c Ratio	0.33	0.40	0.64	0.40	0.57
Control Delay	15.5	24.6	9.0	22.9	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.5	24.6	9.0	22.9	4.6
Queue Length 50th (ft)	46	36	108	38	0
Queue Length 95th (ft)	93	94	191	98	28
Internal Link Dist (ft)	726		410	369	
Turn Bay Length (ft)		210		125	125
Base Capacity (vph)	2942	833	3312	1139	1985
Starvation Cap Reductn	0	0	86	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.16	0.39	0.13	0.31

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	103	906	75	1217	181	202	123	114	117	108
v/c Ratio	0.83	0.78	0.60	1.03	0.28	0.66	0.38	0.55	0.54	0.36
Control Delay	89.6	31.8	63.6	64.6	5.1	44.3	29.9	46.3	46.0	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.6	31.8	63.6	64.6	5.1	44.3	29.9	46.3	46.0	9.4
Queue Length 50th (ft)	56	223	40	~376	0	103	50	62	63	0
Queue Length 95th (ft)	#167	#386	#116	#606	45	179	102	123	126	37
Internal Link Dist (ft)		410		540			2568		2090	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	124	1167	124	1180	644	843	858	311	320	389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.78	0.60	1.03	0.28	0.24	0.14	0.37	0.37	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	642	169	46	1079	253	100
v/c Ratio	0.49	0.24	0.21	0.62	0.58	0.22
Control Delay	17.3	4.3	31.2	11.8	27.2	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	4.3	31.2	11.8	27.2	6.5
Queue Length 50th (ft)	100	0	16	123	82	0
Queue Length 95th (ft)	186	38	53	232	183	34
Internal Link Dist (ft)	1960			1797	2586	
Turn Bay Length (ft)		160	250			250
Base Capacity (vph)	2748	1258	387	3199	1167	1074
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.13	0.12	0.34	0.22	0.09

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	161	544	72	53	778	89	73	42	151	302
v/c Ratio	0.58	0.34	0.09	0.31	0.60	0.14	0.38	0.20	0.54	0.60
Control Delay	44.2	18.0	5.1	41.6	24.7	7.6	41.5	22.8	40.0	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	18.0	5.1	41.6	24.7	7.6	41.5	22.8	40.0	9.6
Queue Length 50th (ft)	78	98	0	26	170	4	36	9	73	0
Queue Length 95th (ft)	#175	174	26	65	273	38	81	40	135	67
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	276	1621	766	217	1302	630	833	814	906	951
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.34	0.09	0.24	0.60	0.14	0.09	0.05	0.17	0.32

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	31	706	330	252	766	340	32	226	60	32
v/c Ratio	0.23	0.67	0.47	0.69	0.45	0.57	0.10	0.49	0.32	0.10
Control Delay	46.0	29.8	5.5	44.5	16.9	37.6	33.3	9.1	43.4	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	29.8	5.5	44.5	16.9	37.6	33.3	9.1	43.4	0.7
Queue Length 50th (ft)	17	181	0	131	155	91	15	0	32	0
Queue Length 95th (ft)	43	226	39	204	197	127	38	42	65	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	140	1339	803	431	1905	753	408	523	589	616
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.53	0.41	0.58	0.40	0.45	0.08	0.43	0.10	0.05

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	179	656	31	8	847	47	299	169
v/c Ratio	0.97	0.58	0.03	0.08	0.96	0.30	0.91	0.39
Control Delay	105.3	15.6	0.0	47.4	47.2	44.7	72.2	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.3	15.6	0.0	47.4	47.2	44.7	72.2	8.8
Queue Length 50th (ft)	~117	234	0	5	515	26	189	0
Queue Length 95th (ft)	#243	417	0	20	#749	58	#335	48
Internal Link Dist (ft)		800			690	217	1322	
Turn Bay Length (ft)	350		350	50				200
Base Capacity (vph)	184	1137	1003	101	886	348	328	431
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.58	0.03	0.08	0.96	0.14	0.91	0.39

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	719	178	32	821	138	70
v/c Ratio	0.63	0.18	0.18	0.66	0.45	0.11
Control Delay	12.4	4.1	35.5	9.5	32.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	4.1	35.5	9.5	32.0	0.3
Queue Length 50th (ft)	125	9	11	156	44	0
Queue Length 95th (ft)	305	38	40	246	107	0
Internal Link Dist (ft)	550			203		2559
Turn Bay Length (ft)		100	80		85	
Base Capacity (vph)	1451	1254	181	1513	502	773
Starvation Cap Reductn	23	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.14	0.18	0.54	0.27	0.09

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	260	902	1657	68	228
v/c Ratio	0.53	0.25	0.65	0.33	0.59
Control Delay	36.9	4.1	14.9	39.0	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	4.1	14.9	39.0	12.1
Queue Length 50th (ft)	61	43	195	32	0
Queue Length 95th (ft)	110	68	273	76	64
Internal Link Dist (ft)		1117	1025	876	
Turn Bay Length (ft)	225				
Base Capacity (vph)	572	4315	3089	953	957
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.21	0.54	0.07	0.24

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	192	595	261	110	1086	258	289	403	124	508	397
v/c Ratio	0.99	0.49	0.37	0.61	0.94	0.38	1.02	0.43	0.63	0.65	0.75
Control Delay	115.7	33.9	5.6	66.8	53.9	7.6	107.7	35.8	65.4	45.2	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	115.7	33.9	5.6	66.8	53.9	7.6	107.7	35.8	65.4	45.2	26.6
Queue Length 50th (ft)	146	184	0	80	411	14	~222	127	90	184	119
Queue Length 95th (ft)	#329	282	59	150	#631	78	#449	177	161	233	221
Internal Link Dist (ft)		650			1744			693		932	
Turn Bay Length (ft)	250		330	315		320	190		250		75
Base Capacity (vph)	194	1205	710	221	1161	674	284	1350	266	1347	744
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.49	0.37	0.50	0.94	0.38	1.02	0.30	0.47	0.38	0.53

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	32	32	72	36	40	126	409	30	528
v/c Ratio	0.11	0.11	0.18	0.11	0.10	0.30	0.21	0.11	0.36
Control Delay	27.6	27.6	1.0	27.5	0.5	25.0	10.9	29.4	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	27.6	1.0	27.5	0.5	25.0	10.9	29.4	17.5
Queue Length 50th (ft)	10	10	0	12	0	40	38	10	79
Queue Length 95th (ft)	37	37	0	39	0	92	88	36	137
Internal Link Dist (ft)		863		164			1173		243
Turn Bay Length (ft)	315		300			115			
Base Capacity (vph)	740	749	782	1116	1037	720	2511	301	2038
Starvation Cap Reductn	0	0	0	0	0	0	0	0	29
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.09	0.03	0.04	0.17	0.16	0.10	0.26

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	36	906	18	797	90	16
v/c Ratio	0.26	0.69	0.13	0.62	0.40	0.11
Control Delay	42.5	14.4	40.1	13.3	35.4	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	14.4	40.1	13.3	35.4	25.8
Queue Length 50th (ft)	14	153	7	213	31	2
Queue Length 95th (ft)	53	#759	33	544	91	23
Internal Link Dist (ft)		690		550	1237	131
Turn Bay Length (ft)	55		75			
Base Capacity (vph)	136	1329	136	1352	446	440
Starvation Cap Reductn	0	0	0	22	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.68	0.13	0.60	0.20	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	39	986	1788	50	27
v/c Ratio	0.16	0.23	0.46	0.19	0.11
Control Delay	37.2	1.9	6.9	36.5	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	1.9	6.9	36.5	16.5
Queue Length 50th (ft)	16	33	157	21	0
Queue Length 95th (ft)	54	54	235	64	25
Internal Link Dist (ft)		1025	650	268	
Turn Bay Length (ft)	75				
Base Capacity (vph)	383	4903	4612	894	813
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.20	0.39	0.06	0.03

Intersection Summary

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	140	215	501	18	34	71	176
v/c Ratio	0.30	0.20	0.74	0.10	0.07	0.28	0.25
Control Delay	31.3	7.5	24.8	35.4	31.6	33.2	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.3	7.5	24.8	35.4	31.6	33.2	8.1
Queue Length 50th (ft)	28	42	175	7	6	28	2
Queue Length 95th (ft)	62	76	301	30	22	76	31
Internal Link Dist (ft)		1036	1180		496		508
Turn Bay Length (ft)	200			225		150	
Base Capacity (vph)	1068	1512	1257	195	1811	313	1820
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.14	0.40	0.09	0.02	0.23	0.10

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	45	448	44	5	386	55	6	117
v/c Ratio	0.13	0.22	0.05	0.02	0.43	0.15	0.01	0.28
Control Delay	29.7	10.2	0.4	33.2	18.4	29.2	0.0	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	10.2	0.4	33.2	18.4	29.2	0.0	23.4
Queue Length 50th (ft)	15	45	0	2	121	18	0	31
Queue Length 95th (ft)	53	114	3	13	248	61	0	92
Internal Link Dist (ft)		1326			4905	256		2628
Turn Bay Length (ft)	100		150	100			60	
Base Capacity (vph)	618	3050	1377	295	1495	892	861	903
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.15	0.03	0.02	0.26	0.06	0.01	0.13

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	580	509	362	41	30	154	32	53
v/c Ratio	0.08	0.57	0.57	0.17	0.04	0.14	0.47	0.15	0.22
Control Delay	33.5	20.5	23.8	7.3	0.1	32.9	13.3	32.9	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	20.5	23.8	7.3	0.1	32.9	13.3	32.9	24.6
Queue Length 50th (ft)	5	70	68	14	0	9	4	9	10
Queue Length 95th (ft)	28	183	175	86	1	42	60	44	51
Internal Link Dist (ft)		4905		726			339		194
Turn Bay Length (ft)	220		450		190	500			
Base Capacity (vph)	241	2396	2031	3217	1447	273	741	273	736
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.24	0.25	0.11	0.03	0.11	0.21	0.12	0.07

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	784	143	835	147	863
v/c Ratio	0.66	0.46	0.40	0.39	0.75
Control Delay	21.2	32.8	7.2	27.0	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	32.8	7.2	27.0	9.7
Queue Length 50th (ft)	122	48	68	47	26
Queue Length 95th (ft)	227	121	137	111	61
Internal Link Dist (ft)	726		410	369	
Turn Bay Length (ft)		210		125	125
Base Capacity (vph)	2404	590	3122	1112	1986
Starvation Cap Reductn	0	0	310	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.33	0.24	0.30	0.13	0.43

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	123	1262	53	633	111	114	82	143	147	40
v/c Ratio	0.91	0.99	0.40	0.54	0.19	0.50	0.32	0.59	0.59	0.12
Control Delay	99.7	51.9	48.1	23.5	5.3	42.1	22.2	43.6	43.2	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.7	51.9	48.1	23.5	5.3	42.1	22.2	43.6	43.2	0.8
Queue Length 50th (ft)	65	~375	27	132	0	56	18	73	75	0
Queue Length 95th (ft)	#188	#588	68	212	35	112	60	141	144	0
Internal Link Dist (ft)		410		540			2568		2090	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	135	1270	135	1285	642	917	908	338	349	413
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.99	0.39	0.49	0.17	0.12	0.09	0.42	0.42	0.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1313	107	25	829	42	40
v/c Ratio	0.51	0.09	0.10	0.30	0.13	0.13
Control Delay	8.1	2.4	36.5	3.1	33.7	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	2.4	36.5	3.1	33.7	14.0
Queue Length 50th (ft)	108	1	8	55	13	0
Queue Length 95th (ft)	309	22	40	86	56	31
Internal Link Dist (ft)	1960			1797	2586	
Turn Bay Length (ft)		160	250			250
Base Capacity (vph)	3142	1411	309	3275	707	656
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.08	0.08	0.25	0.06	0.06

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	277	912	108	78	543	63	68	141	96	121
v/c Ratio	1.04	0.61	0.15	0.53	0.43	0.10	0.30	0.56	0.44	0.41
Control Delay	104.0	20.4	7.0	52.2	21.3	1.6	36.0	32.0	40.0	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.0	20.4	7.0	52.2	21.3	1.6	36.0	32.0	40.0	11.4
Queue Length 50th (ft)	~150	176	9	38	104	0	31	45	45	0
Queue Length 95th (ft)	#341	280	43	#104	171	9	72	106	96	47
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	266	1585	751	146	1345	668	843	837	930	873
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.58	0.14	0.53	0.40	0.09	0.08	0.17	0.10	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	67	1075	374	229	557	296	40	154	30	17
v/c Ratio	0.39	0.75	0.45	0.74	0.31	0.56	0.14	0.41	0.20	0.06
Control Delay	44.9	27.2	6.5	50.9	15.5	38.0	33.3	9.5	41.9	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	27.2	6.5	50.9	15.5	38.0	33.3	9.5	41.9	0.4
Queue Length 50th (ft)	36	276	22	124	104	79	20	0	16	0
Queue Length 95th (ft)	79	#397	94	#260	163	123	49	52	44	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	207	1430	824	310	1778	701	380	445	545	585
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.75	0.45	0.74	0.31	0.42	0.11	0.35	0.06	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	172	934	7	22	769	35	195	120
v/c Ratio	0.80	0.81	0.01	0.21	0.85	0.23	0.70	0.33
Control Delay	68.7	24.7	0.0	49.7	33.6	42.4	51.4	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.7	24.7	0.0	49.7	33.6	42.4	51.4	7.7
Queue Length 50th (ft)	106	401	0	13	420	18	114	0
Queue Length 95th (ft)	#235	#874	0	39	#717	50	193	39
Internal Link Dist (ft)		800			690	217	1322	
Turn Bay Length (ft)	350		350	50				200
Base Capacity (vph)	216	1154	1016	106	900	361	345	416
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.81	0.01	0.21	0.85	0.10	0.57	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	767	193	58	825	142	70
v/c Ratio	0.71	0.20	0.36	0.64	0.49	0.11
Control Delay	16.3	4.9	41.6	9.0	35.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	4.9	41.6	9.0	35.7	0.4
Queue Length 50th (ft)	236	19	25	160	59	0
Queue Length 95th (ft)	340	43	62	252	110	0
Internal Link Dist (ft)	550			203		2559
Turn Bay Length (ft)		100	80		85	
Base Capacity (vph)	1326	1154	165	1420	459	737
Starvation Cap Reductn	21	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.17	0.35	0.58	0.31	0.09

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	261	1838	1197	102	164
v/c Ratio	0.45	0.57	0.58	0.37	0.43
Control Delay	29.9	7.3	16.2	33.0	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	7.3	16.2	33.0	9.6
Queue Length 50th (ft)	47	125	127	36	0
Queue Length 95th (ft)	105	188	199	99	53
Internal Link Dist (ft)		1117	1025	876	
Turn Bay Length (ft)	225				
Base Capacity (vph)	838	4650	3467	1134	1073
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.40	0.35	0.09	0.15

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	523	1273	343	140	761	128	193	577	98	385	331
v/c Ratio	1.41	0.84	0.40	0.82	0.69	0.22	1.14	0.77	0.74	0.56	0.64
Control Delay	235.0	35.3	5.5	86.7	38.4	6.3	157.3	46.2	83.8	44.2	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	235.0	35.3	5.5	86.7	38.4	6.3	157.3	46.2	83.8	44.2	16.2
Queue Length 50th (ft)	~511	423	17	102	253	0	~163	195	71	134	45
Queue Length 95th (ft)	#758	560	75	#221	342	43	#324	250	#166	178	131
Internal Link Dist (ft)		650			1744			693		932	
Turn Bay Length (ft)	250		330	315		320	190		250		75
Base Capacity (vph)	371	1522	852	170	1108	583	170	1420	133	1393	778
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.41	0.84	0.40	0.82	0.69	0.22	1.14	0.41	0.74	0.28	0.43

