City of Oakley
Planning Division

OAKLEY
CALIFORNIA

Sellers Avenue Subdivision

Initial Study/Mitigated Negative Declaration

November 2022

Prepared by

RANEY PLANNING & MANAGEMENT, INC. 20 years
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Appendices

INITIAL STUDY

A. PROJECT SUMMARY

1. Project Title: Sellers Avenue Subdivision (RZ 01-22, TM 01-22, FDP 01-22, DR 01-22)

2. Lead Agency Name and Address: City of Oakley
Planning Division
3231 Main Street
Oakley, CA 94561

3. Contact Person and Phone Number: Ken Strelo
Planning Manager
(925) 625-7000

4. Project Location: 5911 Sellers Ave
Oakley, CA 94561
Accessor's Parcel Numbers (APNs): 033-150-013-2

5. Project Applicant Name and Address: Paul Manyisha
MLC Holdings
2603 Camino Ramon, Ste. 140
San Ramon, CA, 94583

6. General Plan Designation: Residential Low (RL)

7. Zoning Designation: Planned Unit Development (P-1)

8. Required Approvals from Other Public Agencies: None

9. Surrounding Land Uses and Setting:

   The approximately 20.42-acre project site, identified by APN 033-150-013-2, is located at 5911 Sellers Avenue in the City of Oakley, California. The site predominantly consists of undeveloped ruderal grassland with the exception of one farmhouse and two ancillary buildings in the northern portion of the site. Seven trees exist on-site. Surrounding existing land uses include scattered rural residences with small-scale agricultural uses to the north, south, and east. The project site is bound by the Burlington Northern and Santa Fe Railway Company (BNSF) railroad tracks to the west. Single-family residences are located further west, beyond the BNSF railroad tracks. The City of Oakley General Plan designates the project site as Residential Low (RL) and the site is zoned Planned Unit Development (P-1).

10. Project Description Summary:

    Development of the Sellers Avenue Subdivision (proposed project) would include the demolition of the existing on-site structures, as well as the subdivision of the project site into 77 single-family residential lots, Parcel A, and Parcel B. The project would also include the development of a retention basin and tot lot/picnic area in the northwest corner of the project site, and the off-site, northerly extension of water and sewer lines. The project would require approval of a Rezone to amend an existing P-1 District (RZ 01-22), a Final Development Plan (FDP 01-22), a Vesting Tentative Map (VTM) (TM 01-22), as well as a Design Review (DR 01-22).

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 [PRC] Section 21080.3.1), a project notification letter was distributed to the chairpersons of the following tribes on June 21, 2022: Amah Mutsun Tribal Band of Mission San Juan Bautista, Chicken Ranch Rancheria of Me-Wuk Indians, Guidiville Indian Rancheria, Indian Canyon Mutsun Band of Costanoan, Muwekma Ohlone Indian Tribe of the SF Bay Area, Nashville Enterprise Miwok-Maidu-Nishinam Tribe, North Valley Yokuts Tribe, Tule River Indian Tribe, The Ohlone Indian Tribe, Wilton Rancheria, and The Confederated Villages of Lisjan. The Confederated Villages of Lisjan responded with a request for additional information, and the Northern Valley Yokuts Tribe responded with a request to observe and participate in cultural resource studies. The Indian Canyon Mutsun Band of Costanoan Ohlone People responded with a request to consult on the project, and consultation is ongoing.

B. SOURCES

All technical reports and modeling results prepared for the project analysis are available at: https://www.ci.oakley.ca.us/ceqa-documents/. The following documents are referenced information sources used for the purposes of this Initial Study/Mitigated Negative Declaration (IS/MND):

1. Antioch Unified School District. *Facilities Master Plan*. July 2018.
2. Association of Bay Area Governments. *Hazard Viewer.* Available at: https://abag.ca.gov/our-work/resilience/data-research/hazard-viewer/. Accessed May 2022.
3. ASTM International. *ASTM E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.* 2013.
4. Bay Area Air Quality Management District. *Air Quality Summary Reports*. Available at: http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Accessed August 2022.
5. Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines*. May 2017.
6. Bay Area Air Quality Management District. *CEQA Thresholds and Guidelines Update.* Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed August 2022.
7. Bay Area Air Quality Management District. *CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans*. April 2022.
8. California Air Resources Board. *The 2017 Climate Change Scoping Plan Update.* January 20, 2017.
9. California Building Standards Commission. *California Green Building Standards Code.* 2019.
10. California Department of Conservation. *California Important Farmland Finder.* Available at: https://maps.conservation.ca.gov/dlrp/ciff/. Accessed May 2022.

11. California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.
12. California Department of Resources Recycling and Recovery (CalRecycle). *Facility/Site Summary: Potrero Hill Landfill (48-AA-0075)*. Available at: https://www2.calrecycle.ca.gov/SolidWaste/Site/Summary/3591. Accessed May 2022.
13. California Department of Transportation. *California State Scenic Highway System Map.* Available at: https://www.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa. Accessed May 2022.
14. California Energy Commission. *Title 24 2019 Building Energy Efficiency Standards FAQ.* November 2018.
15. California Geologic Survey. *Seismic Hazard Zone Report for the Brentwood 7.5-Minute Quadrangle, Contra Costa County, California.* 2018.
16. City of Oakley. *City of Oakley 2020 General Plan Draft Environmental Impact Report*. September 2002.
17. City of Oakley. *City of Oakley General Plan*. Adopted January 11, 2022.
18. City of Oakley. *Mobility White Paper, City of Oakley Focused General Plan Update.* December 2021.
19. City of Oakley. *Strategic Energy Plan*. Fall 2015.
20. CityGate Associates. *Deployment Performance and Headquarters Staffing Adequacy Study, East Contra Costa Fire Protection District, California, Volume 1 Executive Summary*. June 15, 2016.
21. Contra Costa Conservation and Development. *2016 Agricultural Preserves Map.* Available at: https://www.contracosta.ca.gov/DocumentCenter/View/882/Map-of-Properties-Under-Contract. Accessed May 2022.
22. Contra Costa County Fire Protection District. *2018 Annual Report*. Available at: https://cccfpd.org/2018-annual-report/. Accessed September 2022.
23. Department of Toxic Substances Control. *Hazardous Waste and Substances Site List*. Available at: https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,FUDS&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29. Accessed May 2022.
24. Diablo Water District. *2020 Facilities Plan*. June 2020.
25. Diablo Water District. *2020 Urban Water Management Plan.* May 2022.
26. East Contra Costa County Habitat Conservation Plan Association. *Final East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan.* October 2006.
27. Federal Emergency Management Agency. *Flood Insurance Rate Map 06013C0355G.* Effective May 18, 2022.
28. H.T. Harvey & Associates. *East Contra Costa County Habitat Conservation Plan – Assessment of Plan Effects on CEQA Species.* February 17, 2015.
29. Ironhouse Sanitary District. *Sewer System Management Plan*. April 2017.
30. Kenneth W. Strelo, Planning Manager, City of Oakley. Personal communication [email] with Rod Stinson, Vice President, Raney Planning and Management. September 6, 2022.
31. MLC Holdings, Inc. *DeJesus Property Preliminary Stormwater Control Plan.* December 2021.
32. Moore Biological Consultants*. Application Form and Planning Survey Report.* May 2022.
33. Solano Archaeological Services, LLC. *Cultural Resources Study – Sellers Avenue Development Project, City of Oakley, Contra Costa County, California.* December 14, 2021.

34. State Water Resources Control Board. *GeoTracker.* Available at: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=oakley+california. Accessed May 2022.
35. TJKM. *Sellers Avenue Residential Development Traffic Impact Analysis.* August 1, 2022.
36. U.S. Census Bureau. *Quick Facts, City of Oakley, California.* Available at: https://www.census.gov/quickfacts/fact/table/oakleycitycalifornia/POP010220#POP010220. Accessed August 2022.
37. U.S. Fish and Wildlife Service. *National Wetlands Inventory.* Available at: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/. Accessed August 2022.

C. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Less Than Significant with Mitigation Incorporated" or 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**
☐ **Utilities and Service Systems**	☐ **Wildfire**	✕ **Mandatory Findings of Significance**

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.

______________________	November 3, 2022
Signature	Date
Ken Strelo, Planning Manager	City of Oakley
Printed Name	For

E. BACKGROUND AND INTRODUCTION

This IS/MND 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/MND 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 [CCR], 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.