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	59	103	114	62	100	421	82	520
v/c Ratio	0.20	0.20	0.29	0.30	0.15	0.29	0.29	0.25	0.37
Control Delay	30.1	30.0	8.5	28.7	1.2	29.4	19.6	29.7	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	30.0	8.5	28.7	1.2	29.4	19.6	29.7	20.5
Queue Length 50th (ft)	21	21	0	39	0	35	68	28	87
Queue Length 95th (ft)	63	65	37	99	4	91	129	79	161
Internal Link Dist (ft)		863		164			1173		243
Turn Bay Length (ft)	315		300			115			
Base Capacity (vph)	687	714	713	1012	943	556	2026	513	1959
Starvation Cap Reductn	0	0	0	0	0	0	0	0	43
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.08	0.14	0.11	0.07	0.18	0.21	0.16	0.27

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	29	1001	15	776	52	71
v/c Ratio	0.22	0.75	0.11	0.60	0.29	0.35
Control Delay	43.6	16.9	41.9	13.6	32.3	21.6
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	43.6	16.9	41.9	13.8	32.3	21.6
Queue Length 50th (ft)	14	323	7	197	17	9
Queue Length 95th (ft)	46	#874	29	512	56	51
Internal Link Dist (ft)		690		550	1237	131
Turn Bay Length (ft)	55		75			
Base Capacity (vph)	131	1333	131	1307	432	454
Starvation Cap Reductn	0	0	0	94	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.75	0.11	0.64	0.12	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	66	2019	1314	81	22
v/c Ratio	0.27	0.51	0.41	0.31	0.09
Control Delay	35.4	4.2	9.3	35.0	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	4.2	9.3	35.0	15.7
Queue Length 50th (ft)	25	101	109	30	0
Queue Length 95th (ft)	76	164	180	87	21
Internal Link Dist (ft)		1025	650	268	
Turn Bay Length (ft)	75				
Base Capacity (vph)	510	4921	4484	788	718
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.41	0.29	0.10	0.03

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	157	311	2	401	17	19	122	227
v/c Ratio	0.30	0.32	0.01	0.68	0.08	0.04	0.37	0.28
Control Delay	27.8	11.0	33.5	23.9	32.6	27.4	28.5	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	11.0	33.5	23.9	32.6	27.4	28.5	6.1
Queue Length 50th (ft)	19	32	1	84	4	2	29	2
Queue Length 95th (ft)	69	173	8	260	29	14	109	33
Internal Link Dist (ft)		1036		1180		496		508
Turn Bay Length (ft)	200		250		225		150	
Base Capacity (vph)	1223	1578	218	1329	232	1717	537	2103
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.20	0.01	0.30	0.07	0.01	0.23	0.11

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	49	453	40	11	619	102	9	123
v/c Ratio	0.21	0.21	0.04	0.06	0.60	0.33	0.03	0.39
Control Delay	44.3	10.4	0.1	48.1	21.8	40.8	0.2	32.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	10.4	0.1	48.1	21.8	40.8	0.2	32.4
Queue Length 50th (ft)	23	53	0	5	259	47	0	40
Queue Length 95th (ft)	58	96	0	22	330	96	0	85
Internal Link Dist (ft)		1326			4905	256		2628
Turn Bay Length (ft)	100		150	100			60	
Base Capacity (vph)	323	2746	1249	180	1386	653	641	647
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.16	0.03	0.06	0.45	0.16	0.01	0.19

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	463	851	477	51	13	120	19	41
v/c Ratio	0.10	0.53	0.65	0.20	0.05	0.07	0.40	0.10	0.14
Control Delay	36.4	21.5	20.3	7.3	0.6	37.2	13.5	36.4	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	21.5	20.3	7.3	0.6	37.2	13.5	36.4	23.5
Queue Length 50th (ft)	6	53	108	19	0	4	2	5	8
Queue Length 95th (ft)	33	144	258	95	3	25	49	31	43
Internal Link Dist (ft)		4905		726			339		194
Turn Bay Length (ft)	220		450		190	500			
Base Capacity (vph)	217	1840	2685	3232	1453	183	688	217	727
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.25	0.32	0.15	0.04	0.07	0.17	0.09	0.06

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	388	137	1260	152	627
v/c Ratio	0.33	0.40	0.65	0.40	0.58
Control Delay	15.5	24.8	9.1	22.9	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.5	24.8	9.1	22.9	4.6
Queue Length 50th (ft)	46	36	110	38	0
Queue Length 95th (ft)	93	95	193	99	28
Internal Link Dist (ft)	726		410	369	
Turn Bay Length (ft)		210		125	125
Base Capacity (vph)	2935	830	3312	1135	1984
Starvation Cap Reductn	0	0	87	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.17	0.39	0.13	0.32

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	118	906	75	1217	256	202	160	132	134	113
v/c Ratio	0.97	0.79	0.61	1.04	0.37	0.66	0.50	0.59	0.58	0.36
Control Delay	118.2	32.8	65.0	69.1	5.1	44.9	35.5	47.5	46.8	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	118.2	32.8	65.0	69.1	5.1	44.9	35.5	47.5	46.8	9.8
Queue Length 50th (ft)	66	230	41	~387	0	105	73	72	73	0
Queue Length 95th (ft)	#192	#386	#116	#606	51	179	135	141	142	40
Internal Link Dist (ft)		410		540			2568		2090	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	122	1152	122	1166	687	832	854	307	316	386
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.79	0.61	1.04	0.37	0.24	0.19	0.43	0.42	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	654	180	46	1119	287	100
v/c Ratio	0.49	0.26	0.22	0.65	0.62	0.21
Control Delay	18.1	4.3	33.3	13.0	28.7	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	4.3	33.3	13.0	28.7	6.3
Queue Length 50th (ft)	107	0	16	140	97	0
Queue Length 95th (ft)	201	41	56	265	215	35
Internal Link Dist (ft)	1960			1797	2586	
Turn Bay Length (ft)		160	250			250
Base Capacity (vph)	2669	1229	309	3103	1160	1068
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.15	0.15	0.36	0.25	0.09

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	163	554	72	53	811	89	73	42	151	309
v/c Ratio	0.62	0.34	0.09	0.31	0.61	0.14	0.38	0.20	0.54	0.61
Control Delay	46.8	18.0	5.1	41.6	24.5	7.4	41.5	22.8	40.0	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	18.0	5.1	41.6	24.5	7.4	41.5	22.8	40.0	9.6
Queue Length 50th (ft)	80	100	0	26	177	4	36	9	73	0
Queue Length 95th (ft)	#186	177	26	65	284	38	81	40	135	67
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	263	1621	766	217	1329	641	833	814	906	954
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.34	0.09	0.24	0.61	0.14	0.09	0.05	0.17	0.32

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	31	716	331	252	799	343	32	226	60	32
v/c Ratio	0.23	0.67	0.47	0.69	0.46	0.58	0.10	0.49	0.32	0.10
Control Delay	46.1	30.0	5.4	44.7	17.2	37.7	33.3	9.1	43.5	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	30.0	5.4	44.7	17.2	37.7	33.3	9.1	43.5	0.7
Queue Length 50th (ft)	17	184	0	132	164	93	15	0	32	0
Queue Length 95th (ft)	43	230	38	204	207	128	38	42	65	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	140	1334	802	429	1902	750	407	522	586	615
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.54	0.41	0.59	0.42	0.46	0.08	0.43	0.10	0.05

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	180	665	31	8	876	47	299	173
v/c Ratio	0.98	0.58	0.03	0.08	0.99	0.30	0.91	0.40
Control Delay	106.6	15.8	0.0	47.4	54.1	44.7	72.2	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	106.6	15.8	0.0	47.4	54.1	44.7	72.2	8.8
Queue Length 50th (ft)	~119	238	0	5	~596	26	189	0
Queue Length 95th (ft)	#243	426	0	20	#790	58	#335	48
Internal Link Dist (ft)		800			690	217	1322	
Turn Bay Length (ft)	350		350	50				200
Base Capacity (vph)	184	1137	1003	101	886	348	328	434
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.58	0.03	0.08	0.99	0.14	0.91	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	725	180	32	843	146	70
v/c Ratio	0.62	0.17	0.20	0.66	0.49	0.11
Control Delay	12.2	4.1	36.7	9.6	33.8	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	4.1	36.7	9.6	33.8	0.4
Queue Length 50th (ft)	130	10	12	168	51	0
Queue Length 95th (ft)	314	40	40	265	113	0
Internal Link Dist (ft)	550			203		2559
Turn Bay Length (ft)		100	80		85	
Base Capacity (vph)	1341	1166	167	1407	464	748
Starvation Cap Reductn	22	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.15	0.19	0.60	0.31	0.09

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	289	902	1673	73	237
v/c Ratio	0.56	0.25	0.66	0.35	0.60
Control Delay	37.1	4.1	15.6	39.7	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	4.1	15.6	39.7	12.1
Queue Length 50th (ft)	71	44	205	35	0
Queue Length 95th (ft)	120	69	286	80	65
Internal Link Dist (ft)		1117	1025	876	
Turn Bay Length (ft)	225				
Base Capacity (vph)	607	4175	2976	939	950
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.48	0.22	0.56	0.08	0.25

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	192	600	261	110	1103	258	289	407	124	509	397
v/c Ratio	0.99	0.49	0.36	0.60	0.93	0.38	1.07	0.44	0.69	0.65	0.75
Control Delay	115.0	33.3	5.5	65.5	51.7	7.6	123.6	35.4	71.9	45.3	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	115.0	33.3	5.5	65.5	51.7	7.6	123.6	35.4	71.9	45.3	25.9
Queue Length 50th (ft)	146	184	0	80	415	15	~239	131	90	185	116
Queue Length 95th (ft)	#328	285	59	147	#632	78	#459	172	#182	234	218
Internal Link Dist (ft)		650			1744			693		932	
Turn Bay Length (ft)	250		330	315		320	190		250		75
Base Capacity (vph)	194	1229	719	241	1192	684	269	1454	199	1348	747
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.49	0.36	0.46	0.93	0.38	1.07	0.28	0.62	0.38	0.53

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	32	32	72	36	40	126	413	30	529
v/c Ratio	0.11	0.11	0.18	0.11	0.10	0.30	0.21	0.11	0.36
Control Delay	27.6	27.6	1.0	27.4	0.5	25.1	10.9	29.4	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	27.6	1.0	27.4	0.5	25.1	10.9	29.4	17.5
Queue Length 50th (ft)	10	10	0	12	0	40	38	10	80
Queue Length 95th (ft)	37	37	0	39	0	92	89	36	138
Internal Link Dist (ft)		863		164			1173		243
Turn Bay Length (ft)	315		300			115			
Base Capacity (vph)	740	749	782	1116	1037	720	2513	300	2037
Starvation Cap Reductn	0	0	0	0	0	0	0	0	29
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.09	0.03	0.04	0.17	0.16	0.10	0.26

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	36	914	18	824	90	16
v/c Ratio	0.27	0.69	0.13	0.63	0.41	0.11
Control Delay	42.8	14.5	40.3	13.8	35.8	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	14.5	40.3	13.8	35.8	25.9
Queue Length 50th (ft)	15	155	8	226	33	2
Queue Length 95th (ft)	53	#768	33	#596	91	23
Internal Link Dist (ft)		690		550	1237	131
Turn Bay Length (ft)	55		75			
Base Capacity (vph)	134	1327	134	1341	442	436
Starvation Cap Reductn	0	0	0	21	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.69	0.13	0.62	0.20	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	39	991	1805	50	27
v/c Ratio	0.16	0.23	0.46	0.20	0.11
Control Delay	37.4	1.9	6.9	36.7	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	1.9	6.9	36.7	16.6
Queue Length 50th (ft)	16	33	160	21	0
Queue Length 95th (ft)	54	54	238	65	25
Internal Link Dist (ft)		1025	650	268	
Turn Bay Length (ft)	75				
Base Capacity (vph)	381	4910	4630	853	778
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.20	0.39	0.06	0.03

Intersection Summary

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	140	217	501	24	41	71	178
v/c Ratio	0.30	0.20	0.74	0.13	0.09	0.28	0.25
Control Delay	31.3	7.5	24.8	35.7	31.6	33.2	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.3	7.5	24.8	35.7	31.6	33.2	8.3
Queue Length 50th (ft)	28	42	175	10	8	28	2
Queue Length 95th (ft)	62	76	301	36	25	76	32
Internal Link Dist (ft)		1036	1180		496		508
Turn Bay Length (ft)	200			225		150	
Base Capacity (vph)	1068	1510	1257	195	1811	313	1824
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.14	0.40	0.12	0.02	0.23	0.10

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	52	448	44	5	386	55	6	133
v/c Ratio	0.15	0.22	0.05	0.02	0.43	0.15	0.01	0.31
Control Delay	30.2	10.3	0.4	34.2	18.9	30.0	0.0	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.2	10.3	0.4	34.2	18.9	30.0	0.0	23.1
Queue Length 50th (ft)	18	46	0	2	123	19	0	34
Queue Length 95th (ft)	60	116	3	14	256	63	0	101
Internal Link Dist (ft)		1326			4905	256		2628
Turn Bay Length (ft)	100		150	100			60	
Base Capacity (vph)	612	3045	1375	293	1495	857	832	891
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.15	0.03	0.02	0.26	0.06	0.01	0.15

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	580	526	362	41	30	154	32	53
v/c Ratio	0.08	0.57	0.57	0.17	0.04	0.14	0.47	0.15	0.22
Control Delay	33.9	20.8	23.9	7.2	0.1	33.3	13.4	33.3	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	20.8	23.9	7.2	0.1	33.3	13.4	33.3	25.0
Queue Length 50th (ft)	5	71	71	14	0	9	4	9	10
Queue Length 95th (ft)	28	185	181	86	1	42	61	44	52
Internal Link Dist (ft)		4905		726			339		194
Turn Bay Length (ft)	220		450		190	500			
Base Capacity (vph)	239	2316	2076	3206	1442	271	735	271	730
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.25	0.25	0.11	0.03	0.11	0.21	0.12	0.07

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	784	143	854	147	872
v/c Ratio	0.66	0.47	0.41	0.39	0.76
Control Delay	21.3	33.1	7.4	27.0	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	33.1	7.4	27.0	10.0
Queue Length 50th (ft)	122	48	70	47	27
Queue Length 95th (ft)	230	123	144	111	64
Internal Link Dist (ft)	726		410	369	
Turn Bay Length (ft)		210		125	125
Base Capacity (vph)	2397	588	3111	1109	1982
Starvation Cap Reductn	0	0	308	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.33	0.24	0.30	0.13	0.44

Intersection Summary

9: Neroly Road/Bridgehead Road & Main Street

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	131	1262	53	633	144	114	99	209	213	57
v/c Ratio	1.02	1.05	0.42	0.57	0.24	0.52	0.40	0.68	0.68	0.15
Control Delay	130.1	68.4	50.5	25.6	5.0	44.1	28.5	46.0	45.2	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	130.1	68.4	50.5	25.6	5.0	44.1	28.5	46.0	45.2	0.8
Queue Length 50th (ft)	~80	~416	28	144	0	60	32	112	114	0
Queue Length 95th (ft)	#201	#588	68	212	40	112	78	#224	#226	1
Internal Link Dist (ft)		410		540			2568		2090	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	128	1204	128	1218	636	870	873	321	331	398
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	1.05	0.41	0.52	0.23	0.13	0.11	0.65	0.64	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1360	146	25	847	56	40
v/c Ratio	0.59	0.14	0.11	0.34	0.19	0.13
Control Delay	9.7	2.5	40.0	4.1	36.5	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	2.5	40.0	4.1	36.5	14.5
Queue Length 50th (ft)	116	2	9	57	20	0
Queue Length 95th (ft)	341	28	43	97	74	32
Internal Link Dist (ft)	1960			1797	2586	
Turn Bay Length (ft)		160	250			250
Base Capacity (vph)	3036	1369	272	3211	658	613
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.11	0.09	0.26	0.09	0.07

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	285	952	108	78	558	63	68	141	96	124
v/c Ratio	1.10	0.61	0.15	0.56	0.42	0.10	0.31	0.56	0.45	0.42
Control Delay	120.9	20.3	6.9	54.4	21.0	1.6	36.5	32.5	40.7	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	120.9	20.3	6.9	54.4	21.0	1.6	36.5	32.5	40.7	11.4
Queue Length 50th (ft)	~165	186	9	39	107	0	32	46	46	0
Queue Length 95th (ft)	#352	295	42	#106	176	9	72	106	96	47
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	260	1551	736	140	1313	654	823	818	908	856
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.61	0.15	0.56	0.42	0.10	0.08	0.17	0.11	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	67	1111	378	229	571	297	40	154	30	17
v/c Ratio	0.39	0.76	0.45	0.78	0.32	0.56	0.14	0.41	0.20	0.06
Control Delay	44.9	27.1	6.6	55.3	15.6	38.0	33.3	9.5	41.9	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	27.1	6.6	55.3	15.6	38.0	33.3	9.5	41.9	0.4
Queue Length 50th (ft)	36	286	24	126	107	79	20	0	16	0
Queue Length 95th (ft)	79	#416	98	#268	167	123	49	52	44	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	206	1458	832	295	1780	701	380	445	545	585
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.76	0.45	0.78	0.32	0.42	0.11	0.35	0.06	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	176	966	7	22	782	35	195	121
v/c Ratio	0.80	0.84	0.01	0.21	0.87	0.23	0.70	0.33
Control Delay	68.8	26.4	0.0	49.7	35.3	42.4	51.4	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.8	26.4	0.0	49.7	35.3	42.4	51.4	7.8
Queue Length 50th (ft)	108	430	0	13	434	18	114	0
Queue Length 95th (ft)	#238	#918	0	39	#739	50	193	39
Internal Link Dist (ft)		800			690	217	1322	
Turn Bay Length (ft)	350		350	50				200
Base Capacity (vph)	219	1154	1016	106	897	361	345	416
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.84	0.01	0.21	0.87	0.10	0.57	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	795	201	58	836	146	70
v/c Ratio	0.72	0.20	0.38	0.64	0.53	0.11
Control Delay	16.4	5.0	43.6	8.8	37.8	0.4
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	5.0	43.6	8.8	37.8	0.4
Queue Length 50th (ft)	254	21	27	166	66	0
Queue Length 95th (ft)	364	46	62	262	113	0
Internal Link Dist (ft)	550			203		2559
Turn Bay Length (ft)		100	80		85	
Base Capacity (vph)	1253	1095	156	1376	433	716
Starvation Cap Reductn	40	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.18	0.37	0.61	0.34	0.10

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	275	1838	1205	123	201
v/c Ratio	0.47	0.57	0.59	0.43	0.47
Control Delay	30.8	7.7	17.0	33.9	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	7.7	17.0	33.9	9.2
Queue Length 50th (ft)	52	132	134	45	0
Queue Length 95th (ft)	112	201	210	117	58
Internal Link Dist (ft)		1117	1025	876	
Turn Bay Length (ft)	225				
Base Capacity (vph)	819	4579	3385	1108	1066
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.40	0.36	0.11	0.19

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	523	1294	343	140	769	128	193	578	98	390	331
v/c Ratio	1.41	0.85	0.40	0.84	0.69	0.22	1.14	0.77	0.74	0.57	0.65
Control Delay	235.0	35.8	5.7	89.4	38.7	6.3	157.3	46.2	83.8	44.3	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	235.0	35.8	5.7	89.4	38.7	6.3	157.3	46.2	83.8	44.3	16.4
Queue Length 50th (ft)	~511	432	19	102	256	0	~163	195	71	136	47
Queue Length 95th (ft)	#757	572	79	#223	346	43	#325	251	#166	181	131
Internal Link Dist (ft)		650			1744			693		932	
Turn Bay Length (ft)	250		330	315		320	190		250		75
Base Capacity (vph)	371	1528	851	167	1108	583	170	1421	133	1392	777
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.41	0.85	0.40	0.84	0.69	0.22	1.14	0.41	0.74	0.28	0.43

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	59	103	114	62	100	422	82	525
v/c Ratio	0.20	0.20	0.29	0.31	0.15	0.29	0.29	0.25	0.37
Control Delay	30.2	30.1	8.5	28.8	1.2	29.5	19.6	29.8	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.2	30.1	8.5	28.8	1.2	29.5	19.6	29.8	20.5
Queue Length 50th (ft)	21	22	0	39	0	35	68	28	88
Queue Length 95th (ft)	64	65	37	99	4	91	129	79	162
Internal Link Dist (ft)		863		164			1173		243
Turn Bay Length (ft)	315		300			115			
Base Capacity (vph)	687	713	713	1010	942	554	2024	511	1958
Starvation Cap Reductn	0	0	0	0	0	0	0	0	45
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.08	0.14	0.11	0.07	0.18	0.21	0.16	0.27

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	29	1033	15	789	52	71
v/c Ratio	0.22	0.77	0.11	0.61	0.29	0.36
Control Delay	43.9	17.8	42.2	13.8	32.6	21.8
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	43.9	17.8	42.2	14.0	32.6	21.8
Queue Length 50th (ft)	14	347	7	202	17	9
Queue Length 95th (ft)	46	#916	29	527	56	51
Internal Link Dist (ft)		690		550	1237	131
Turn Bay Length (ft)	55		75			
Base Capacity (vph)	131	1335	131	1304	431	452
Starvation Cap Reductn	0	0	0	92	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.77	0.11	0.65	0.12	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	66	2041	1322	81	22
v/c Ratio	0.28	0.51	0.41	0.32	0.09
Control Delay	36.3	4.2	9.2	36.0	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.3	4.2	9.2	36.0	15.9
Queue Length 50th (ft)	25	104	112	31	0
Queue Length 95th (ft)	78	168	182	90	22
Internal Link Dist (ft)		1025	650	268	
Turn Bay Length (ft)	75				
Base Capacity (vph)	467	4898	4470	768	700
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.42	0.30	0.11	0.03

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	157	319	2	401	20	22	122	234
v/c Ratio	0.30	0.33	0.01	0.68	0.10	0.04	0.37	0.32
Control Delay	27.8	11.0	33.5	23.9	32.7	27.7	28.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	11.0	33.5	23.9	32.7	27.7	28.5	7.3
Queue Length 50th (ft)	19	33	1	84	5	2	29	2
Queue Length 95th (ft)	69	177	8	260	32	16	109	35
Internal Link Dist (ft)		1036		1180		496		508
Turn Bay Length (ft)	200		250		225		150	
Base Capacity (vph)	1223	1572	218	1329	232	1726	537	2113
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.20	0.01	0.30	0.09	0.01	0.23	0.11

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	37	536	47	13	733	120	10	137
v/c Ratio	0.26	0.28	0.05	0.10	0.80	0.44	0.03	0.49
Control Delay	53.4	11.8	0.1	52.3	27.4	45.6	0.1	38.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	11.8	0.1	52.3	27.4	45.6	0.1	38.4
Queue Length 50th (ft)	20	71	0	7	344	63	0	54
Queue Length 95th (ft)	50	120	0	25	407	111	0	98
Internal Link Dist (ft)		1326			4905	256		2628
Turn Bay Length (ft)	100		150	100			60	
Base Capacity (vph)	143	2652	1209	133	1371	481	497	481
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.20	0.04	0.10	0.53	0.25	0.02	0.28

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	23	548	990	564	60	15	136	22	48
v/c Ratio	0.15	0.61	0.73	0.24	0.06	0.10	0.48	0.15	0.20
Control Delay	44.2	25.7	23.6	6.6	0.7	44.8	15.9	44.5	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	25.7	23.6	6.6	0.7	44.8	15.9	44.5	28.8
Queue Length 50th (ft)	9	86	163	24	0	6	3	9	13
Queue Length 95th (ft)	41	195	342	111	5	31	56	40	54
Internal Link Dist (ft)		4905		726			339		194
Turn Bay Length (ft)	220		450		190	500			
Base Capacity (vph)	159	1537	2397	3125	1408	143	530	154	506
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.36	0.41	0.18	0.04	0.10	0.26	0.14	0.09

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	454	149	1471	181	713
v/c Ratio	0.36	0.42	0.55	0.43	0.60
Control Delay	17.3	24.9	8.3	21.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	24.9	8.3	21.9	4.2
Queue Length 50th (ft)	39	39	86	45	0
Queue Length 95th (ft)	76	100	146	110	27
Internal Link Dist (ft)	726		410	369	
Turn Bay Length (ft)		210		125	125
Base Capacity (vph)	3355	909	4686	1374	2285
Starvation Cap Reductn	0	0	95	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.16	0.32	0.13	0.31

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	147	1056	88	1422	322	232	169	232	84	147
v/c Ratio	1.14	0.61	0.68	0.81	0.43	0.53	0.61	0.53	0.31	0.39
Control Delay	162.4	23.7	67.5	29.3	4.6	38.7	40.1	39.0	34.7	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	162.4	23.7	67.5	29.3	4.6	38.7	40.1	39.0	34.7	7.2
Queue Length 50th (ft)	~91	158	46	239	0	58	76	59	39	0
Queue Length 95th (ft)	#222	231	#128	#344	52	97	140	98	82	34
Internal Link Dist (ft)		410		540			2568		580	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	129	1742	129	1760	751	1697	894	659	364	443
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.61	0.68	0.81	0.43	0.14	0.19	0.35	0.23	0.33

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	273	734	196	52	1629	293	535	65	292
v/c Ratio	0.98	0.32	0.24	0.46	0.95	0.92	0.63	0.40	0.69
Control Delay	98.6	20.3	3.6	67.4	48.9	80.4	41.2	63.0	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.6	20.3	3.6	67.4	48.9	80.4	41.2	63.0	35.5
Queue Length 50th (ft)	210	128	0	39	426	221	186	25	59
Queue Length 95th (ft)	#406	174	43	84	#575	#410	246	51	107
Internal Link Dist (ft)		1960			1797		2586		757
Turn Bay Length (ft)	250		160	250		200		200	
Base Capacity (vph)	279	2307	819	125	1709	321	964	165	585
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.32	0.24	0.42	0.95	0.91	0.55	0.39	0.50

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	616	632	85	62	905	342	87	97	201	376
v/c Ratio	1.53	0.28	0.11	0.39	0.63	0.59	0.46	0.48	0.62	0.65
Control Delay	279.7	19.6	5.5	51.6	33.4	18.1	51.1	45.4	46.4	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	279.7	19.6	5.5	51.6	33.4	18.1	51.1	45.4	46.4	10.7
Queue Length 50th (ft)	~554	90	0	37	175	73	52	50	119	10
Queue Length 95th (ft)	#886	153	33	86	260	192	109	109	201	95
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	403	2255	749	218	1597	628	697	710	759	877
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.53	0.28	0.11	0.28	0.57	0.54	0.12	0.14	0.26	0.43

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	37	821	391	298	887	402	38	263	72	38
v/c Ratio	0.29	0.76	0.52	0.77	0.50	0.68	0.12	0.54	0.39	0.12
Control Delay	48.7	33.6	5.5	50.6	18.3	41.8	34.2	9.1	45.9	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	33.6	5.5	50.6	18.3	41.8	34.2	9.1	45.9	0.8
Queue Length 50th (ft)	21	229	0	172	201	115	19	0	41	0
Queue Length 95th (ft)	49	272	39	#274	240	151	44	44	75	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	133	1199	793	385	1766	674	365	521	527	569
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.68	0.49	0.77	0.50	0.60	0.10	0.50	0.14	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	174	701	29	8	895	45	290	164
v/c Ratio	0.95	0.62	0.03	0.08	1.01	0.29	0.88	0.38
Control Delay	98.9	16.5	0.0	47.3	59.0	45.2	67.8	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.9	16.5	0.0	47.3	59.0	45.2	67.8	8.9
Queue Length 50th (ft)	112	259	0	5	~620	26	182	0
Queue Length 95th (ft)	#255	510	0	20	#895	61	#350	56
Internal Link Dist (ft)		800			690	217	1322	
Turn Bay Length (ft)	350		350	50				200
Base Capacity (vph)	184	1138	1004	101	888	348	328	427
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.62	0.03	0.08	1.01	0.13	0.88	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	841	207	35	957	159	78
v/c Ratio	0.71	0.20	0.24	0.72	0.57	0.13
Control Delay	15.8	4.8	41.1	11.1	39.8	0.4
Queue Delay	0.4	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	4.8	41.1	11.1	39.8	0.4
Queue Length 50th (ft)	287	22	17	224	77	0
Queue Length 95th (ft)	412	49	43	351	121	0
Internal Link Dist (ft)	550			203		2559
Turn Bay Length (ft)		100	80		85	
Base Capacity (vph)	1184	1041	148	1322	410	694
Starvation Cap Reductn	72	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.20	0.24	0.72	0.39	0.11

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	307	1045	1909	78	266
v/c Ratio	0.65	0.28	0.71	0.37	0.69
Control Delay	43.1	4.4	16.5	41.0	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	4.4	16.5	41.0	18.4
Queue Length 50th (ft)	82	54	253	41	22
Queue Length 95th (ft)	136	95	366	83	98
Internal Link Dist (ft)		1117	1025	876	
Turn Bay Length (ft)	225				
Base Capacity (vph)	489	3802	2799	853	878
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.63	0.27	0.68	0.09	0.30

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	227	650	313	124	1177	292	342	454	139	576	459
v/c Ratio	1.01	0.55	0.42	0.54	0.99	0.43	1.06	0.40	0.69	0.63	0.87
Control Delay	124.6	40.1	5.6	72.1	70.1	10.3	119.5	35.4	77.1	47.0	48.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	124.6	40.1	5.6	72.1	70.1	10.3	119.5	35.4	77.1	47.0	48.7
Queue Length 50th (ft)	~112	254	0	56	~573	35	~343	158	122	236	270
Queue Length 95th (ft)	#211	340	70	94	#782	119	#576	216	199	298	416
Internal Link Dist (ft)		650			1744			693		932	
Turn Bay Length (ft)	250		330	315		320	190		250		75
Base Capacity (vph)	225	1189	738	250	1183	685	323	1258	263	1163	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.55	0.42	0.50	0.99	0.43	1.06	0.36	0.53	0.50	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	38	85	43	47	149	480	36	625
v/c Ratio	0.14	0.14	0.22	0.14	0.12	0.37	0.24	0.14	0.42
Control Delay	30.3	30.3	2.2	30.2	0.6	28.6	11.4	32.1	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	30.3	2.2	30.2	0.6	28.6	11.4	32.1	19.1
Queue Length 50th (ft)	13	13	0	15	0	51	47	13	104
Queue Length 95th (ft)	45	45	4	47	0	114	106	43	167
Internal Link Dist (ft)		863		164			1173		243
Turn Bay Length (ft)	315		300			115			
Base Capacity (vph)	684	691	734	1012	955	669	2245	290	1852
Starvation Cap Reductn	0	0	0	0	0	0	0	0	72
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.05	0.12	0.04	0.05	0.22	0.21	0.12	0.35

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	37	1061	21	926	106	18
v/c Ratio	0.29	0.82	0.16	0.73	0.46	0.12
Control Delay	46.6	21.8	43.9	18.6	39.6	28.5
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	46.6	21.8	43.9	19.0	39.6	28.5
Queue Length 50th (ft)	18	231	10	292	45	3
Queue Length 95th (ft)	54	#988	36	#795	105	26
Internal Link Dist (ft)		690		550	1237	131
Turn Bay Length (ft)	55		75			
Base Capacity (vph)	128	1299	128	1277	422	418
Starvation Cap Reductn	0	0	0	77	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.82	0.16	0.77	0.25	0.04