In January 2022, the City of Oakley adopted the Focused General Plan Update and the Focused General Plan Update Initial Study/Negative Declaration (IS/ND). The Focused General Plan Update IS/ND analyzed implementation of the Focused General Plan Update. The Focused General Plan Update amended the City's existing General Plan to bring it into compliance with State requirements related to environmental justice, mobility, and climate change and adaptation. The Focused General Plan Update also updated the setting information, and provided minor revisions to the goals, policies, and programs in the following elements: Land Use, Growth Management, Open Space and Conservation, Parks and Recreation, Noise, and Economic Development. All updates were applied to be consistent with current conditions, to remove policies and programs that have already been implemented or are no longer applicable, to update policies and programs to reflect current City practices, and to clarify the City's approach to achieving the vision and goals of the General Plan.

Pursuant to CEQA Guidelines Section 15150(a), the City of Oakley General Plan, Focused General Plan Update, General Plan EIR, and Focused General Plan Update IS/ND are incorporated by reference. The aforementioned documents are available online at:

- https://www.ci.oakley.ca.us/departments/planning-zoning/reference-documents/
- https://www.ci.oakley.ca.us/general-plan-update/

The impact discussions for each section of this IS/MND have been largely based on information in the Oakley General Plan, Focused General Plan Update, Oakley General Plan EIR, and Focused General Plan Update IS/ND, as well as technical studies prepared for the proposed project.

The mitigation measures prescribed for environmental effects described in this IS/MND would be implemented in conjunction with the project, as required by CEQA, and the mitigation measures would be incorporated into the project. In addition, a project Mitigation Monitoring and Reporting Program (MMRP) would be adopted in conjunction with approval of the project.

F. PROJECT DESCRIPTION

The following section provides a comprehensive description of the proposed project in accordance with CEQA Guidelines, including the project location and setting, and project components.

Project Location and Setting

The project site, further identified by APN 033-150-013-2, is located at 5911 Sellers Avenue in the City of Oakley, California (see Figure 1). The site consists of approximately 20.42 acres of predominantly undeveloped ruderal grassland. One farmhouse structure, two ancillary buildings, fencing, are found in the northern portion of the site, and seven trees exist on-site. The topography of the site is relatively flat.

Surrounding existing land uses include scattered rural residences with small-scale agricultural uses to the north, south, and east of the project site (see Figure 2). The BNSF railroad tracks serve as the western border of the project site. Single-family residences are located further west, beyond the BNSF railroad tracks. The project site is located approximately 3.52 miles east of State Route (SR) 4 and approximately 4.08 miles southeast of SR 160. The City of Oakley General Plan designates the project site RL and the site is zoned P-1.

Project Components

The proposed project would include the demolition of the on-site structures, removal of seven on-site trees, and subdivision of the project site into 77 residential lots, an open space lot, and one lot dedicated for internal roadways. The project would also include the development of a retention basin and tot lot/picnic area in the northwest corner of the project site, and the off-site northerly extension of water and sewer lines within Sellers Avenue. The proposed project would require approval of a Rezone to amend the existing P-1 District, Final Development Plan (FDP 01-22), a VTM (TM 01-22), and Design Review (DR 01-22). The following sections describe the foregoing project components.

Rezone/Final Development Plan

The proposed project would include a Rezone to amend the existing P-1 District and a Final Development Plan. The Rezone would allow lots under 6,000 square feet (sf). Preparation of a Final Development Plan is required for developments in the P-1 District pursuant to Municipal Code Section 9.1.1002.h.3.

Vesting Tentative Map

The VTM would divide the project site into 77 single-family residential lots, Parcel A, and Parcel B (see Figure 3). The single-family lots would range in size from 5,400 sf to 10,237 sf. Parcel A would consist of the internal private circulation network, which would provide access to each lot. Parcel B, located in the western portion of the project site, would contain a tot-lot/picnic area, an open space area, and a retention basin. Sound walls would be installed along the eastern and western site boundaries.

Below is additional detail regarding the site access and circulation, landscaping, and utility infrastructure.

Figure 1
Regional Project Location

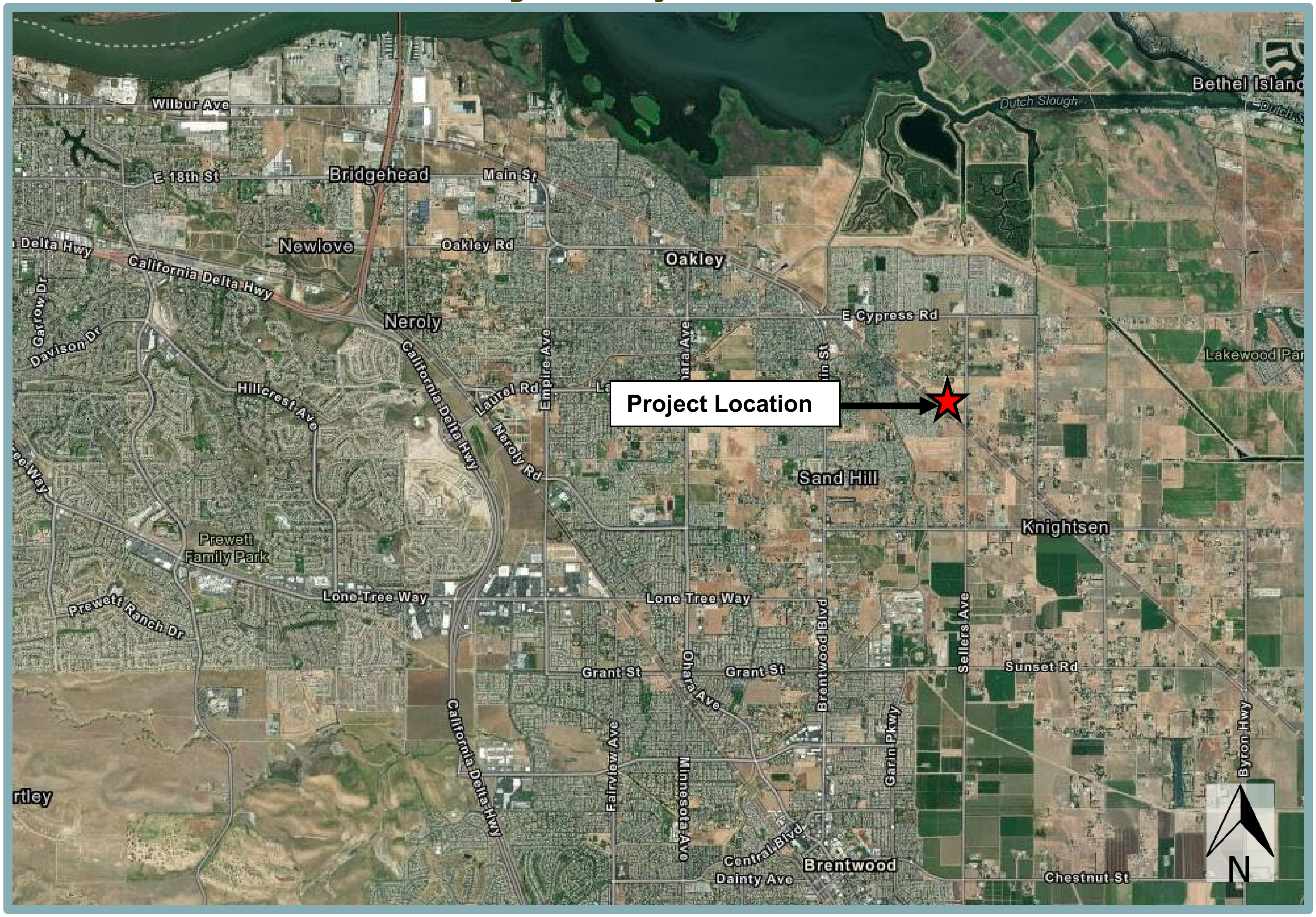


Figure 2
Project Site Boundaries

Figure 3
Vesting Tentative Map

Site Access and Circulation

Primary vehicular access to the site would be provided by a new roadway off of Sellers Avenue. An internal private roadway system would be constructed in Parcel A of the project site to provide access to each unit. The internal circulation system would generally provide 36 feet of travel lane and five-foot-wide sidewalks on each side.

Landscaping

All existing on-site trees would be removed to accommodate the proposed project. Landscaping improvements would be provided throughout the project site and along residential frontages (see Figure 4). A variety of trees, shrubs, and drought-tolerant landscaping would be provided along internal roadways including, but not limited to, *Lagestroemia Indica x Fauriei 'Natchez'* (Natches Crape Myrtle), *Lagestroemia Indica x Fauriei 'Zuni' (*Zuni Crape Myrtle), and *Laurus x 'Saratoga'* (Saratoga Hybrid Laurel), and *Pistacia Chinensis Red Push'* (Red Push Chinese Pistache). *Dodonae Viscosa 'Purpurea' STD* (Purple Hopseed Bush) trees would align the main access point into the project site. All landscaping would comply with the State's Model Water Efficient Landscape Ordinance (MWELO).