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	39	1147	2028	50	27
v/c Ratio	0.20	0.28	0.54	0.24	0.13
Control Delay	44.4	2.3	7.4	43.6	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	2.3	7.4	43.6	18.0
Queue Length 50th (ft)	20	42	199	26	0
Queue Length 95th (ft)	59	64	273	70	26
Internal Link Dist (ft)		1025	650	268	
Turn Bay Length (ft)	75				
Base Capacity (vph)	270	4743	4329	640	589
Starvation Cap Reductn	0	0	163	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.24	0.49	0.08	0.05

Intersection Summary

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	165	254	594	21	41	85	207
v/c Ratio	0.38	0.22	0.74	0.13	0.10	0.37	0.31
Control Delay	36.5	7.1	23.9	41.2	36.8	39.3	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	7.1	23.9	41.2	36.8	39.3	8.3
Queue Length 50th (ft)	41	52	236	10	10	41	2
Queue Length 95th (ft)	77	94	406	35	28	92	35
Internal Link Dist (ft)		1036	1180		496		508
Turn Bay Length (ft)	200			225		150	
Base Capacity (vph)	899	1412	1061	164	1425	313	1573
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.18	0.56	0.13	0.03	0.27	0.13

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	83	34	560	100	41	299
v/c Ratio	0.19	0.08	0.50	0.10	0.11	0.23
Control Delay	21.6	10.2	10.8	3.4	23.1	4.3
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	21.6	10.2	10.9	3.4	23.1	4.3
Queue Length 50th (ft)	15	0	62	1	8	27
Queue Length 95th (ft)	68	22	252	24	42	61
Internal Link Dist (ft)	1242		580			1430
Turn Bay Length (ft)	75			125	150	
Base Capacity (vph)	1040	945	1845	1568	626	1845
Starvation Cap Reductn	0	0	336	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.04	0.37	0.06	0.07	0.16

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	54	532	53	6	458	65	7	139
v/c Ratio	0.17	0.26	0.06	0.02	0.50	0.20	0.02	0.35
Control Delay	34.8	11.5	1.0	38.5	20.8	33.8	0.1	28.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.8	11.5	1.0	38.5	20.8	33.8	0.1	28.1
Queue Length 50th (ft)	21	60	0	2	161	25	0	43
Queue Length 95th (ft)	68	146	6	17	324	76	0	120
Internal Link Dist (ft)		1326			4905	256		2628
Turn Bay Length (ft)	100		150	100			60	
Base Capacity (vph)	486	2910	1318	254	1446	759	753	770
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.18	0.04	0.02	0.32	0.09	0.01	0.18

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	687	591	428	49	36	170	37	63
v/c Ratio	0.12	0.64	0.64	0.20	0.05	0.20	0.52	0.20	0.28
Control Delay	40.8	23.9	28.1	8.6	0.4	40.2	15.1	40.2	30.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	23.9	28.1	8.6	0.4	40.2	15.1	40.2	30.2
Queue Length 50th (ft)	9	133	124	39	0	15	6	16	19
Queue Length 95th (ft)	37	241	224	97	3	55	69	55	66
Internal Link Dist (ft)		4905		726			339		194
Turn Bay Length (ft)	220		450		190	500			
Base Capacity (vph)	180	2184	1810	3099	1397	208	623	208	583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.31	0.33	0.14	0.04	0.17	0.27	0.18	0.11

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	915	159	975	174	1009
v/c Ratio	0.59	0.51	0.35	0.39	0.80
Control Delay	22.3	35.6	8.5	24.9	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	35.6	8.5	24.9	11.9
Queue Length 50th (ft)	106	57	63	56	46
Queue Length 95th (ft)	198	142	128	125	99
Internal Link Dist (ft)	726		410	369	
Turn Bay Length (ft)		210		125	125
Base Capacity (vph)	2724	588	4176	1213	2113
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.27	0.23	0.14	0.48

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	173	1471	63	733	213	132	134	374	146	72
v/c Ratio	1.22	0.83	0.48	0.45	0.33	0.38	0.56	0.65	0.41	0.17
Control Delay	184.7	29.8	52.8	22.8	4.9	39.5	37.0	38.5	33.4	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	184.7	29.8	52.8	22.8	4.9	39.5	37.0	38.5	33.4	0.8
Queue Length 50th (ft)	~119	261	33	108	0	34	54	96	68	0
Queue Length 95th (ft)	#262	#394	#88	158	48	64	112	151	127	0
Internal Link Dist (ft)		410		540			2568		570	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	142	1779	132	1769	685	1734	901	674	395	466
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.83	0.48	0.41	0.31	0.08	0.15	0.55	0.37	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	360	1534	127	29	1432	49	327	477	769
v/c Ratio	1.03	0.62	0.15	0.38	0.97	0.39	0.72	0.85	0.91
Control Delay	106.8	25.3	3.5	75.6	57.6	66.9	60.7	66.9	58.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	106.8	25.3	3.5	75.6	57.6	66.9	60.7	66.9	58.8
Queue Length 50th (ft)	~330	363	0	24	416	40	135	200	314
Queue Length 95th (ft)	#552	447	34	61	#560	83	188	#291	#451
Internal Link Dist (ft)		1960			1797		2586		757
Turn Bay Length (ft)	250		160	250		200		200	
Base Capacity (vph)	348	2459	830	77	1482	232	583	604	849
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.62	0.15	0.38	0.97	0.21	0.56	0.79	0.91

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	369	1061	128	93	625	115	81	167	422	609
v/c Ratio	1.12	0.70	0.24	0.60	0.62	0.29	0.37	0.68	0.73	0.87
Control Delay	130.8	40.4	11.5	72.4	46.6	12.6	54.6	53.5	45.3	35.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	130.8	40.4	11.5	72.4	46.6	12.6	54.6	53.5	45.3	35.8
Queue Length 50th (ft)	~347	273	17	72	164	10	60	97	289	265
Queue Length 95th (ft)	#607	350	67	#151	220	61	114	179	465	#548
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	330	1766	613	171	1308	481	570	577	624	730
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.12	0.60	0.21	0.54	0.48	0.24	0.14	0.29	0.68	0.83

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	80	1252	445	267	639	352	47	180	35	20
v/c Ratio	0.44	0.85	0.52	0.99	0.37	0.63	0.15	0.44	0.23	0.08
Control Delay	46.2	31.0	8.4	92.7	17.1	39.3	33.3	9.1	42.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	31.0	8.4	92.7	17.1	39.3	33.3	9.1	42.7	0.7
Queue Length 50th (ft)	44	348	44	~170	130	96	23	0	19	0
Queue Length 95th (ft)	91	#523	136	#338	194	145	55	55	50	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	220	1477	849	270	1730	690	374	461	536	550
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.85	0.52	0.99	0.37	0.51	0.13	0.39	0.07	0.04

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	180	1083	7	23	873	36	207	126
v/c Ratio	1.05	0.95	0.01	0.22	0.93	0.24	0.72	0.35
Control Delay	125.8	37.5	0.0	50.2	40.7	42.6	52.6	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	125.8	37.5	0.0	50.2	40.7	42.6	52.6	9.7
Queue Length 50th (ft)	~130	576	0	14	517	19	122	0
Queue Length 95th (ft)	#274	#1083	0	41	#842	51	#207	49
Internal Link Dist (ft)		800			690	217	1322	
Turn Bay Length (ft)	350		350	50				200
Base Capacity (vph)	172	1146	1010	105	939	359	342	406
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.95	0.01	0.22	0.93	0.10	0.61	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	889	222	60	960	163	78
v/c Ratio	0.78	0.22	0.43	0.72	0.59	0.13
Control Delay	19.3	5.4	47.4	11.2	41.0	0.4
Queue Delay	0.7	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	5.4	47.4	11.2	41.0	0.4
Queue Length 50th (ft)	321	26	30	228	79	0
Queue Length 95th (ft)	459	54	64	356	123	0
Internal Link Dist (ft)	550			203		2559
Turn Bay Length (ft)		100	80		85	
Base Capacity (vph)	1145	1009	143	1330	396	678
Starvation Cap Reductn	67	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.22	0.42	0.72	0.41	0.12

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	305	2118	1376	118	192
v/c Ratio	0.55	0.61	0.58	0.47	0.49
Control Delay	36.4	7.5	16.2	40.7	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	7.5	16.2	40.7	10.4
Queue Length 50th (ft)	75	169	168	57	0
Queue Length 95th (ft)	126	247	252	117	58
Internal Link Dist (ft)		1117	1025	876	
Turn Bay Length (ft)	225				
Base Capacity (vph)	757	4147	2873	952	940
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.40	0.51	0.48	0.12	0.20

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	605	1378	417	161	818	145	248	657	110	436	388
v/c Ratio	0.92	0.92	0.49	0.83	0.81	0.26	0.91	0.75	0.62	0.62	0.77
Control Delay	70.3	45.3	8.7	90.4	49.4	7.1	88.3	47.1	70.3	49.6	27.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.3	45.3	8.7	90.4	49.4	7.1	88.3	47.1	70.3	49.6	27.2
Queue Length 50th (ft)	246	534	46	67	318	0	197	246	85	171	112
Queue Length 95th (ft)	#410	#812	149	#144	#476	53	#402	325	158	224	229
Internal Link Dist (ft)		650			1744			693		932	
Turn Bay Length (ft)	250		330	315		320	190		250		75
Base Capacity (vph)	658	1501	854	195	1013	556	273	1302	232	1263	721
Starvation Cap Reductn	0	1	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.92	0.49	0.83	0.81	0.26	0.91	0.50	0.47	0.35	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	67	70	123	134	74	118	498	97	616
v/c Ratio	0.31	0.31	0.40	0.45	0.20	0.43	0.48	0.39	0.62
Control Delay	35.7	35.6	11.5	34.7	2.9	35.3	22.4	36.0	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	35.6	11.5	34.7	2.9	35.3	22.4	36.0	25.2
Queue Length 50th (ft)	27	28	0	51	0	45	89	37	115
Queue Length 95th (ft)	80	81	49	126	11	115	161	100	207
Internal Link Dist (ft)		863		164			1173		243
Turn Bay Length (ft)	315		300			115			
Base Capacity (vph)	465	484	527	860	820	422	1706	357	1560
Starvation Cap Reductn	0	0	0	0	0	0	0	0	88
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.14	0.23	0.16	0.09	0.28	0.29	0.27	0.42

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	1165	18	902	62	77
v/c Ratio	0.26	0.92	0.15	0.73	0.34	0.39
Control Delay	46.6	31.4	44.0	19.7	35.3	23.0
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	46.6	31.4	44.0	20.2	35.3	23.0
Queue Length 50th (ft)	17	481	10	383	24	12
Queue Length 95th (ft)	49	#1110	33	#750	65	55
Internal Link Dist (ft)		690		550	1237	131
Turn Bay Length (ft)	55		75			
Base Capacity (vph)	123	1263	123	1230	407	433
Starvation Cap Reductn	0	0	0	73	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.92	0.15	0.78	0.15	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	66	2282	1510	81	22
v/c Ratio	0.33	0.55	0.43	0.37	0.10
Control Delay	45.4	4.1	8.6	45.2	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	4.1	8.6	45.2	18.1
Queue Length 50th (ft)	33	136	143	41	0
Queue Length 95th (ft)	86	202	216	99	23
Internal Link Dist (ft)		1025	650	268	
Turn Bay Length (ft)	75				
Base Capacity (vph)	353	4689	4066	572	526
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.49	0.37	0.14	0.04

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	186	369	2	474	20	23	145	268
v/c Ratio	0.35	0.36	0.01	0.72	0.11	0.05	0.43	0.36
Control Delay	31.1	10.7	38.0	25.0	37.6	30.7	32.7	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.1	10.7	38.0	25.0	37.6	30.7	32.7	7.2
Queue Length 50th (ft)	28	45	1	117	6	2	42	2
Queue Length 95th (ft)	85	206	8	321	34	17	139	38
Internal Link Dist (ft)		1036		1180		496		508
Turn Bay Length (ft)	200		250		225		150	
Base Capacity (vph)	1083	1516	197	1236	197	1529	480	1927
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.24	0.01	0.38	0.10	0.02	0.30	0.14

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	211	86	271	205	85	516
v/c Ratio	0.46	0.18	0.46	0.32	0.27	0.53
Control Delay	20.4	5.9	17.9	4.4	22.2	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	5.9	17.9	4.4	22.2	9.3
Queue Length 50th (ft)	48	0	60	0	20	73
Queue Length 95th (ft)	122	28	143	39	64	170
Internal Link Dist (ft)	1245		570			1440
Turn Bay Length (ft)	75			125	150	
Base Capacity (vph)	1405	1274	1722	1477	839	1845
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.07	0.16	0.14	0.10	0.28

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	54	536	47	13	733	120	10	143
v/c Ratio	0.35	0.28	0.05	0.11	0.81	0.46	0.03	0.53
Control Delay	55.3	12.7	0.1	53.6	29.9	48.4	0.1	40.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.3	12.7	0.1	53.6	29.9	48.4	0.1	40.7
Queue Length 50th (ft)	31	72	0	7	361	66	0	59
Queue Length 95th (ft)	66	120	0	25	417	111	0	102
Internal Link Dist (ft)		1326			4905	256		2628
Turn Bay Length (ft)	100		150	100			60	
Base Capacity (vph)	167	2437	1119	123	1245	446	468	449
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.22	0.04	0.11	0.59	0.27	0.02	0.32

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	23	548	994	564	60	15	136	22	48
v/c Ratio	0.15	0.62	0.73	0.24	0.06	0.10	0.48	0.15	0.20
Control Delay	44.6	25.9	23.5	6.5	0.7	45.2	16.0	44.9	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	25.9	23.5	6.5	0.7	45.2	16.0	44.9	29.1
Queue Length 50th (ft)	9	86	164	24	0	6	3	9	13
Queue Length 95th (ft)	41	197	343	111	5	31	56	40	55
Internal Link Dist (ft)		4905		726			339		194
Turn Bay Length (ft)	220		450		190	500			
Base Capacity (vph)	159	1534	2392	3119	1406	143	529	154	505
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.36	0.42	0.18	0.04	0.10	0.26	0.14	0.10

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	454	149	1476	181	729
v/c Ratio	0.36	0.43	0.55	0.43	0.60
Control Delay	17.4	25.0	8.3	22.0	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	25.0	8.3	22.0	4.2
Queue Length 50th (ft)	39	40	87	46	0
Queue Length 95th (ft)	76	100	148	110	28
Internal Link Dist (ft)	726		410	369	
Turn Bay Length (ft)		210		125	125
Base Capacity (vph)	3241	904	4671	1390	2307
Starvation Cap Reductn	0	0	94	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.16	0.32	0.13	0.32

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	161	1056	88	1422	397	232	207	256	94	151
v/c Ratio	1.30	0.63	0.71	0.84	0.51	0.53	0.67	0.57	0.29	0.37
Control Delay	216.6	25.8	72.5	32.4	5.1	40.5	42.6	40.8	33.3	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	216.6	25.8	72.5	32.4	5.1	40.5	42.6	40.8	33.3	6.6
Queue Length 50th (ft)	~113	168	48	256	0	61	100	68	45	0
Queue Length 95th (ft)	#257	249	#136	#395	59	102	174	111	88	36
Internal Link Dist (ft)		410		540			2568		580	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	124	1680	124	1696	783	1636	867	635	372	449
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.30	0.63	0.71	0.84	0.51	0.14	0.24	0.40	0.25	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	273	746	207	52	1669	326	535	65	292
v/c Ratio	1.02	0.34	0.26	0.46	0.99	0.94	0.59	0.39	0.68
Control Delay	108.6	21.4	3.7	66.1	56.5	82.4	38.7	61.6	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.6	21.4	3.7	66.1	56.5	82.4	38.7	61.6	34.8
Queue Length 50th (ft)	~213	134	0	38	441	244	180	24	58
Queue Length 95th (ft)	#409	180	46	82	#600	#445	239	50	105
Internal Link Dist (ft)		1960			1797		2586		780
Turn Bay Length (ft)	250		160	250		200		200	
Base Capacity (vph)	268	2224	803	127	1684	346	1058	170	634
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.34	0.26	0.41	0.99	0.94	0.51	0.38	0.46