The tot-lot/picnic area, located on Parcel B, would consist of recreational turf, paved concrete walkways, picnic tables and a seating bench, trash receptacles, and play equipment for children ages five to 12.

Utilities

A preliminary utility plan has been prepared for the proposed project and is included as Figure 5. Water service for the proposed project would be provided by the Diablo Water District (DWD). The proposed project would include construction of new eight-inch water lines throughout the project site and 1,880 linear feet (LF) of a northerly 24-inch water line in Sellers Avenue. The water system would connect to the existing 24-inch water main in E. Cypress Road.

Sanitary sewer service for the proposed project would be provided by the Ironhouse Sanitary District (ISD). The proposed project would include construction of new eight-inch sanitary sewer lines throughout the project site and 2,600 LF of a northerly eight-inch sewer line in Sellers Avenue. The new sewer network would connect to the existing sanitary sewer main in E. Cypress Road.

The off-site extension of the water and sewer lines in Sellers Avenue would occur entirely within the existing right-of-way (ROW).

A Preliminary Stormwater Control Plan has been prepared for the proposed project (see Figure 6). Stormwater from the impervious areas within the site would be collected in new storm drain inlets/catch basins and directed through storm drain lines towards the retention basin located in the westernmost corner of the site. The retention basin would be landscaped with compost and sandy loam pursuant to *Bioretention Soil Media Specification* in the *Stormwater C.3 Guidebook* in order to effectively treat stormwater. The retention basin and roadway networks would be designed according to the criteria in the Contra Costa County Clean Water Program *Stormwater C.3 Guidebook* to treat stormwater on the project site.

Figure 4
Landscape Plan

BOTANICAL NAME	COMMON NAME	MIN. SIZE	WUCOLS
CERCIS OCCIDENTALIS	WESTERN REDBUD	15 GAL	V. LOW
DODONAEA VISCOSA `PURPUREA` STD.	PURPLE HOPSEED BUSH	15 GAL	LOW
LAGERSTROEMIA INDICA X FAURIEI `NATCHEZ`	NATCHEZ CRAPE MYRTLE	24"BOX	LOW
LAGERSTROEMIA INDICA X FAURIEI `ZUNI`	ZUNI CRAPE MYRTLE	15 GAL	LOW
LAURUS X `SARATOGA`	SARATOGA HYBRID LAUREL	24"BOX	LOW
LOPHOSTEMON CONFERTUS	BRISBANE BOX	24"BOX	MOD
PISTACIA CHINENSIS `RED PUSH`	RED PUSH CHINESE PISTACHE	24"BOX	LOW
PLATANUS X ACERIFOLIA `COLUMBIA`	LONDON PLANE TREE	24"BOX	MOD
PRUNUS CERASIFERA `KRAUTER VESUVIUS`	PURPLE LEAF PLUM	15 GAL	MOD
QUERCUS AGRIFOLIA	COAST LIVE OAK	24"BOX	V. LOW
RHAPHIOLEPIS INDICA `MAGNIFICENT`	MAGNIFICENT INDIAN HAWTHORN	15 GAL	MOD

* WATER NEEDS BASED ON THE WATER USE CLASSIFICATION OF LANDSCAPE SPECIES (WUCOLS) BY THE UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION.

Figure 5
Preliminary Utility Plan

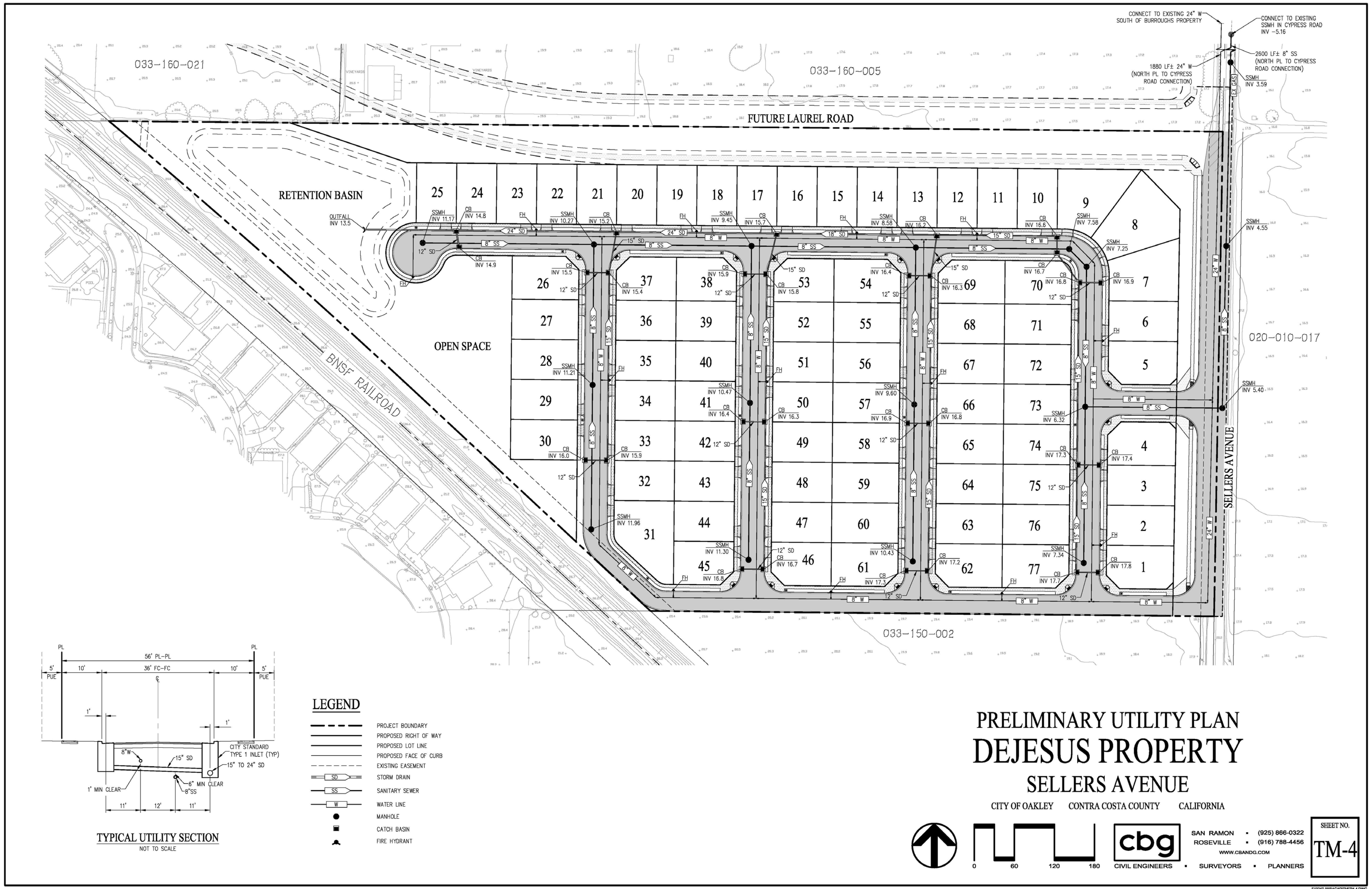
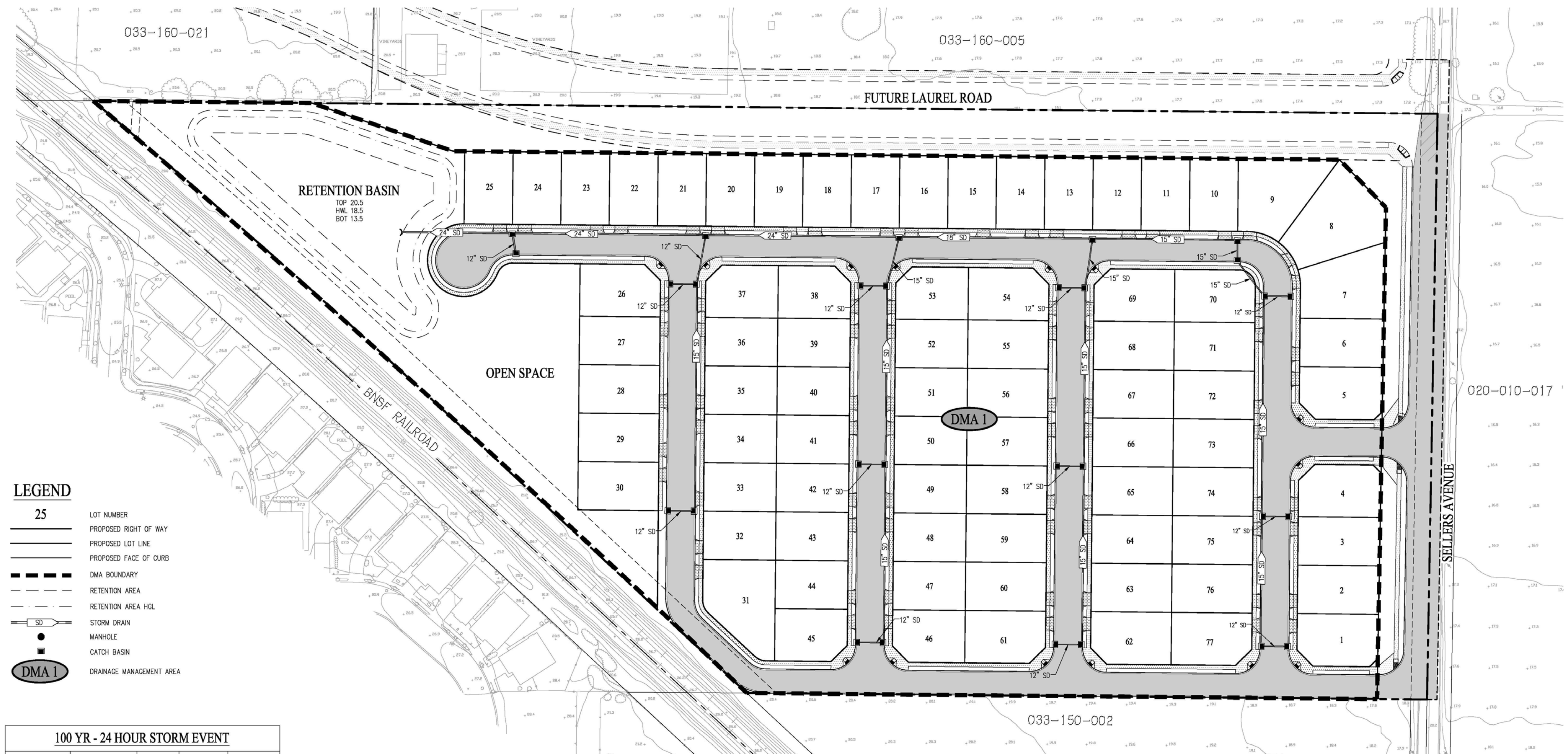


Figure 6
Preliminary Stormwater Control Plan



100 YR - 24 HOUR STORM EVENT

AREA (AC)	RUNOFF COEFFICIENT (C)	RAINFALL DEPTH (IN)	REQUIRED VOLUME (AC-FT)	PROVIDED VOLUME (AC-FT)
18.72*	0.6	4.05	3.79	3.90

*EXCLUDES LAUREL RIGHT OF WAY.

C.3 CALCULATIONS

DRAINAGE MANAGEMENT AREA (DMA)	IMPERVIOUS AREA			TOTAL PERVIOUS (SF)	TOTAL DRAINAGE AREA (SF)	REQUIRED TREATMENT VOLUME (CuFt)	PROVIDED TREATMENT VOLUME (CuFt)	TREATMENT TYPE
	PAVEMENT (SF)	ROOF (SF)	TOTAL (SF)					
DMA #1	179,545	189,645	369,190	418,262	787,452	47,112	47,112	INFILTRATION BASIN

NOTE: SIZED USING IMP CALCULATOR.

PRELIMINARY STORMWATER MANAGEMENT PLAN
DEJESUS PROPERTY
SELLERS AVENUE
CITY OF OAKLEY CONTRA COSTA COUNTY CALIFORNIA

0 60 120 180

cbg
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SHEET NO.
TM-5

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Design Review

Per Section 9.1.1604 of the City's Municipal Code, the proposed project would be subject to Design Review by the City. Specifically, the site plan would be analyzed based on elements of design, development location, arrangement of all structures, and design in harmony with surrounding facilities. The purpose of the regulations is to allow design review of all developments, signs, buildings, structures, and other facilities in order to further enhance the City's appearance, and the livability and usefulness of properties.

Discretionary Actions

The proposed project would require the following approvals from the City of Oakley:

- Adoption of the Initial Study/Mitigated Negative Declaration (IS/MND);
- Adoption of the Mitigation Monitoring and Reporting Program (MMRP);
- Approval of a Rezone (RZ) amending the P-1 (Planned Unit Development) District;
- Approval of a Final Development Plan (FDP);
- Approval of a Vesting Tentative Map (VTM); and
- Approval of Design Review (DR).

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 identified in the checklist. For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which no mitigation has 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.

I. AESTHETICS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 nighttime views in the area?	☐	☐	✖	☐

Discussion

a. Examples of typical scenic vistas include mountain ranges, ridgelines, or bodies of water as viewed from a highway, public space, or other area designated for the express purpose of viewing and sightseeing. In general, a project's impact to a scenic resource would occur if development of the project would substantially change or remove a scenic resource. A scenic resource includes any such areas designated by a federal, State, or local agency. The City's predominantly flat landscape is rich in scenic resources. Oakley's scenic resources include the waterways of the Delta, Dutch Slough, Marsh Creek, and Contra Costa Canal, habitat areas, and open space land. Other scenic resources include the view of Mount Diablo west of the City.[1] Views of the Delta, Dutch Slough, Marsh Creek, and the Contra Costa Canal, are not available from the project site.

Mount Diablo can be viewed above the roofline towards the southwest horizon by motorists travelling along Sellers Avenue. However, public views of Mount Diablo would not be obstructed by development of the proposed project given the proposed building heights in comparison to the scale of Mount Diablo.

Furthermore, because the proposed project would be consistent with the General Plan land use designation for the site, potential impacts to scenic vistas and visual character associated with future development of the project site were already evaluated and considered in the General Plan EIR, which concluded that the General Plan's goals, policies, and programs would reduce any potential impacts on the aesthetic qualities to a less-than-significant level.[2]

Based on the above, a ***less-than-significant*** impact would occur related to the project having a substantial adverse effect on a scenic vista.

b. According to the California Scenic Highway Mapping System, portions of SR 580 and 680 are listed as Officially Designated as State Scenic Highways while SR 4 and SR 160 are

1 City of Oakley. *City of Oakley General Plan* [pg. 6-24]. Adopted January 11, 2022.
2 City of Oakley. *City of Oakley 2020 General Plan Draft Environmental Impact Report* [pg. 3-24]. September 2002.

listed as Eligible designations.[3] The project site is located approximately 17.80 miles north of SR 580 and 19.64 miles east of SR 680. Views of the project site from either highway are not available due to the substantial distance and intervening urban development. Development of the proposed project would, therefore, not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway. Thus, a ***less-than-significant*** impact would occur.

c. The project site is located within a developed area of the City. Therefore, the applicable CEQA consideration is whether the project would conflict with applicable zoning and other regulations related to scenic quality.

The City of Oakley General Plan designates the project site as RL and the site is zoned P-1. The purpose of the P-1 District is to allow diversification in the relationship of various uses, buildings, structures, lot sizes, and open spaces. The proposed project includes a Final Development Plan of the P-1 District for the project site, which would include development standards. Furthermore, it is noted that the proposed residential development is generally consistent with the residential development type allowed in the surrounding RL designated sites.

Implementation of the proposed project would also require Design Review, which is a City regulation related to scenic quality. Design Review would ensure that the aesthetic and architectural design of the development would be compatible with surrounding development. The proposed project would include landscaping features at the project site frontage and within the project site that would be similar to existing features in the development west of the site, and proposed residences would be designed in keeping with the surrounding residential land uses.

Based on the above, the proposed project would not conflict with applicable zoning and other regulations governing scenic qualities, and a ***less-than-significant*** impact would occur.

d. Substantial sources of light do not currently exist on the project site, as the site is mostly undeveloped except for the farmhouse and associated structures. However, off-site light sources may include streetlights and traffic along Sellers Avenue, the BNSF railroad, scattered rural housing to the north, south and east, as well as more intensive light sources from the residential developments to the west. Development of the project site with 77 single-family residences and the internal road system would add new sources of light and glare to the site where few currently exist. The proposed project is anticipated to include streetlights along internal roadways and the project frontage, as well as interior lights from windows of the proposed residences. Anticipated light sources are expected to be similar to that of the residential developments to the west.