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	618	642	85	62	938	342	87	97	201	383
v/c Ratio	1.54	0.28	0.11	0.39	0.65	0.59	0.46	0.48	0.63	0.66
Control Delay	286.2	19.6	5.5	51.8	33.6	18.6	51.3	45.6	46.6	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	286.2	19.6	5.5	51.8	33.6	18.6	51.3	45.6	46.6	10.7
Queue Length 50th (ft)	~556	92	0	37	182	77	52	50	119	10
Queue Length 95th (ft)	#889	156	33	86	271	197	109	109	201	96
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	400	2269	753	216	1587	620	692	705	754	878
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.54	0.28	0.11	0.29	0.59	0.55	0.13	0.14	0.27	0.44

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	37	831	393	298	920	406	38	263	72	38
v/c Ratio	0.29	0.76	0.52	0.78	0.52	0.68	0.12	0.54	0.39	0.12
Control Delay	48.7	33.8	5.5	51.0	18.6	42.0	34.2	9.1	46.0	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	33.8	5.5	51.0	18.6	42.0	34.2	9.1	46.0	0.8
Queue Length 50th (ft)	21	233	0	172	212	117	19	0	41	0
Queue Length 95th (ft)	49	276	39	#274	252	153	44	44	75	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	133	1194	793	384	1767	671	364	520	525	567
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.70	0.50	0.78	0.52	0.61	0.10	0.51	0.14	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	175	709	29	8	921	45	290	167
v/c Ratio	1.05	0.62	0.03	0.08	1.02	0.29	0.88	0.39
Control Delay	130.0	16.7	0.0	47.3	60.2	45.2	67.8	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	130.0	16.7	0.0	47.3	60.2	45.2	67.8	8.8
Queue Length 50th (ft)	~126	263	0	5	~643	26	182	0
Queue Length 95th (ft)	#268	519	0	20	#922	61	#350	56
Internal Link Dist (ft)		800			690	217	1322	
Turn Bay Length (ft)	350		350	50				200
Base Capacity (vph)	166	1138	1004	101	906	348	328	430
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.62	0.03	0.08	1.02	0.13	0.88	0.39

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	847	210	35	979	167	78
v/c Ratio	0.72	0.20	0.25	0.74	0.59	0.13
Control Delay	16.3	5.0	41.4	12.0	40.1	0.4
Queue Delay	0.4	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	5.0	41.4	12.0	40.1	0.4
Queue Length 50th (ft)	295	24	17	241	81	0
Queue Length 95th (ft)	423	51	43	374	125	0
Internal Link Dist (ft)	550			203		2559
Turn Bay Length (ft)		100	80		85	
Base Capacity (vph)	1179	1037	147	1316	408	692
Starvation Cap Reductn	71	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.20	0.24	0.74	0.41	0.11

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	336	1045	1925	83	275
v/c Ratio	0.67	0.28	0.72	0.40	0.69
Control Delay	43.3	4.4	17.2	41.7	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.3	4.4	17.2	41.7	17.7
Queue Length 50th (ft)	91	55	264	44	19
Queue Length 95th (ft)	145	95	377	87	96
Internal Link Dist (ft)		1117	1025	876	
Turn Bay Length (ft)	225				
Base Capacity (vph)	513	3755	2719	842	877
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.28	0.71	0.10	0.31

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	227	654	313	124	1193	292	342	457	139	577	459
v/c Ratio	1.01	0.55	0.42	0.54	1.01	0.43	1.06	0.40	0.69	0.63	0.87
Control Delay	124.6	40.1	5.6	72.1	73.2	10.6	119.6	35.5	77.1	47.0	48.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	124.6	40.1	5.6	72.1	73.2	10.6	119.6	35.5	77.1	47.0	48.6
Queue Length 50th (ft)	~112	256	0	56	~602	37	~343	159	122	237	270
Queue Length 95th (ft)	#211	342	70	94	#798	122	#576	217	199	298	416
Internal Link Dist (ft)		650			1744			693		932	
Turn Bay Length (ft)	250		330	315		320	190		250		75
Base Capacity (vph)	225	1188	738	250	1183	683	323	1258	263	1162	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.55	0.42	0.50	1.01	0.43	1.06	0.36	0.53	0.50	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	38	85	43	47	149	483	36	626
v/c Ratio	0.14	0.14	0.22	0.14	0.12	0.37	0.24	0.14	0.42
Control Delay	30.4	30.3	2.2	30.2	0.6	28.7	11.4	32.1	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	30.3	2.2	30.2	0.6	28.7	11.4	32.1	19.1
Queue Length 50th (ft)	13	13	0	15	0	51	48	13	104
Queue Length 95th (ft)	45	45	4	47	0	114	107	43	167
Internal Link Dist (ft)		863		164			1173		243
Turn Bay Length (ft)	315		300			115			
Base Capacity (vph)	683	691	734	1012	955	668	2244	290	1852
Starvation Cap Reductn	0	0	0	0	0	0	0	0	73
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.05	0.12	0.04	0.05	0.22	0.22	0.12	0.35

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	37	1069	21	953	106	18
v/c Ratio	0.29	0.82	0.16	0.75	0.46	0.12
Control Delay	46.6	22.1	43.9	19.4	39.6	28.5
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	46.6	22.1	43.9	19.9	39.6	28.5
Queue Length 50th (ft)	18	236	10	311	45	3
Queue Length 95th (ft)	54	#1000	36	#831	105	26
Internal Link Dist (ft)		690		550	1237	131
Turn Bay Length (ft)	55		75			
Base Capacity (vph)	128	1299	128	1277	422	418
Starvation Cap Reductn	0	0	0	74	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.82	0.16	0.79	0.25	0.04

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	39	1151	2045	50	27
v/c Ratio	0.20	0.28	0.54	0.24	0.13
Control Delay	44.9	2.3	7.3	44.1	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	2.3	7.4	44.1	18.1
Queue Length 50th (ft)	20	42	204	26	0
Queue Length 95th (ft)	59	64	278	70	26
Internal Link Dist (ft)		1025	650	268	
Turn Bay Length (ft)	75				
Base Capacity (vph)	264	4730	4303	626	578
Starvation Cap Reductn	0	0	191	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.24	0.50	0.08	0.05

Intersection Summary

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	165	256	594	27	47	85	209
v/c Ratio	0.38	0.22	0.72	0.18	0.12	0.38	0.32
Control Delay	36.8	7.0	23.4	41.7	37.0	39.9	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.8	7.0	23.4	41.7	37.0	39.9	8.5
Queue Length 50th (ft)	41	53	236	13	11	41	3
Queue Length 95th (ft)	77	95	406	42	31	92	35
Internal Link Dist (ft)		1036	1180		496		508
Turn Bay Length (ft)	200			225		150	
Base Capacity (vph)	879	1380	1038	160	1395	306	1544
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.19	0.57	0.17	0.03	0.28	0.14

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	83	34	730	100	41	350
v/c Ratio	0.23	0.10	0.61	0.10	0.13	0.25
Control Delay	28.6	12.2	12.8	3.6	30.7	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	12.2	12.8	3.6	30.7	3.8
Queue Length 50th (ft)	27	0	193	5	14	34
Queue Length 95th (ft)	81	25	366	25	50	74
Internal Link Dist (ft)	1233		580			1430
Turn Bay Length (ft)	75			125	150	
Base Capacity (vph)	841	771	1820	1547	411	1845
Starvation Cap Reductn	0	0	12	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.04	0.40	0.06	0.10	0.19

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	60	532	53	6	458	65	7	155
v/c Ratio	0.19	0.26	0.06	0.02	0.50	0.20	0.02	0.38
Control Delay	35.4	11.6	0.9	39.7	21.4	34.9	0.1	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	11.6	0.9	39.7	21.4	34.9	0.1	27.9
Queue Length 50th (ft)	23	61	0	2	164	25	0	48
Queue Length 95th (ft)	75	149	6	17	336	79	0	133
Internal Link Dist (ft)		1326			4905	256		2628
Turn Bay Length (ft)	100		150	100			60	
Base Capacity (vph)	526	2901	1314	251	1429	731	730	761
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.18	0.04	0.02	0.32	0.09	0.01	0.20

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	687	609	428	49	36	170	37	63
v/c Ratio	0.12	0.64	0.65	0.20	0.05	0.20	0.52	0.21	0.28
Control Delay	41.3	24.2	28.2	8.6	0.4	40.7	15.2	40.6	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	24.2	28.2	8.6	0.4	40.7	15.2	40.6	30.6
Queue Length 50th (ft)	9	134	129	39	0	16	6	16	19
Queue Length 95th (ft)	37	244	232	96	3	55	70	56	66
Internal Link Dist (ft)		4905		726			339		194
Turn Bay Length (ft)	220		450		190	500			
Base Capacity (vph)	179	2112	1847	3082	1390	206	618	206	577
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.33	0.33	0.14	0.04	0.17	0.28	0.18	0.11

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	915	159	995	174	1017
v/c Ratio	0.59	0.51	0.36	0.39	0.81
Control Delay	22.6	36.0	8.7	24.8	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	36.0	8.7	24.8	12.1
Queue Length 50th (ft)	107	57	65	56	47
Queue Length 95th (ft)	200	143	134	126	103
Internal Link Dist (ft)	726		410	369	
Turn Bay Length (ft)		210		125	125
Base Capacity (vph)	2709	585	4157	1206	2105
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.27	0.24	0.14	0.48

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	181	1471	63	733	246	132	151	463	190	89
v/c Ratio	1.34	0.87	0.50	0.47	0.38	0.40	0.60	0.72	0.46	0.19
Control Delay	229.0	33.3	55.6	24.5	5.0	40.9	40.3	41.0	33.5	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	229.0	33.3	55.6	24.5	5.0	40.9	40.3	41.0	33.5	0.9
Queue Length 50th (ft)	~135	276	34	114	0	36	67	125	92	0
Queue Length 95th (ft)	#278	#406	#90	163	51	65	128	#205	161	0
Internal Link Dist (ft)		410		540			2568		580	
Turn Bay Length (ft)	100		165		400	250		125		125
Base Capacity (vph)	135	1697	126	1687	684	1654	863	642	411	478
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.87	0.50	0.43	0.36	0.08	0.17	0.72	0.46	0.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	360	1582	166	29	1449	64	327	477	769
v/c Ratio	1.03	0.64	0.20	0.38	0.98	0.46	0.72	0.85	0.93
Control Delay	106.8	25.8	6.1	75.6	59.9	68.0	60.7	66.9	63.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	106.8	25.8	6.1	75.6	59.9	68.0	60.7	66.9	63.1
Queue Length 50th (ft)	~330	380	15	24	424	53	135	200	318
Queue Length 95th (ft)	#552	467	59	61	#572	102	188	#291	#471
Internal Link Dist (ft)		1960			1797		2586		774
Turn Bay Length (ft)	250		160	250		200		200	
Base Capacity (vph)	348	2459	830	77	1482	232	583	604	825
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.64	0.20	0.38	0.98	0.28	0.56	0.79	0.93

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	378	1101	128	93	640	115	81	167	422	613
v/c Ratio	1.16	0.72	0.24	0.61	0.62	0.29	0.38	0.69	0.73	0.88
Control Delay	144.3	40.9	12.2	73.1	46.5	12.5	55.1	54.1	45.8	36.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	144.3	40.9	12.2	73.1	46.5	12.5	55.1	54.1	45.8	36.5
Queue Length 50th (ft)	~368	286	19	72	169	10	60	98	293	273
Queue Length 95th (ft)	#625	367	70	#151	226	61	114	179	465	#555
Internal Link Dist (ft)		625			1445			225	715	
Turn Bay Length (ft)	250		200	200		130	100			120
Base Capacity (vph)	326	1745	604	169	1292	476	563	571	617	726
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.63	0.21	0.55	0.50	0.24	0.14	0.29	0.68	0.84

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	80	1287	449	267	653	353	47	180	35	20
v/c Ratio	0.44	0.87	0.53	0.99	0.38	0.63	0.15	0.44	0.23	0.08
Control Delay	46.2	32.6	8.8	92.7	17.2	39.3	33.3	9.1	42.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	32.6	8.8	92.7	17.2	39.3	33.3	9.1	42.7	0.7
Queue Length 50th (ft)	44	364	48	~170	134	97	23	0	19	0
Queue Length 95th (ft)	91	#546	143	#338	199	146	55	55	50	0
Internal Link Dist (ft)		775			572		243		692	
Turn Bay Length (ft)	200		225	200		115				
Base Capacity (vph)	220	1477	846	270	1732	690	374	461	536	550
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.87	0.53	0.99	0.38	0.51	0.13	0.39	0.07	0.04

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	184	1115	7	23	886	36	207	127
v/c Ratio	1.07	0.97	0.01	0.22	0.94	0.24	0.72	0.35
Control Delay	131.9	42.5	0.0	50.2	42.9	42.6	52.6	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	131.9	42.5	0.0	50.2	42.9	42.6	52.6	9.7
Queue Length 50th (ft)	~135	620	0	14	~543	19	122	0
Queue Length 95th (ft)	#280	#1129	0	41	#860	51	#207	50
Internal Link Dist (ft)		800			690	217	1322	
Turn Bay Length (ft)	350		350	50				200
Base Capacity (vph)	172	1146	1010	105	939	359	342	407
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.97	0.01	0.22	0.94	0.10	0.61	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	917	231	60	972	167	78
v/c Ratio	0.80	0.23	0.43	0.73	0.60	0.13
Control Delay	20.7	5.6	47.5	11.6	41.2	0.4
Queue Delay	0.9	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	5.6	47.5	11.6	41.2	0.4
Queue Length 50th (ft)	344	28	30	237	81	0
Queue Length 95th (ft)	490	58	64	369	125	0
Internal Link Dist (ft)	550			203		2559
Turn Bay Length (ft)		100	80		85	
Base Capacity (vph)	1142	1007	142	1328	395	674
Starvation Cap Reductn	65	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.23	0.42	0.73	0.42	0.12

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	320	2118	1384	139	229
v/c Ratio	0.57	0.62	0.60	0.52	0.53
Control Delay	37.0	8.0	17.3	41.4	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	8.0	17.3	41.4	9.9
Queue Length 50th (ft)	81	179	177	69	0
Queue Length 95th (ft)	133	264	266	134	62
Internal Link Dist (ft)		1117	1025	876	
Turn Bay Length (ft)	225				
Base Capacity (vph)	781	4088	2781	939	946
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.41	0.52	0.50	0.15	0.24

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	605	1399	417	161	826	145	248	658	110	440	388
v/c Ratio	0.92	0.93	0.49	0.83	0.82	0.26	0.91	0.75	0.62	0.63	0.77
Control Delay	70.4	47.1	8.9	90.6	49.9	7.1	88.4	47.1	70.3	49.6	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.4	47.1	8.9	90.6	49.9	7.1	88.4	47.1	70.3	49.6	27.7
Queue Length 50th (ft)	246	547	48	67	322	0	197	247	85	172	114
Queue Length 95th (ft)	#410	#835	154	#144	#485	53	#403	326	157	226	232
Internal Link Dist (ft)		650			1744			693		932	
Turn Bay Length (ft)	250		330	315		320	190		250		75
Base Capacity (vph)	658	1500	852	195	1012	555	273	1301	232	1262	718
Starvation Cap Reductn	0	1	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.93	0.49	0.83	0.82	0.26	0.91	0.51	0.47	0.35	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	67	70	123	134	74	118	499	97	620
v/c Ratio	0.31	0.31	0.40	0.45	0.20	0.43	0.48	0.39	0.63
Control Delay	35.8	35.6	11.5	34.7	2.9	35.4	22.4	36.0	25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.8	35.6	11.5	34.7	2.9	35.4	22.4	36.0	25.3
Queue Length 50th (ft)	27	28	0	51	0	45	90	37	116
Queue Length 95th (ft)	80	81	49	126	11	115	161	100	209
Internal Link Dist (ft)		863		164			1173		243
Turn Bay Length (ft)	315		300			115			
Base Capacity (vph)	465	483	527	860	820	422	1705	357	1559
Starvation Cap Reductn	0	0	0	0	0	0	0	0	87
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.14	0.23	0.16	0.09	0.28	0.29	0.27	0.42