Pursuant to Section 9.1.1604 of the City's Municipal Code, the project would be required to undergo a Design Review to ensure that development of the project would be in compliance with the Residential Design Guidelines, which, among other things, establishes the City's standard for residential streetlights and limits residential lighting for security purposes. In addition, because the proposed project would be consistent with the General Plan land use designation for the site, the impacts of new sources of light or glare

[3] California Department of Transportation. *California State Scenic Highway System Map*. Available at: https://www.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa. Accessed May 2022.

associated with future development of the project site were already evaluated and considered in the General Plan EIR and Update IS/ND analysis. Therefore, any creation of new sources of light and glare by the proposed project would be considered a ***less-than-significant*** impact.

II. AGRICULTURE AND FOREST RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring 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 result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	✖	☐

Discussion

a,e. Pursuant to the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program, the project site is designated as "Farmland of Local Importance."[4] The DOC defines Farmland of Local Importance as "land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee." The site does not contain Unique Farmland or Farmland of Statewide Importance. In addition, the project site is designated RL, zoned P-1, and does not include forested land. Overall, development of the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use or result in the loss of forest land to non-forest use. Thus, a ***less-than-significant*** impact would occur as a result of the proposed project.

b. The project site is zoned P-1, which does not permit agricultural land uses. In addition, the site is not under an active Williamson Act contract.[5] Therefore, the proposed project would not conflict with existing zoning for agricultural use or conflict with a Williamson Act contract, and ***no impact*** would occur.

c,d. The project site is not zoned forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g]). Therefore, the proposed project would have ***no***

4 California Department of Conservation. *California Important Farmland Finder.* Available at: https://maps.conservation.ca.gov/dlrp/ciff/. Accessed May 2022.

5 Contra Costa Conservation and Development. *2016 Agricultural Preserves Map.* Available at: https://www.contracosta.ca.gov/DocumentCenter/View/882/Map-of-Properties-Under-Contract. Accessed May 2022.

impact with regard to conversion of forest land or any potential conflict with forest land, timberland, or Timberland Production zoning.

III. AIR QUALITY. *Would the project:*	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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?	☐	☐	✖	☐

Discussion

a,b. 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 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.

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).

The most recent federal ozone plan is the 2001 Ozone Attainment Plan, which was adopted on October 24, 2001 and approved by the California Air Resources Board (CARB) on November 1, 2001. The plan was submitted to the USEPA on November 30, 2001 for review and approval. The most recent State ozone plan is the 2017 Clean Air Plan, adopted on April 19, 2017. The 2017 Clean Air Plan was developed as a multi-pollutant plan that provides an integrated control strategy to reduce ozone, PM, toxic air contaminants (TACs), and greenhouse gases (GHGs). Although a plan for achieving the State PM_{10} standard is not required, the BAAQMD has prioritized measures to reduce PM in developing the control strategy for the 2017 Clean Air Plan. The control strategy serves as the backbone of the BAAQMD's current PM control program.

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 AAQS within the SFBAAB. Adopted BAAQMD rules and regulations, as well as the thresholds of significance, have been developed with the intent to ensure continued attainment of AAQS, or to work towards attainment of AAQS for which the area is currently designated nonattainment, consistent with applicable air quality plans. The BAAQMD's established significance thresholds associated with development projects for emissions of the ozone precursors reactive organic gases (ROG) and oxides of nitrogen (NO_X), as well as for PM_{10} and $PM_{2.5}$, expressed in pounds per day (lbs/day) and tons per year (tons/yr), are listed in Table 1. By exceeding the BAAQMD's mass emission thresholds for ROG, NO_X, PM_{10}, or $PM_{2.5}$, a project would be considered to conflict with or obstruct implementation of the BAAQMD's air quality planning efforts.

Table 1
BAAQMD Thresholds of Significance

	Construction	Operational	
Pollutant	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tons/yr)
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.

Emissions of particulate matter can be split into two categories: fugitive emissions and exhaust emissions. The BAAQMD thresholds of significance for exhaust are presented in Table 1. It should be noted that BAAQMD does not maintain quantitative thresholds for fugitive emissions of PM_{10} or $PM_{2.5}$, rather, BAAQMD requires all projects within the district's jurisdiction to implement Basic Construction Mitigation Measures (BCMMs) related to dust suppression.

The proposed project's construction and operational emissions were quantified using the California Emissions Estimator Model (CalEEMod) software version 2022.1 - a Statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The model applies inherent default values for various land uses, including construction data, vehicle mix, trip length, average speed, etc. Where project-specific information is available, such information is applied in the model. The proposed project's modeling assumed the following:

- Construction would begin in January 2023 and occur over approximately 2.5 years;[6]
- Demolition would involve the removal of approximately 8,000 sf of building material;
- The off-site infrastructure improvements would involve 0.5-mile of ground disturbance;
- Operational trip generation rates were updated to 9.43 vehicle trips per unit, consistent with the project-specific Traffic Impact Analysis prepared by TJKM;
- Wood-burning fireplaces would not be included; and

6 It is noted that actual construction of the proposed project would likely commence later than January 2023. However, given the ongoing trend of increasingly stringent requirements for heavy-duty equipment engines, this assumption is considered conservative, and actual construction-related emissions would likely be less than those presented herein.

- The project would comply with all applicable provisions of the 2019 California Building Standards Code (CBSC), the 2019 CALGreen Code, and the MWELO.

The proposed project's estimated emissions associated with construction and operations are presented and discussed in further detail below. A discussion of the proposed project's contribution to cumulative air quality conditions is provided below as well. All CalEEMod modeling results are included as Appendix A to this IS/MND.

Construction Emissions

According to the CalEEMod modeling results, buildout of the proposed project would result in maximum unmitigated construction criteria air pollutant emissions as shown in Table 2. As shown in the table, the proposed project's construction emissions would be below the applicable thresholds of significance for ROG, NO_X, PM_{10}, and $PM_{2.5}$.

Table 2
Maximum Unmitigated Construction Emissions (lbs/day)

Pollutant	Construction Emissions	Threshold of Significance	Exceeds Threshold?
ROG	5.07	54	**NO**
NO_X	44.5	54	**NO**
PM_{10}*	1.96	82	**NO**
$PM_{2.5}$*	1.80	54	**NO**

Notes:
* Denotes emissions from exhaust only. BAAQMD does not have adopted PM thresholds for fugitive emissions.

Sources: CalEEMod, September 2022 (see Appendix A).

All projects within the jurisdiction of the BAAQMD are required to implement all of the BAAQMD's BCMMs, which would be required by the City as conditions of approval:

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 miles per hour (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 five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of 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.

The proposed project's required implementation of the BAAQMD's BCMMs listed above for the project's construction activities, would help to further minimize construction-related emissions.

Overall, because the proposed project would be below the applicable thresholds of significance for construction emissions, project construction would not result in a significant air quality impact.

Operational Emissions

According to the CalEEMod results, buildout of the proposed project would result in maximum unmitigated operational criteria air pollutant emissions as shown in Table 3. As shown in the table, operations of the proposed project would be below the applicable thresholds of significance. Thus, operations of the project would not be considered to conflict with air quality plans during project operations.

Table 3
Maximum Unmitigated Operational Emissions

Pollutant	Proposed Project Emissions		Threshold of Significance		Exceeds Threshold?
	lbs/day	tons/yr	lbs/day	tons/yr	
ROG	7.26	1.25	54	10	**NO**
NO_X	4.13	0.68	54	10	**NO**
PM_{10}*	0.14	0.02	82	15	**NO**
$PM_{2.5}$ *	0.14	0.02	54	10	**NO**

Note:
* Denotes emissions from exhaust only. BAAQMD does not have adopted PM thresholds for fugitive emissions.

Source: CalEEMod, September 2022 (see Appendix A).

Cumulative Emissions

Past, present and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By nature, air pollution is largely a cumulative impact. A single project is not sufficient in size to, by itself, result in nonattainment of AAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. The thresholds of significance presented in Table 1 represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. If a project exceeds the significance thresholds presented in Table 1, the proposed project's emissions would be cumulatively considerable, resulting in significant adverse cumulative air quality impacts to the region's existing air quality conditions.

Because the proposed project would result in both construction-related and operational emissions below the applicable thresholds of significance, construction and operations of the project would not be expected to result in a cumulatively considerable contribution to the region's existing air quality conditions.

Conclusion

As stated previously, the applicable regional air quality plans include the 2001 Ozone Attainment Plan and the 2017 Clean Air Plan. According to BAAQMD, 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. Because construction and operations of the proposed project would result in emissions below the applicable thresholds of significance, the project would not be considered to conflict with or obstruct implementation of regional air quality plans. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality plans, violate any air quality standards or contribute substantially to an existing or projected air quality violation, or result in a cumulatively considerable net increase in any criteria air pollutant, and impacts would be considered ***less than significant***.

c. Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Sensitive receptors are typically defined as facilities where sensitive receptor population groups (i.e., children, the elderly, the acutely ill, and the chronically ill) are likely to be located. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. The nearest sensitive receptors to the project site include the single-family residences located to the west, across the railroad tracks, and the scattered residences to the north, east, and south of the project site boundary. The closest residential unit to the project site is located approximately 55 feet south of the site boundary. The closest receptor to where the off-site infrastructure improvements would occur is located approximately 30 feet to the west.

The major pollutant concentrations of concern are localized carbon monoxide (CO) emissions, TAC, and criteria pollutants, 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. High levels of localized CO concentrations are only expected where background levels are high, and traffic volumes and congestion levels are high. Emissions of CO are of potential concern, as the pollutant is a toxic gas that results from the incomplete combustion of carbon-containing fuels such as gasoline or wood.

To provide a conservative indication of whether a project would result in localized CO emissions that would exceed the applicable threshold of significance, BAAQMD has established screening criteria for localized CO emissions. According to BAAQMD, a proposed project would result in a less-than-significant impact related to localized CO emission concentrations if all of the following conditions are true for the project:

- 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.).

While BAAQMD has established the foregoing screening criteria for potential impacts, it should be noted that the SFBAAB has been in attainment of California AAQS (CAAQS) and National AAQS (NAAQS) for CO for more than 20 years.[7] Due to the continued attainment of CAAQS and NAAQS, and advances in vehicle emissions technologies, the likelihood that any single project would create a CO hotspot is minimal. With regard to the proposed project, according to the Traffic Impact Analysis prepared by TJKM, the proposed project is expected to generate approximately 802 daily vehicle trips, 60 of which would be during the AM peak hour, and 80 during the PM peak hour.[8] The addition of 140 total peak hour trips per day generated by the proposed project is not anticipated to increase traffic volumes at any nearby intersections to more than 44,000 vehicles per hour. Furthermore, areas where vertical and/or horizontal mixing is limited due to tunnels, underpass, or similar features do not exist in the project area. Therefore, based on the BAAQMD's screening criteria for localized CO emissions, the proposed project would not be expected to result in substantial levels of localized CO at surrounding intersections or generate localized concentrations of CO that would exceed standards or cause health hazards.

TAC Emissions

Another category of environmental concern is TACs. Health risks associated with TACs are a function of both the concentration of emissions and the duration of exposure, where the higher the concentration and/or the longer the period of time that a sensitive receptor is exposed to pollutant concentrations would correlate to a higher health risk. The CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook) provides recommended setback distances for sensitive land uses from major sources of TACs, including, but not limited to, freeways and high traffic roads, distribution centers, and rail yards. The CARB has identified diesel particulate matter (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.

The proposed project does not include any operations that would be considered a substantial source of TACs. Accordingly, operations of the proposed project would not expose sensitive receptors to excess concentrations of TACs.

Short-term, construction-related activities could result in the generation of TACs, specifically DPM, from on-road haul trucks and off-road equipment exhaust emissions. However, as discussed above, construction is temporary and occurs over a relatively short duration in comparison to the operational lifetime of the proposed project. Health risks are typically associated with exposure to high concentrations of TACs over extended periods

7 Bay Area Air Quality Management District. *Air Quality Summary Reports*. Available at: http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Accessed August 2022.

8 TJKM. *Sellers Avenue Residential Development Traffic Impact Analysis.* August 1, 2022.

of time (e.g., 30 years or greater), whereas the construction period associated with the proposed project would likely be limited to approximately three years. All construction equipment and operation thereof would be regulated per the In-Use Off-Road Diesel Vehicle Regulation, which is intended to help reduce emissions associated with off-road diesel vehicles and equipment, including DPM. Project construction would also be required to comply with all applicable BAAQMD rules and regulations, particularly associated with permitting of air pollutant sources.

During construction, only portions of the project site would be disturbed at a time. Operation of construction equipment would occur on such portions of the site intermittently throughout the course of a day over the overall construction period. Because construction equipment on-site would not operate for any long periods of time and would be used at varying locations within the site, associated emissions of DPM would not occur at the same location (or be evenly spread throughout the entire project site) for long periods of time. Due to the temporary nature of construction and the relatively short duration of potential exposure to associated emissions, sensitive receptors in the area would not be exposed to pollutants for a permanent or substantially extended period of time. Furthermore, any one nearby sensitive receptor would be exposed to varying concentrations of DPM emissions throughout the construction period. According to BAAQMD, research conducted by CARB indicates that DPM is highly dispersive in the atmosphere. Thus, emissions at the project site would be substantially dispersed at the nearest sensitive receptors, and the concentration of DPM at the nearest sensitive receptors would be lower than the concentration of DPM at the source of emissions.

Considering the limited nature of construction activities, the regulated and intermittent nature of the operation of construction equipment, the highly dispersive nature of DPM, and the distance of the nearest sensitive receptor from the project site, the likelihood that any one sensitive receptor would be exposed to high concentrations of DPM for any extended period of time, during development the project, would be low. For the aforementioned reasons, project construction would not be expected to expose sensitive receptors to substantial pollutant concentrations.

Criteria Pollutants

The BAAQMD 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.[9] Although the BAAQMD's thresholds of significance are intended to aid achievement of the NAAQS and CAAQS for which the SFBAAB is in nonattainment, the thresholds of significance do not represent a level above which individual project-level emissions would directly result in public health impacts. Nevertheless, a project's compliance with BAAQMD's thresholds of significance provides an indication that criteria pollutants released as a result of project implementation would not inhibit attainment of the health-based regional NAAQS and CAAQS. Because project-related emissions would not exceed the BAAQMD's thresholds, and, thus, would not inhibit attainment of regional NAAQS and CAAQS, the criteria pollutants emitted during project implementation would not be anticipated to result in measurable health impacts to sensitive receptors. Accordingly, the proposed project would not expose sensitive receptors to excess concentrations of criteria pollutants.

Conclusion

[9] Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines*. May 2017.

Based on the above discussion, the proposed project would not expose any sensitive receptors to substantial concentrations of pollutants, including localized CO, TACs, or criteria pollutants, during construction or operation. Therefore, the proposed project would result in a ***less-than-significant*** impact related to the exposure of sensitive receptors to substantial pollutant concentrations.

d. Emissions of principal concern include emissions leading to odors, emission that have the potential to cause dust, or emissions considered to constitute air pollutants. Air pollutants have been discussed in questions 'a' through 'c' above. Therefore, the following discussion focuses on emissions of odors and dust.

Per the BAAQMD CEQA Guidelines, odors are generally regarded as an annoyance rather than a health hazard.[10] Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The presence of an odor impact is dependent on a number of variables including: the nature of the odor source; the frequency of odor generation; the intensity of odor; the distance of odor source to sensitive receptors; wind direction; and sensitivity of the receptor. Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative analysis to determine the presence of a significant odor impact is difficult. 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.

Construction activities often include diesel-fueled equipment and heavy-duty trucks, which could create odors associated with diesel fumes that may be considered objectionable. However, construction activities would be temporary, and hours of operation for construction equipment would be restricted to the hours of 7:30 AM to 7:00 PM on weekdays and 9:00 AM to 7:00 PM on weekends and holidays per Section 4.2.208 of the City of Oakley Municipal Code. Project construction would also be required to comply with all applicable BAAQMD rules and regulations, particularly associated with permitting of air pollutant sources. The aforementioned regulations would help to minimize emissions, including emissions leading to odors. Accordingly, substantial objectionable odors would not be expected to occur during construction activities.

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 not been received by the APCO for one year. The limits of Regulation 7 become applicable again when the APCO receives odor complaints from five or more complainants within a 90-day period. Thus, although not anticipated, if odor complaints are made after the proposed project is developed, the BAAQMD would ensure that such odors are addressed, and any potential odor effects are minimized or eliminated.

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[10] Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines* [pg. 7-1]. May 2017.