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	1197	18	915	62	77
v/c Ratio	0.26	0.95	0.15	0.74	0.34	0.39
Control Delay	46.6	35.0	44.0	20.2	35.3	23.0
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	46.6	35.0	44.0	20.6	35.3	23.0
Queue Length 50th (ft)	17	519	10	394	24	12
Queue Length 95th (ft)	49	#1152	33	#768	65	55
Internal Link Dist (ft)		690		550	1237	131
Turn Bay Length (ft)	55		75			
Base Capacity (vph)	123	1263	123	1230	407	433
Starvation Cap Reductn	0	0	0	72	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.95	0.15	0.79	0.15	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	66	2303	1518	81	22
v/c Ratio	0.33	0.55	0.43	0.38	0.10
Control Delay	46.2	4.1	8.5	46.0	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	4.1	8.5	46.0	18.3
Queue Length 50th (ft)	34	138	144	42	0
Queue Length 95th (ft)	86	206	217	99	23
Internal Link Dist (ft)		1025	650	268	
Turn Bay Length (ft)	75				
Base Capacity (vph)	346	4669	4022	561	517
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.49	0.38	0.14	0.04

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	186	376	2	474	23	26	145	276
v/c Ratio	0.36	0.36	0.01	0.71	0.12	0.06	0.43	0.37
Control Delay	31.7	10.7	38.5	24.6	38.3	31.0	33.3	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	10.7	38.5	24.6	38.3	31.0	33.3	7.7
Queue Length 50th (ft)	31	50	1	126	8	3	48	4
Queue Length 95th (ft)	85	209	8	321	38	19	139	41
Internal Link Dist (ft)		1036		1180		496		508
Turn Bay Length (ft)	200		250		225		150	
Base Capacity (vph)	1058	1475	193	1209	193	1501	469	1898
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.25	0.01	0.39	0.12	0.02	0.31	0.15

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	211	86	352	205	85	732
v/c Ratio	0.50	0.19	0.51	0.29	0.29	0.70
Control Delay	23.8	6.7	17.7	3.8	25.5	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.8	6.7	17.7	3.8	25.5	12.1
Queue Length 50th (ft)	55	0	84	0	23	127
Queue Length 95th (ft)	142	31	189	37	73	291
Internal Link Dist (ft)	1238		580			1430
Turn Bay Length (ft)	75			125	150	
Base Capacity (vph)	1120	1033	1780	1520	569	1845
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.08	0.20	0.13	0.15	0.40

Intersection Summary

Arterial Level of Service: NB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Project Main Drivewa	III	30	62.5	7.2	69.7	0.49	25.4	B
Total	III		62.5	7.2	69.7	0.49	25.4	B

Arterial Level of Service: SB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Main Street	III	30	62.5	47.6	110.1	0.49	16.1	D
Total	III		62.5	47.6	110.1	0.49	16.1	D

Arterial Level of Service: NB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Project Main Drivewa	III	30	62.5	7.3	69.8	0.49	25.4	B
Total	III		62.5	7.3	69.8	0.49	25.4	B

Arterial Level of Service: SB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Main Street	III	30	62.5	39.5	102.0	0.49	17.4	D
Total	III		62.5	39.5	102.0	0.49	17.4	D

Arterial Level of Service: NB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Project Main Drivewa	III	30	62.5	13.8	76.3	0.49	23.2	C
Total	III		62.5	13.8	76.3	0.49	23.2	C

Arterial Level of Service: SB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Main Street	III	30	62.5	44.8	107.3	0.49	16.5	D
Total	III		62.5	44.8	107.3	0.49	16.5	D

Arterial Level of Service: NB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Project Main Drivewa	III	30	62.5	14.2	76.7	0.49	23.1	C
Total	III		62.5	14.2	76.7	0.49	23.1	C

Arterial Level of Service: SB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Main Street	III	30	62.5	41.7	104.2	0.49	17.0	D
Total	III		62.5	41.7	104.2	0.49	17.0	D

Arterial Level of Service: NB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Project Main Drivewa	III	30	62.5	7.3	69.8	0.49	25.4	B
Total	III		62.5	7.3	69.8	0.49	25.4	B

Arterial Level of Service: SB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Main Street	III	30	62.5	46.0	108.5	0.49	16.3	D
Total	III		62.5	46.0	108.5	0.49	16.3	D

Arterial Level of Service: NB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Project Main Drivewa	III	30	62.5	7.5	70.0	0.49	25.3	B
Total	III		62.5	7.5	70.0	0.49	25.3	B

Arterial Level of Service: SB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Main Street	III	30	62.5	43.2	105.7	0.49	16.8	D
Total	III		62.5	43.2	105.7	0.49	16.8	D

Arterial Level of Service: NB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Project Main Drivewa	III	30	62.5	14.3	76.8	0.49	23.1	C
Total	III		62.5	14.3	76.8	0.49	23.1	C

Arterial Level of Service: SB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Main Street	III	30	62.5	46.8	109.3	0.49	16.2	D
Total	III		62.5	46.8	109.3	0.49	16.2	D

Arterial Level of Service: NB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Project Main Drivewa	III	30	62.5	14.6	77.1	0.49	23.0	C
Total	III		62.5	14.6	77.1	0.49	23.0	C

Arterial Level of Service: SB Bridgehead Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Main Street	III	30	62.5	45.2	107.7	0.49	16.4	D
Total	III		62.5	45.2	107.7	0.49	16.4	D

Arterial Level of Service: NB Bridgehead Road N

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Project Main Drivewa	II	45	35.2	17.4	52.6	0.37	25.1	C
Total	II		35.2	17.4	52.6	0.37	25.1	C

Arterial Level of Service: SB Bridgehead Road N

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Cline Project	II	45	35.2	4.3	39.5	0.37	33.5	B
Total	II		35.2	4.3	39.5	0.37	33.5	B

Arterial Level of Service: NB Bridgehead Road S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Cline Project	II	45	13.6	10.8	24.4	0.12	18.4	D
Total	II		13.6	10.8	24.4	0.12	18.4	D

Arterial Level of Service: SB Bridgehead Road S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Main Street	II	45	13.6	34.7	48.3	0.12	9.3	F
Total	II		13.6	34.7	48.3	0.12	9.3	F

Arterial Level of Service: NB Bridgehead Road N

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Project Main Drivewa	II	45	35.4	18.5	53.9	0.37	24.6	C
Total	II		35.4	18.5	53.9	0.37	24.6	C

Arterial Level of Service: SB Bridgehead Road N

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Cline Project	II	45	35.4	9.3	44.7	0.37	29.7	B
Total	II		35.4	9.3	44.7	0.37	29.7	B

Arterial Level of Service: NB Bridgehead Road S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Cline Project	II	45	13.4	17.9	31.3	0.12	14.2	E
Total	II		13.4	17.9	31.3	0.12	14.2	E

Arterial Level of Service: SB Bridgehead Road S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Main Street	II	45	13.4	33.4	46.8	0.12	9.5	F
Total	II		13.4	33.4	46.8	0.12	9.5	F

Arterial Level of Service: NB Bridgehead Road N

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Project Main Drivewa	II	45	35.2	27.6	62.8	0.37	21.0	D
Total	II		35.2	27.6	62.8	0.37	21.0	D

Arterial Level of Service: SB Bridgehead Road N

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Cline Project	II	45	35.2	3.8	39.0	0.37	33.9	B
Total	II		35.2	3.8	39.0	0.37	33.9	B

Arterial Level of Service: NB Bridgehead Road S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Cline Project	II	45	13.6	12.8	26.4	0.12	17.0	D
Total	II		13.6	12.8	26.4	0.12	17.0	D

Arterial Level of Service: SB Bridgehead Road S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Main Street	II	45	13.6	33.3	46.9	0.12	9.6	F
Total	II		13.6	33.3	46.9	0.12	9.6	F

Arterial Level of Service: NB Bridgehead Road N

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Project Main Drivewa	II	45	35.2	42.6	77.8	0.37	17.0	E
Total	II		35.2	42.6	77.8	0.37	17.0	E

Arterial Level of Service: SB Bridgehead Road N

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Cline Project	II	45	35.2	12.1	47.3	0.37	27.9	C
Total	II		35.2	12.1	47.3	0.37	27.9	C

Arterial Level of Service: NB Bridgehead Road S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Cline Project	II	45	13.6	17.7	31.3	0.12	14.4	E
Total	II		13.6	17.7	31.3	0.12	14.4	E

Arterial Level of Service: SB Bridgehead Road S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Main Street	II	45	13.6	33.5	47.1	0.12	9.6	F
Total	II		13.6	33.5	47.1	0.12	9.6	F

Appendix H

DIABLO WATER DISTRICT

87 Carol Lane
P.O. Box 127
Oakley, CA 94561-0127
925-625-3798
Fax 925-625-0814
www.diablowater.org

January 9, 2019

Joshua McMurray
City of Oakley
Planning Manager
3231 Main Street
Oakley, CA 94561

RE: Logistics Center – Development Agreement (DA 01-18), Rezone (RZ 08-18), Tentative Map (05-18) and Design Review (DR 12-18)

The above referenced develop is exclusively comprised of the land previously referred to as the DuPont campus. In the preparation of Diablo Water District's (District) 2015 Urban Water Management Plan (UWMP), the District including demands for a future heavy industrial water user at this location.

The 2015 UWMP included up to 1.1 million gallons per day of water consumption at the former DuPont location. Since 2015, no long-term, significant supply issues have arisen that would impact the District's ability to serve this location the estimate water supply volume in the District's 2015 UWMP.

Estimated water consumption for the proposed development is significantly lower than the demands estimated in 2015, only further solidifying the District's ability to serve this project.

Thank you,

Dan Muelrath

Dan Muelrath

Appendix I

Memorandum

To:	Jason Vogan
From:	Chad Coleman Megan Shaw
Date:	September 24, 2019
Project:	Oakley Logistics Center
Subject:	Lift Station Recommendations

NorthPoint Development is developing the Oakley Logistic Center (OLC) project in Oakley, CA: a proposed industrial-zoned development. This memorandum is a summary of the engineering used to evaluate options to convey wastewater from the OLC into the existing gravity sewer collection system on Highway 4 operated by Ironhouse Sanitary District (ISD). Four options have been considered:

1. Pump into the Existing Lauritzen Pump Station (PS).
2. Pump from the Oakley Logistics Center to the existing Lauritzen Force Main Pipeline on Bridgehead Road.
3. Pump from the Oakley Logistics Center directly to the Bridgehead Pump Station using a new OLC Force Main Pipeline.
4. Pump from the Oakley Logistics Center directly to the Bridgehead Pump Station using a new OLC Force Main Pipeline. Abandon the Lauritzen Pump Station and force main to Bridgehead Pump Station, and re-route the flows into new OLC Pump Station.

Design Flow Assumptions

The options have been evaluated assuming the following design flows for the OLC, as calculated below in Table 1.

Table 1 – Anticipated Design Flows

Unit Flow (gallons/acre) [a]	1,200
Total Development Area (acres) [b]	150
ADWF (gpd) [c]	180,000
Peaking Factor [d]	3.5
GWI [d]	18 gpm
Peak Flow (gpm) =	455

COLEMAN ENGINEERING

[a] District assigned Unit Flow (gpd per acre) to parcels with the Light Industrial designation, approved by Vivian Housen in e-mail to Jason Vogan, dated 9/10/19
[b] Per Notice of Preparation, approved by Vivian Housen in e-email to Jason Vogan, dated 9/10/19
[c] Approved by Vivian Housen in e-mail to Jason Vogan, dated 9/10/19
[d] Per District Standard Design Criteria, 4-01, B-C.

Based on Improvement Plans provided by ISD staff, existing force main pipelines are all 4-inches in diameter and are in good condition and would not need to be replaced, subject to adequate capacity. We also assumed that all force main pipelines should have a velocity between 3 and 7 feet per second.

New OLC Pump Station and Force Main Assumptions

As documented above, it is calculated that the new OLC Pump Station will be required to convey 455 gpm. The head conditions are unknown but will be determined once the following parameters are established: site grading, OLC Pump Station location, OLC Force Main profile, OLC Force Main discharge location and elevation.

Details about the OLC Pump Station are not critical to this analysis since the recommended pump station will be essentially identical in all four options considered in this analysis. Based on recently completed wastewater pump stations in the ISD service area, it is estimated that this facility will cost approximately $900,000.

The OLC Force Main is calculated to be 6-inches in diameter. At the calculated flow rate of 455 gpm, this pipeline size will result in a pipeline velocity of 5.2 fps. The OLC Pump Station location is not yet determined but we have assumed a location for the purposes of this evaluation, as shown on the four attached figures. The length of the OLC Force Main in each option is assumed based on the assumed OLC Pump Station location. Therefore, the OLC Force Main will be a consideration in selection of the preferred option in this analysis.

Options Analysis

Option 1

For Option 1, flows from the OLC will be pumped directly to the existing Lauritzen PS. This option will affect all of the components downstream, including:

- OLC Pump Station
- Lauritzen Pump Station
- Lauritzen Force Main Pipeline from the Lauritzen Pump Station to the Bridgehead Pump Station
- Bridgehead Pump Station
- Bridgehead Force Main Pipeline to the gravity sewer on Highway 4

Per an email from Vivian Housen to Jason Vogan on December 13, 2018, the Lauritzen Pump Station is currently at full capacity during wet weather. Because of this, the additional OLC sewer flow that would be routed to the Lauritzen Pump Station under Option 1 would require the pump station to be upsized. From discussion with Louis Solano from ISD, the

Lauritzen Pump Station is in good condition and does not need to be repaired but will need a new epoxy coating in the wet well if it is to be used to serve the OLC.

The Lauritzen Force Main Pipeline will also require replacement. Average and peak flows from the Lauritzen Pump Station were not provided by ISD. The flows were approximated using dimensions of the existing Lauritzen Pump Station that were provided. The Lauritzen Pump Station wet well is approximately 8-feet in diameter with 3-feet of active storage volume used for pumping. Using SCADA data and records of the amount of volume pumped, the approximate average flow pumped by the Bridgehead Pump Station is calculated to be 1 gpm.

The peak flow calculated from OLC will result in a pipeline velocity of 11.6 fps in the existing 4-inch Lauritzen Force Main. Before existing Lauritzen flow is added to this new OLC flow, the capacity of the existing force main is be exceeded. Therefore, we have assumed that complete replacement of the Lauritzen Force Main with a new 6-inch diameter pipe, with a pipeline velocity of 5.2 fps, will be required for Option 1.

Average and peak flows from the Bridgehead Pump Station were not provided by ISD. The flows were approximated using dimensions of the existing Bridgehead Pump Station that were provided. The Bridgehead Pump Station wet well is approximately 8-feet in diameter with 2-feet of active storage volume used for pumping. Using SCADA data and records of the amount of volume pumped, the approximate average flow pumped by the Bridgehead Pump Station is calculated to be 180 gpm.

Increasing the flow coming into the Bridgehead Pump Station (from OLC) without increasing the storage volume will require the pumps to operate more frequently. The new estimated flow into the Bridgehead Pump Station will be the sum of the current 180 gpm and the 455 gpm that will be added from the OLC. The pump station will be required to pump at least 635 gpm (180 gpm + 455 gpm) in order convey the anticipated peak flows from the upstream sewer sheds.

For the purpose of calculating the required pump design point, dimensions of the existing Bridgehead wet well are shown below in Table 2.