With respect to dust, as noted previously, all projects under the jurisdiction of BAAQMD are required to implement the BAAQMD's BCMMs. Such measures would act to reduce construction-related dust by ensuring that haul trucks with loose material are covered, reducing vehicle dirt track-out, and limiting vehicle speeds within project site, among other methods, which would ensure that construction of the proposed project does not result in substantial emissions of dust. Although the project would require soil hauling, all haul trucks would be covered to minimize emissions of fugitive dust during transport. Following project construction, vehicles operating within the project site would be limited to paved areas of the site, and non-paved areas would be landscaped. Thus, project operations would not include sources of dust that could adversely affect a substantial number of people.

For these reason, construction and operation of the proposed project would not result in emissions (such as those leading to odors) adversely affecting a substantial number of people, and a ***less-than-significant*** impact would occur.

IV. BIOLOGICAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 Wildlife 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 Wildlife or US Fish and Wildlife Service?	☐	☐	✖	☐
c. 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?	☐	☐	✖	☐
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

The following discussion based primarily on a Planning Survey Report (PSR), prepared by Moore Biological Consultants for the proposed project.[11] The PSR is included as Appendix B to this IS/MND. The PSR did not evaluate the off-site improvement area because all ground disturbance would occur within the existing ROW, where development has already occurred, and sensitive biological resources do not exist.

a,f. Currently, the project site consists of approximately 20.42 acres of predominately undeveloped ruderal grassland that was previously used for agriculture. One farmhouse structure and two ancillary buildings are located in the northern portion of the site. Seven trees are located on-site, six of which surround the on-site farmhouse structure and one in the northeastern corner of the site.

Special-status species include those plant and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal and State Endangered Species Acts. Both acts afford protection to listed and proposed species. In addition, California Department of Fish and Wildlife (CDFW) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, U.S. Fish and Wildlife Service (USFWS) Birds of

[11] Moore Biological Consultants. *Application Form and Planning Survey Report.* May 2022.

Conservation Concern, sensitive species included in USFWS Recovery Plans, and CDFW special-status invertebrates are all considered special-status species. Although CDFW Species of Special Concern generally do not have special legal status, they are given special consideration under CEQA. In addition to regulations for special-status species, most birds in the U.S., including non-status species, are protected by the Migratory Bird Treaty Act (MBTA) of 1918. Under the MBTA, destroying active nests, eggs, and young is illegal. Species that meet the definition of rare, threatened, or endangered under Section 15380 of the CEQA guidelines are also considered special-status species. In addition, plant species on California Native Plant Society (CNPS) categories 1A, 1B, 2B, 3, and 4 are considered special-status plant species and are protected under CEQA.

The project site is located within the boundaries of the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECCCHCP/NCCP), which is intended to provide an effective framework to protect natural resources in the County, including special-status species. Raney Planning and Management conducted a search of the California Natural Diversity Database (CNDDB) for the project site quadrangle, Brentwood. Based on the results of the CNDDB search, 10 special-status wildlife species and eight special-status plant species have the potential to occur within the vicinity of the project site (see Appendix C). Of the 18 special-status species that could occur within the vicinity of the project site, eight species (two special-status plant species and six special-status wildlife species) are covered under the ECCCHCP/NCCP and 10 species (six special-status plant species and four special-status wildlife species) are not covered under the ECCCHCP/NCCP.

In February 2015, the East Contra Costa County Habitat Conservancy prepared an ECCCHCP/NCCP Assessment of Plan Effects on CEQA Species.[12] The purpose of the assessment was to provide a programmatic, cumulative CEQA effects analysis for CEQA species not covered by the HCP/NCCP. The 2015 ECCCHCP/NCCP Assessment of Plan Effects on CEQA Species concluded that mitigation measures required in the ECCCHCP/NCCP also provide mitigation for non-covered species; therefore, projects consistent with the ECCCHCP/NCCP would have a less-than-significant impact on other potential special-status species. As a result, because the project area is covered by the ECCCHCP/NCCP, the 18 special-status species that were identified to have the potential to occur in the project area, as noted above, are not discussed further herein.

According to the 2015 ECCCHCP/NCCP Assessment of Plan Effects on CEQA Species, for all but two of the potential special-status species addressed (Lime Ridge navarretia [*Navarretia gowenii*] and the Lime Ridge eriastrum [*Eriastrum ertterae]*), impacts would be less than significant under CEQA. Because of uncertainty regarding the distribution of the Lime Ridge navarretia and the Lime Ridge eriastrum, the 2015 ECCCHCP/NCCP Assessment of Plan Effects on CEQA Species concluded that a potentially significant impact could occur related to the two aforementioned species. Based on the CNDDB search conducted by Raney Planning & Management, Inc., known occurrences of Lime Ridge navarretia or Lime Ridge eriastrum did not occur within the project site quadrangle. Therefore, implementation of the proposed project would not impact the species. Based on the conclusions of the 2015 ECCCHCP/NCCP Assessment of Plan Effects on CEQA Species and the absence of the Lime Ridge navarretia and Lime Ridge eriatrum in the vicinity of the project site, the proposed project would have a less-than-significant impact on any potential special-status wildlife species and potential special-status plant species

[12] H.T. Harvey & Associates. *East Contra Costa County Habitat Conservation Plan – Assessment of Plan Effects on CEQA Species.* February 17, 2015.

not covered by the ECCCHCP/NCCP that could occur within the vicinity of the project site because the proposed project would be required to comply with the ECCCHCP/NCCP.

In compliance with the ECCCHCP/NCCP, the PSR prepared for the proposed project by Moore Biological Consultants included all species covered under the ECCCHCP/NCCP. According to the PSR, approximately 19.78 acres of the site are categorized by the Grassland (Ruderal) land cover type, 0.64 acres of the site are considered Developed (Urban) (see Figure 7).

Based on the on-site land cover types, Moore Biological Consultants determined that covered plant species do not have the potential to occur on-site. As a result, special-status plants are not discussed further. However, based on the on-site land cover types, Moore Biological Consultants conducted planning-level surveys on the project site for western burrowing owl, Swainson's hawk, and golden eagle.

Special-Status Wildlife

The on-site ruderal grassland and on-site trees could provide potential habitat for western burrowing owl (*Athene cunnicularia*), Swainson's hawk (*Buteo swainsoni*), and golden eagle (*Aquila chrysaetos*). In addition, other avian species protected by the MBTA could use the existing grassland as foraging and potential nesting habitat.

Western Burrowing Owl

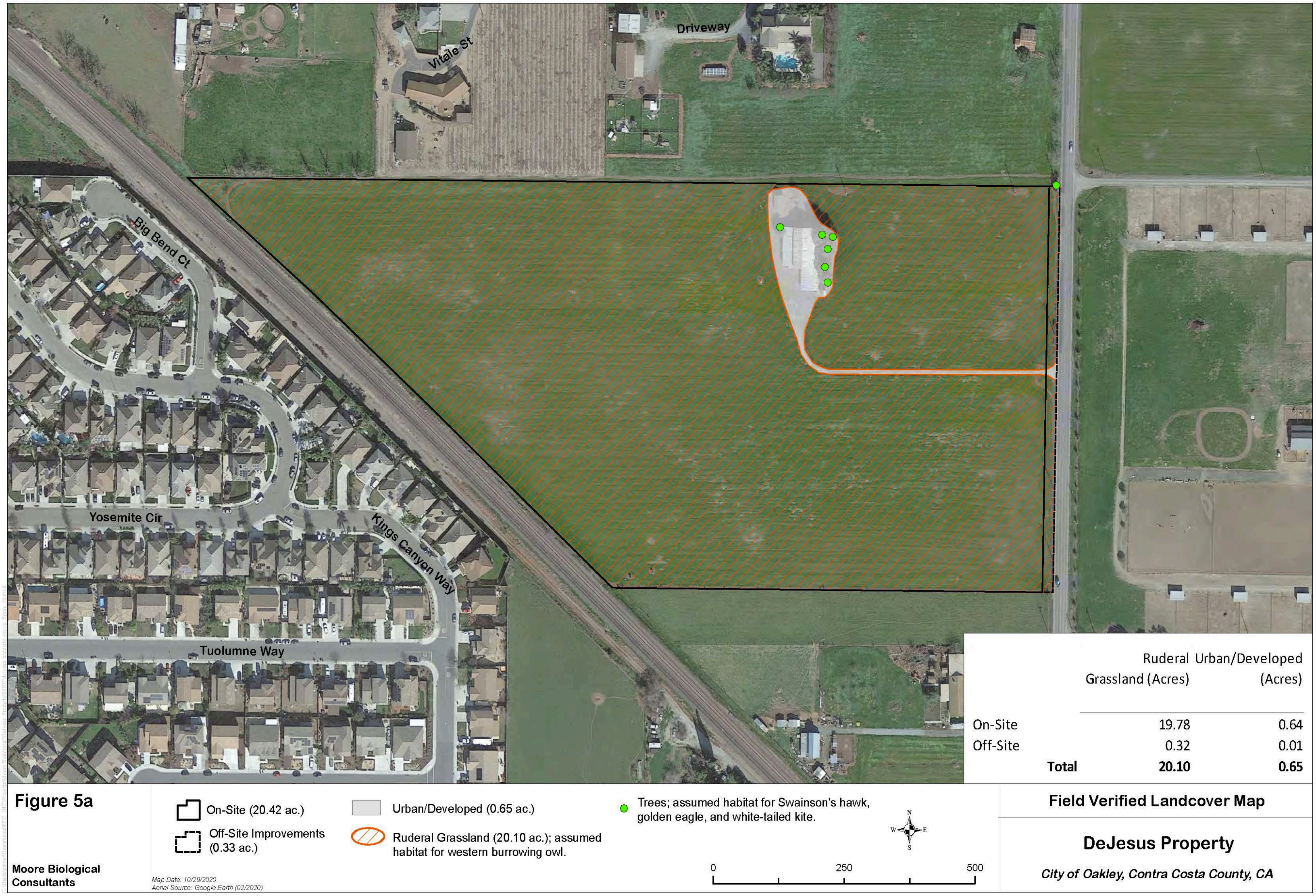
The primary habitat requirement for western burrowing owls is small mammal burrows that the species uses for nesting. Typically, the species uses abandoned ground squirrel burrows, but western burrowing owls have been known to dig burrows in softer soils. In urban areas, western burrowing owls may use pipes, culverts, and piles of material as artificial burrows. Western burrowing owls breed semi-colonially from March through August.