Table 2 – Bridgehead Pump Station Wet Well Elevations

	Elevation (ft)
Rim Elevation [a]	23.5
Inlet Gravity Sewer Invert [a]	12.3
Wet Well Floor Elevation [a]	9.0
Total Depth	14.5
Force Main high point elevation [a]	27.0

[a] From Bridgehead Road Force Main & Gravity Sewer Project No. C-92 Plans

COLEMAN ENGINEERING

Using the information from Table 2, it appears that the static pumping head is approximately 18-feet. In addition, there are friction losses of approximately 10-feet that must also be considered, bringing the total dynamic head (TDH) requirement to approximately 28-feet.

The current pumps are the Flygt NP 3085 MT 3~ Adaptive 462. The existing pump is unable to pump the required 635 gpm with the added flow from the OLC. Because of this, it will be necessary for the Bridgehead Pump Station pumps to be upgraded.

From discussions with Louis Solano from ISD, the Bridgehead Pump Station is in good condition and does not need to be repaired, but it will need a new epoxy coating in the wet well if it is to be used to serve additional areas.

The Bridgehead Force Main downstream of the Bridgehead Pump Station is 4-inches in diameter. Considering the additional flows shown in Table 1, and this 4-inch dia. force main, the velocity will be too high to accommodate the flow to be added. Because of this, the existing Bridgehead Force Main cannot be used to serve the OLC development. For Option 1 to work, the Bridgehead Force Main will have to be replaced with a larger pipeline. From the velocities shown below in Table 3, the recommended size for the new Bridgehead Force Main pipeline from the Bridgehead Pump Station to the gravity sewer is 8-inches.

Table 3 – Bridgehead Force Main Sizing

Alternative Force Main Pipe Diameter	Bridgehead Force Main Velocity (fps)
4-inch	16.2
6-inch	7.2
8-inch	4.1
10-inch	2.6

All Option 1 improvements are depicted on the attached Option 1 Figure.

Option 2

Option 2 requires construction of a new OLC Pump Station and pumping the anticipated flows from the OLC to the existing Lauritzen Force Main on Bridgehead Road. Because of the increased flow into the Lauritzen Force Main, upgrade of the Lauritzen Pump Station will be required. This upgrade will include new pumps that will allow for shared use of the Lauritzen Force Main by the existing Lauritzen Pump Station and the new OLC Pump Station. Wet well lining is not assumed to be required for Option 2 because no new flow is planned to be introduced into the Lauritzen Pump Station.

At the point of intersection of the existing Lauritzen Force Main and the new OLC Force Main, the flows will be increased from the current flow through the 4-inch force main. Given the flows anticipated for the OLC in Table 1, the existing 4-inch Lauritzen Force Main would result in a velocity that would exceed the standard of 7 feet per second. In order to avoid exceeding this limit, the force main pipe from the intersection of the existing Lauritzen Force Main and the new OLC Force Main would need to be upsized, as it was for the entire length in Option 1. 6-inch diameter pipe has been assumed.

Option 2 will require the same improvements to the Bridgehead Pump Station and Force Main as in Option 1. This includes replacement of the pumps, new wet well lining, as well as an upsized Bridgehead Force Main.

All Option 2 improvements are depicted on the attached Option 2 Figure.

Option 3
Option 3 assumes that new sewer flow from the OLC will be pumped into a new 6-inch OLC Force Main pipeline that extends from the new OLC Pump Station all the way to the Bridgehead Pump Station. It is assumed that the new OLC Force Main will parallel the existing Lauritzen Force Main in Bridgehead Road. It is also assumed that Option 3 will have no effect on the existing Lauritzen Pump Station or Force Main and so no improvements are assumed for the Lauritzen system in Option 3.

Option 3 will require the same improvements to the Bridgehead Pump Station and Force Main as in Options 1 and 2. This includes replacement of the pumps, new wet well lining, as well as an upsized Bridgehead Force Main.

All Option 3 improvements are depicted on the attached Option 3 Figure.

Option 4
Option 4 assumes that the Lauritzen Pump Station will be converted into a manhole, and the existing force mains from the Lauritzen Pump Station to the existing Bridgehead Pump Station will be abandoned. The flow from the existing Lauritzen Pump Station will be routed to the OLC sewer system, and to the OLC Pump Station.

ISD has confirmed that there are abandoned laterals along the force main between Lauritzen Pump Station and the Bridgehead Pump Station, which will not affect the abandonment of the Lauritzen Force Main. ISD has not confirmed if there are any laterals along the force main that are still in use. In the event that there is a lateral between Lauritzen and Bridgehead Pump Stations that is still in use, the Lauritzen Force Main would only be abandoned to the point of the lateral. Drawings provided by ISD show a connecting pipe to the Lauritzen Force Main south of the intersection of Lauritzen Road and Bridgehead Road. This pipe is aligned to the west side so that it may serve the Caltrans toll station however that possibility has not been confirmed by ISD.

Converting Lauritzen Pump Station into a manhole would include the following:

- Removing the pumps, guide rails, and piping inside of the wet well
- Removing the electrical components of the pump station
- Grouting the cores for the electrical conduits
- Installing a blind flange at the end of the abandoned force main

- Coring a new hole to provide the connection to the new OLC sewer system
- Installing drop manhole hardware

Option 4 will require the same improvements to the Bridgehead Pump Station and Force Main as in Options 1, 2 and 3. This includes replacement of the pumps, new wet well lining, as well as an upsized Bridgehead Force Main.

All Option 4 improvements are depicted on the attached Option 4 Figure.

Summary of Options

The following summary includes items specific to each option.

Option 1

Pump into the existing Lauritzen Pump Station. This would require the following modifications:

- OLC Pump Station
- Lauritzen Pump Station upgrades
- A new Lauritzen Force Main
- Bridgehead Pump Station upgrades
- Replacing the existing 4-inch dia. Bridgehead Force Main with a new 8-inch pipeline

Option 2

Pump into the existing Lauritzen Force Main between the Lauritzen and Bridgehead Pump Stations on Bridgehead Road. This would require the following changes:

- OLC Pump Station
- Lauritzen Pump Station upgrade
- A new OLC Force Main from the intersection of Bridgehead Road and Wilber Avenue to the Bridgehead Pump Station
- Bridgehead Pump Station upgrades
- Replacing the existing 4-inch dia. Bridgehead Force Main with a new 8-inch pipeline

Option 3

Build a new force main in the Wilbur Ave. extension, then to Bridgehead Road and south to the existing gravity pipe upstream of the Bridgehead Pump Station. This would require the following modifications:

- OLC Pump Station
- A new OLC Force Main to the existing Bridgehead Pump Station
- Bridgehead Pump Station upgrades
- Replacing the existing 4-inch dia. Bridgehead Force Main with a new 8-inch pipeline

Option 4

Abandon the Lauritzen Pump Station and force main to Bridgehead Pump Station, and re-routing the flows into a new OLC Pump Station which will pump into the existing Bridgehead Pump Station with a new Force Main Pipeline on Bridgehead Road. This would require the following modifications:

- OLC Pump Station

- A new OLC Force Main to the existing Bridgehead Pump Station
- Bridgehead Pump Station upgrades
- Replacing the existing 4-inch dia. Bridgehead Force Main with a new 8-inch pipeline
- Converting the existing Lauritzen Pump Station into a manhole
- Abandoning existing force main between Lauritzen Pump Station and Bridgehead Pump Station
- A new gravity fed sewer from existing Lauritzen Pump Station into OLC Sewer System

Conceptual Level Costs and Recommendations

Table 4 below is a summary of the conceptual level costs of the three options.

Table 4 – Conceptual Cost Options

Option	Conceptual Cost
1. Connect to Lauritzen Pump Station	$3,086,000
2. Connect to the existing Lauritzen Force Main	$2,448,000
3. Connect to the Bridgehead Pump Station	$2,382,000
4. Replace Lauritzen Pump Station with OLC Pump Station	$2,496,000

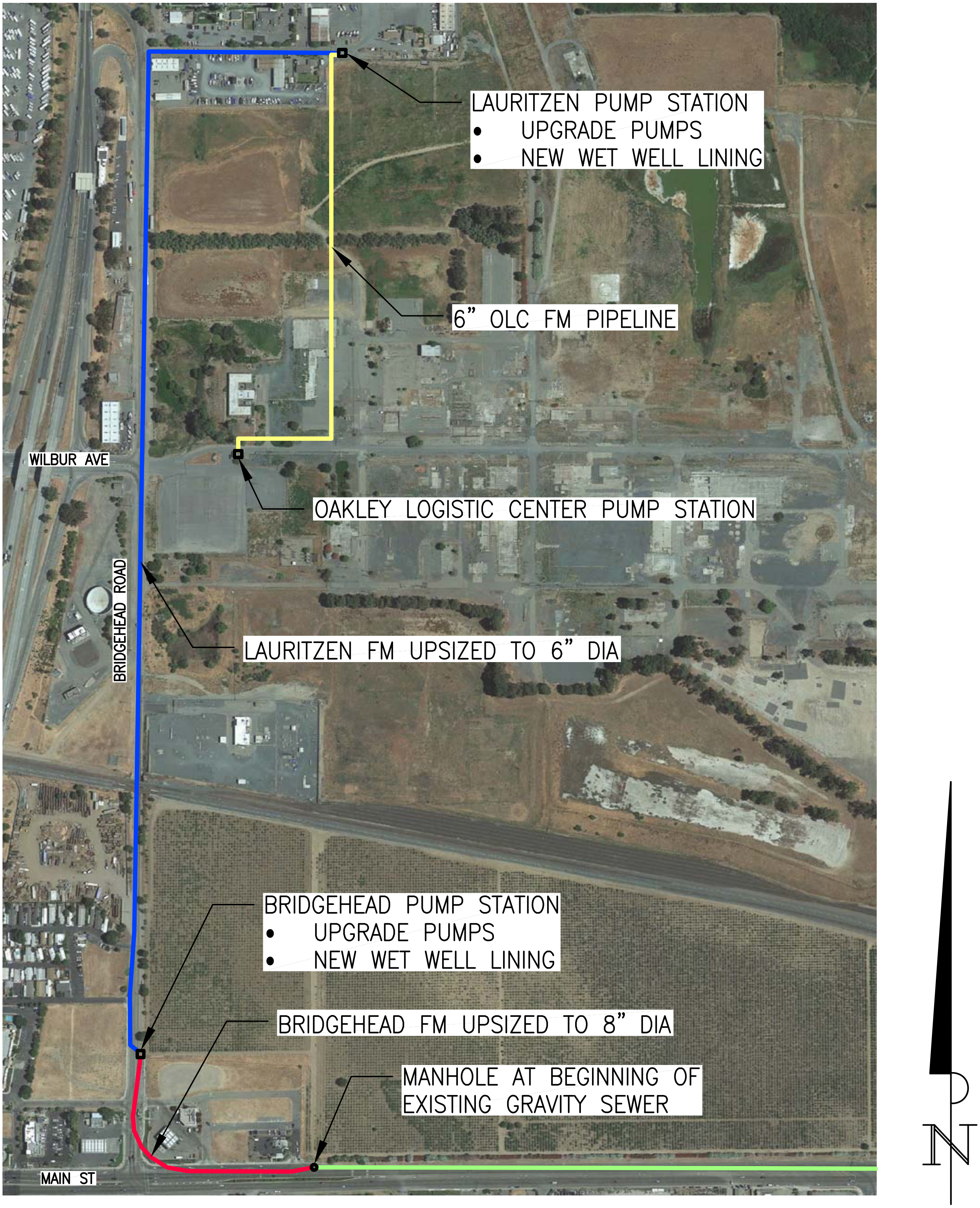
Per discussion with Vivian Housen on 7/18/19 the Ironhouse Sanitary District would prefer to not have additional lift stations added. Because of this, Option 4 is the most favorable option to ISD.

Based on the conceptual level cost estimate, and input from ISD, it is recommended that Option 4 be pursued. Options 1 and 2 offer no advantages and only increased costs required to upgrade and improve existing Lauritzen facilities that do not require modifications in Option 3. While Option 3 has the lowest cost, it will add an additional lift station and will not be accepted by ISD.

It is recommended that environmental impacts be evaluated for Option 4.

Attachments

- Option 1 Figure
- Option 2 Figure
- Option 3 Figure
- Option 4 Figure
- Opinion of Probable Construction Cost – Option 1
- Opinion of Probable Construction Cost – Option 2
- Opinion of Probable Construction Cost – Option 3
- Opinion of Probably Construction Cost – Option 4



COLEMAN ENGINEERING

OPTION 1

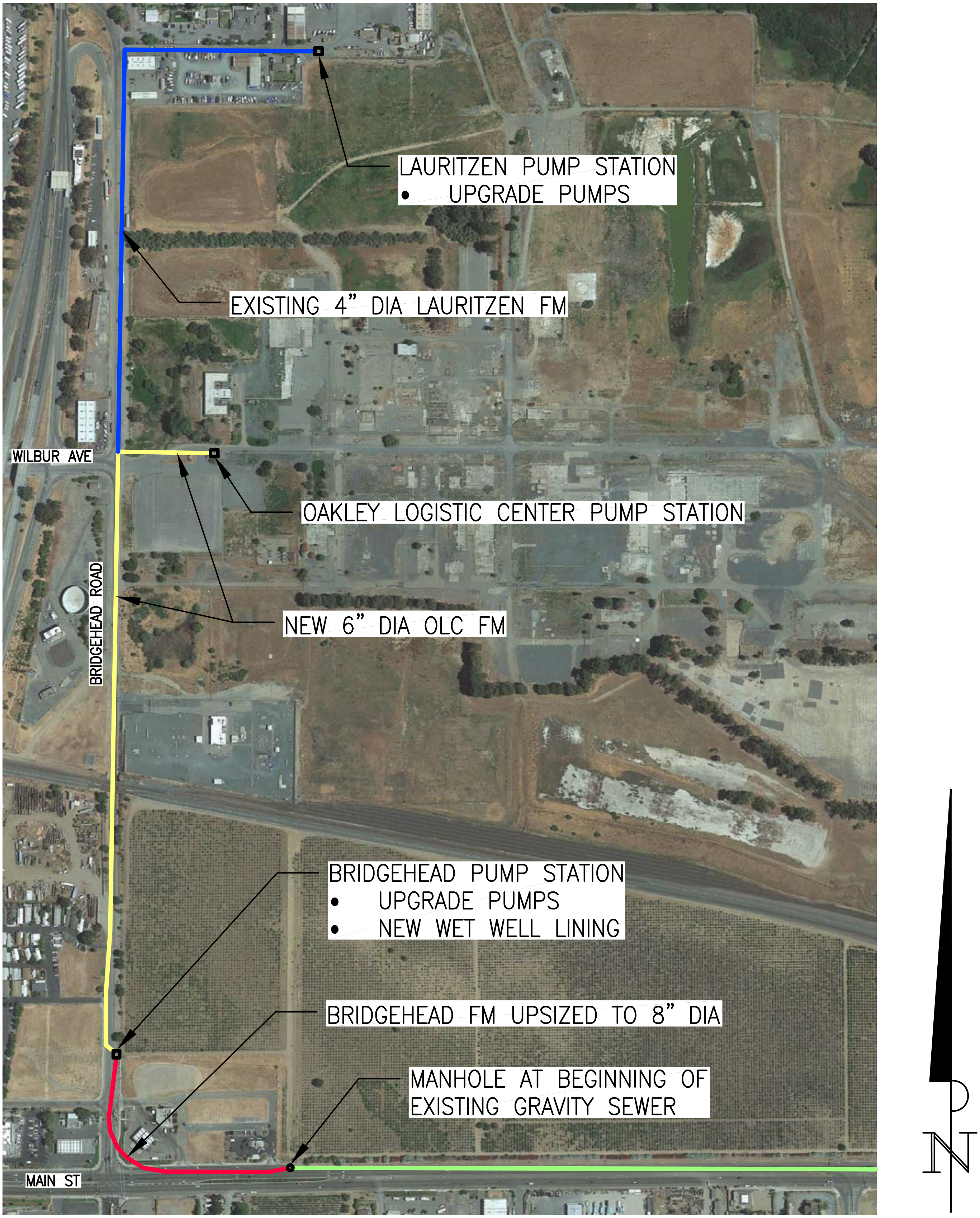
OAKLEY LOGISTICS CENTER

CITY OF OAKLEY

COLEMAN ENGINEERING

1358 Blue Oaks Boulevard, Suite 200, Roseville California (916) 791-1188

DATE: 9/24/2019
DRN: MS
CKD: CRC
SCALE: 1"=500'
JN: CBAG19-004



COLEMAN ENGINEERING

OPTION 2

OAKLEY LOGISTICS CENTER

CITY OF OAKLEY

COLEMAN ENGINEERING

1358 Blue Oaks Boulevard, Suite 200, Roseville California (916) 791-1188

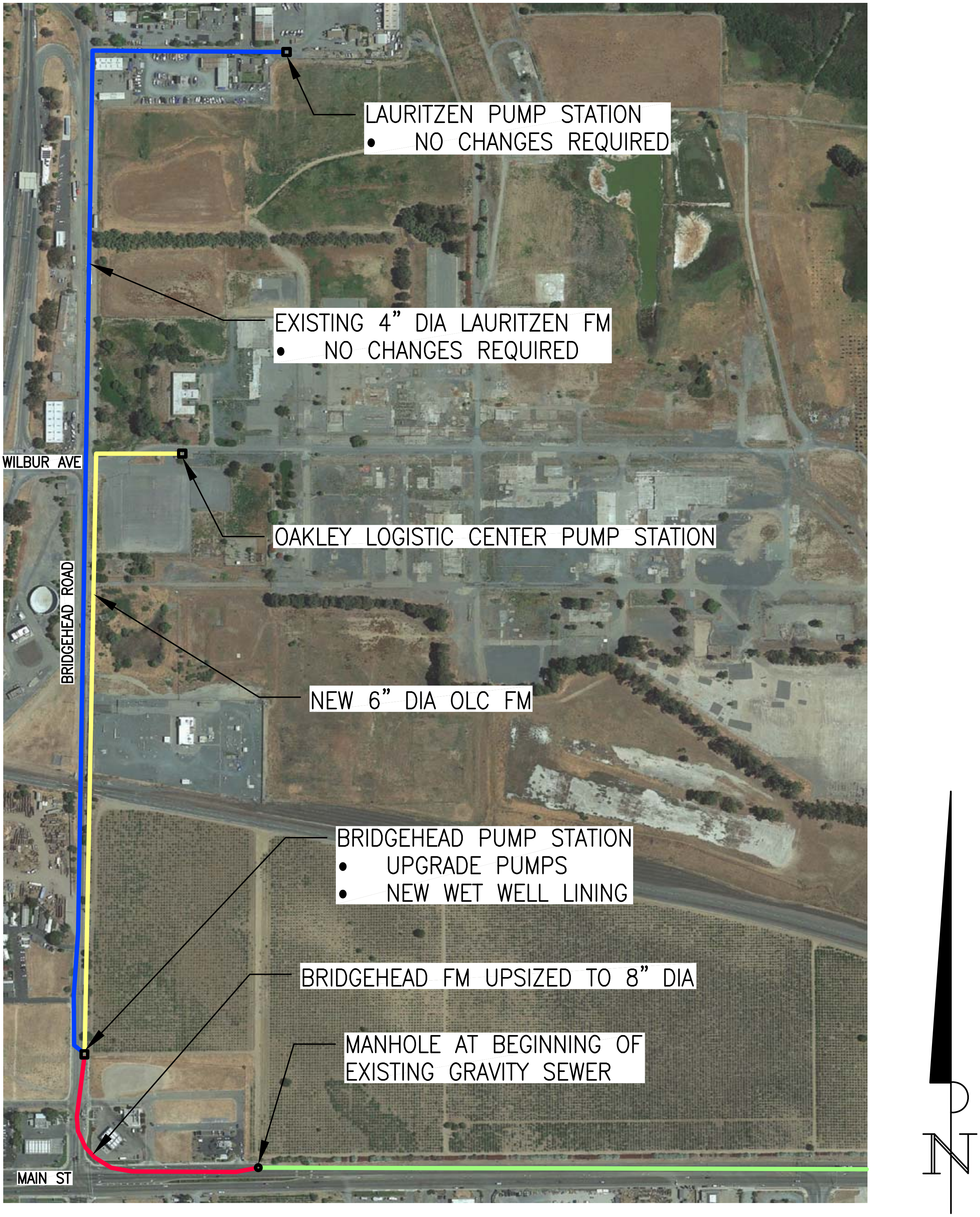
DATE: 9/24/2019

DRN: MS

CKD: CRC

SCALE: 1"=500'

JN: CBAG19-004



COLEMAN ENGINEERING

OPTION 3

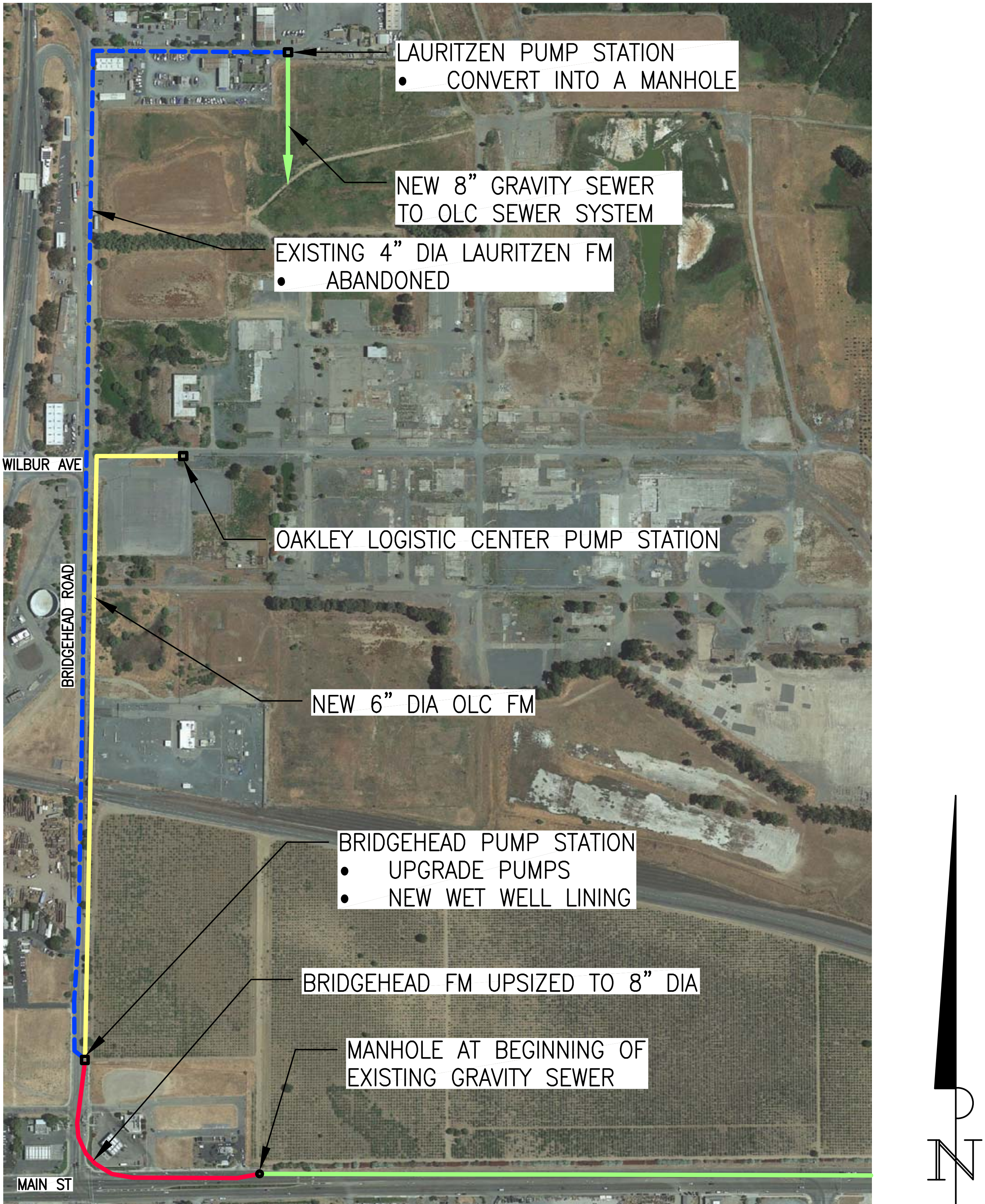
OAKLEY LOGISTICS CENTER

CITY OF OAKLEY

COLEMAN ENGINEERING

1358 Blue Oaks Boulevard, Suite 200, Roseville California (916) 791-1188

DATE: 9/24/2019
DRN: MS
CKD: CRC
SCALE: 1"=500'
JN: CBAG19-004



COLEMAN ENGINEERING

OPTION 4

OAKLEY LOGISTICS CENTER

CITY OF OAKLEY

COLEMAN ENGINEERING
1358 Blue Oaks Boulevard, Suite 200, Roseville California (916) 791-1188

DATE: 9/24/2019
DRN: MS
CKD: CRC
SCALE: 1"=500'
JN: CBAG19-004

Coleman Engineering, Inc. **Opinion of Probable Construction Cost**

Client:	**Carlson, Barbee & Gibson**	**Date:**	9/11/2019
Project:	**Oakley Logistics Center**	**Prepared By:**	MS
Project #:	**CBAG19-004**	**Checked By:**	CRC

OPTION 1 - Connect to Lauritzen Pump Station

No.	Item	Quantity	Unit	Unit Cost	Cost
General Conditions					
1	Mobilization / Demobilization	10%	LS	-	$187,000
2	Sheeting, Shoring, and Bracing	5%	LS	-	$43,000
3	SWPPP / Erosion Control	1%	LS	-	$9,000
4	Testing and Startup	1	LS	$15,000	$15,000
OLC Pump Station					
5	New OLC Pump Station	1	LS	$900,000	$900,000
Lauritzen Pump Station Upgrades					
6	Sewer Pumps, Guiderails & Accessories	2	EA	$20,000	$40,000
7	Wetwell Lining	1	LS	$15,000	$15,000
Bridgehead Pump Station Upgrades					
8	Sewer Pumps, Guiderails & Accessories	2	EA	$20,000	$40,000
9	Wetwell Lining	1	LS	$15,000	$15,000
Force Main Piping					
10	6" OLC Force Main	1,800	LF	$100	$180,000
11	6" Lauritzen Force Main	4,200	LF	$100	$420,000
12	8" Bridgehead Force Main	1,750	LF	$110	$192,500

SUB-TOTAL ESTIMATED COST =	$2,056,500
CONCEPTUAL LEVEL PREDESIGN @ 50% =	$1,029,000
Construction Costs =	**$3,086,000**

Basis for Cost Projection:

- ☑ Conceptual
- ☐ PreDesign
- ☐ 50% Draft Design
- ☐ Final Design

Coleman Engineering, Inc. **Opinion of Probable Construction Cost**

Client:	**Carlson, Barbee & Gibson**	**Date:**	9/11/2019
Project:	**Oakley Logistics Center**	**Prepared By:**	MS
Project #:	**CBAG19-004**	**Checked By:**	CRC

OPTION 2 - Connect to the existing Lauritzen Force Main

No.	Item	Quantity	Unit	Unit Cost	Cost
General Conditions					
1	Mobilization / Demobilization	10%	LS	-	$149,000
2	Sheeting, Shoring, and Bracing	5%	LS	-	$25,000
3	SWPPP / Erosion Control	1%	LS	-	$5,000
4	Testing and Startup	1	LS	$15,000	$15,000
OLC Pump Station					
5	New OLC Pump Station	1	LS	$900,000	$900,000
Lauritzen Pump Station Upgrades					
6	Sewer Pumps, Guiderails & Accessories	2	EA	$20,000	$40,000
Bridgehead Pump Station Upgrades					
7	Sewer Pumps, Guiderails & Accessories	2	EA	$20,000	$40,000
8	Wetwell Lining	1	LS	$15,000	$15,000
Force Main Piping					
9	6" OLC Force Main	350	LF	$100	$35,000
10	6" OLC Force Main from Lauritzen FM connection to Bridgehead PS	2,150	LF	$100	$215,000
11	8" Bridgehead Force Main	1,750	LF	$110	$192,500

Basis for Cost Projection:

- ☑ Conceptual
- ☐ PreDesign
- ☐ 50% Draft Design
- ☐ Final Design

SUB-TOTAL ESTIMATED COST =	$1,631,500
CONCEPTUAL LEVEL PREDESIGN @ 50% =	$816,000
Construction Costs =	**$2,448,000**

Coleman Engineering, Inc. **Opinion of Probable Construction Cost**

Client:	**Carlson, Barbee & Gibson**	**Date:**	9/11/2019
Project:	**Oakley Logistics Center**	**Prepared By:**	MS
Project #:	**CBAG19-004**	**Checked By:**	CRC

OPTION 3 - Connect to the Bridgehead Pump Station

No.	Item	Quantity	Unit	Unit Cost	Cost
General Conditions					
1	Mobilization / Demobilization	10%	LS	-	$145,000
2	Sheeting, Shoring, and Bracing	5%	LS	-	$25,000
3	SWPPP / Erosion Control	1%	LS	-	$5,000
4	Testing and Startup	1	LS	$15,000	$15,000
OLC Pump Station					
5	New OLC Pump Station	1	LS	$900,000	$900,000
Bridgehead Pump Station Upgrades					
6	Sewer Pumps, Guiderails & Accessories	2	EA	$20,000	$40,000
7	Wetwell Lining	1	LS	$15,000	$15,000
Force Main Piping					
8	6" OLC Force Main	2,500	LF	$100	$250,000
9	8" Bridgehead Force Main	1,750	LF	$110	$192,500

Basis for Cost Projection:

- ☑ Conceptual
- ☐ PreDesign
- ☐ 50% Draft Design
- ☐ Final Design

SUB-TOTAL ESTIMATED COST =	$1,587,500
CONCEPTUAL LEVEL PREDESIGN @ 50% =	$794,000
Construction Costs =	**$2,382,000**

Client:	**Carlson, Barbee & Gibson**	**Date:**	9/18/2019
Project:	**Oakley Logistics Center**	**Prepared By:**	MS
Project #:	**CBAG19-004**	**Checked By:**	CRC

OPTION 4 - Abandon Lauritzen Pump Station

No.	Item	Quantity	Unit	Unit Cost	Cost
General Conditions					
1	Mobilization / Demobilization	10%	LS	-	$145,000
2	Sheeting, Shoring, and Bracing	5%	LS	-	$25,000
3	SWPPP / Erosion Control	1%	LS	-	$5,000
4	Testing and Startup	1	LS	$15,000	$15,000
OLC Pump Station					
5	New OLC Pump Station	1	LS	$900,000	$900,000
Bridgehead Pump Station Upgrades					
6	Sewer Pumps, Guiderails & Accessories	2	EA	$20,000	$40,000
7	Wetwell Lining	1	LS	$15,000	$15,000
Force Main Piping					
8	6" OLC Force Main	2,500	LF	$100	$250,000
10	8" Bridgehead Force Main	1,750	LF	$110	$192,500
Lauritzen Pump Station Conversion					
11	Pump, Guiderail & Accessories Removal, Coring & Grouting	1	LS	$10,000	$10,000
12	Manhole Channel Hardware	1	LS	$5,174	$6,000
15	8" Gravity Line	400	LF	$150	$60,000

Basis for Cost Projection:

- ☑ Conceptual
- ☐ PreDesign
- ☐ 50% Draft Design
- ☐ Final Design

SUB-TOTAL ESTIMATED COST =	$1,663,500
CONCEPTUAL LEVEL PREDESIGN @ 50% =	$832,000
Construction Costs =	**$2,496,000**