The project site contains ruderal grassland within the range of western burrowing owl habitat. However, the CNDDB search did not include records of the species within 500 feet of the project site. The nearest record of burrowing owl in the CNDDB search area is approximately 0.25-mile northwest of the project site. As part of the PSR, the site was inspected for burrowing owls and ground squirrel burrows with evidence of burrowing owl occupancy (i.e., white wash, pellets, feathers). Few ground squirrel burrows were observed during the survey. However, burrowing owls or burrows with evidence of burrowing owl occupancy were not observed during the survey. Nonetheless, because suitable habitat for western burrowing owl exists on the project site, pre-construction surveys for burrowing owls would be required by the ECCCHCP/NCCP to confirm presence or absence of the species. If burrowing owls are present on or near the project site, the proposed project could result in an adverse impact to the species.

Swainson's Hawk

Swainson's hawk is a summer resident and migrant in California's Central Valley and scattered portions of the southern California interior.

Figure 7
Land Cover Types



	Ruderal Grassland (Acres)	Urban/Developed (Acres)
On-Site	19.78	0.64
Off-Site	0.32	0.01
Total	**20.10**	**0.65**

Areas typically used for nesting include the edge of narrow bands of riparian vegetation, isolated patches of oak woodland, lone trees, planted and natural trees associated with roads, farmyards and sometimes adjacent residential areas. Foraging occurs in open habitats, including grasslands, open woodlands, and agricultural areas.

According to the PSR, the site contains areas of ruderal grassland and is along the western edge of the range of Swainson's hawk habitat. Seven trees, as well as several potential nest trees near and visible from the site, are identified as potentially suitable for nesting. As part of the PSR, trees within the project site and vicinity were inspected for raptor stick nests. Raptor stick nests were not observed in the on-site trees or in trees visible from the site. Swainson's hawks were not observed during the field survey, which was conducted outside of the nesting season for the species. The CNDDB search conducted as part of the PSR did not include any occurrences of Swainson's hawks within 1,000 feet of the project site. However, one occurrence was found within 0.5 miles of the project site. Nonetheless, pre-construction surveys for Swainson's hawk are required by the ECCCHCP/NCCP to confirm the presence or absence of the species. If the species were to occur on or near the project site, implementation of the proposed project could result in direct take or nest abandonment, which would be considered an adverse impact.

Golden Eagle

Golden eagles are fairly adaptable in habitat but often reside in areas with few shared ecological characteristics, such as mountains and cliffs. In addition, golden eagles tend to avoid developed areas. The project site contains ruderal grassland that is located within the range of the golden eagle.

As noted above, the seven on-site trees as well as trees within the project vicinity which are potentially suitable for nesting, were inspected for raptor stick nests, and raptor stick nests were not observed. In addition, golden eagles were not observed on-site, and the CNDDB search did not include any occurrences of golden eagles within a 0.5-mile radius of the project site. Furthermore, the species typically nests more often on cliffs in remote natural areas than in trees near urban areas. Nonetheless, pre-construction surveys for golden eagle are required by the ECCCHCP/NCCP to confirm presence or absence of the species. If golden eagle is present on or near the project site, the proposed project could result in an adverse impact to the species.

Nesting Raptors and Migratory Birds

The trees on-site may be used by other migratory birds protected by the MBTA, including the white-tailed kite, for nesting. As part of the proposed project, all trees on site would be removed. Construction activities that adversely affect the nesting success of raptors and migratory birds (i.e., lead to the abandonment of active nests) or result in mortality of individual birds constitute a violation of State and federal laws, and in the event that such species occur on or near the project site during the breeding season, project construction activities could result in an adverse effect to species protected under the MBTA.

ECCCHCP/NCCP Requirements

Procedures for pre-construction surveys, best management practices, and construction monitoring, as well as Applicable Avoidance and Minimization Measures for species covered by the ECCCHCP/NCCP are outlined in Section 6.3.3 Surveys for Construction

Monitoring and Section 6.4.3 Species-Level Measures of the ECCCHCP/NCCP.[13] The project would be required to comply with all ECCCHCP/NCCP requirements, including conducting pre-construction surveys prior to ground disturbance activities to establish whether nests of Swainson's hawks and golden eagles are occupied. If nests are occupied, the project would be required to comply with the minimization requirements and construction monitoring in the ECCCHCP/NCCP. In compliance with the ECCCHCP/NCCP, the project would also be required to follow Applicable Avoidance and Minimization Measures if nests are located within 1,000 feet of the project site.

All birds covered by the ECCCHCP/NCCP (tricolored blackbird, western burrowing owl, golden eagle, and Swainson's hawk) are also considered migratory birds and are subject to the prohibitions of the MBTA. Therefore, actions conducted under the ECCCHCP/NCCP comply with the provisions of the MBTA. Conservation Measure 1.12, Implement Best Management Practices for Rural Road Maintenance, and Conservation, Measure 1.14, Design Requirements for Covered Roads Outside of the UDA, of the ECCCHCP/NCCP incorporates avoidance guidelines for compliance with the MBTA. Because the project would comply with all ECCCHCP/NCCP requirements, the project would also comply with the provisions of the MBTA.

Additionally, the proposed project would be subject to pay all applicable fees according to the Fee Zone Map of the ECCCHCP/NCCP prior to construction and in compliance with Section 9.2.712 of the Oakley Municipal Code. The developer would be required to pay the appropriate fees based on the applicable fee calculator at the time of development.

Conclusion

Based on the above, western burrowing owls, Swainson's hawks, golden eagles, and other nesting migratory birds and raptors, have the potential to occur on-site. However, the project would comply with ECCCHCP/NCCP requirements, and pre-construction surveys would be required. The project would be required to comply with the ECCCHCP/NCCP's Applicable Avoidance and Minimization Measures for western burrowing owl, Swainson's hawk, golden eagle, and nesting and migratory birds. The proposed project would comply with all applicable ECCCHCP/NCCP requirements. Thus, the proposed project would not have an adverse effect, either directly or through habitat modifications, on species identified as special-status species in local or regional plans, policies, or regulations, or by the CDFW or the USFWS, nor conflict with provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or State habitat conservation plan. As such, a ***less-than-significant*** impact would result.

b,c. The project site consists of ruderal grassland habitats and does not contain riparian habitat or other sensitive natural communities, including wetlands, or potentially jurisdictional waters of the State.[14] Therefore, the proposed project would not have a substantial adverse effect on riparian habitat, sensitive natural communities, or federally protected wetlands, and a ***less-than-significant*** impact would occur.

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13 East Contra Costa County Habitat Conservation Plan Association. *Final East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan.* October 2006.

14 U.S. Fish and Wildlife Service. *National Wetlands Inventory.* Available at: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/. Accessed August 2022.

d. The project site consists of predominantly undeveloped ruderal grassland with the exception of one farmhouse and two ancillary buildings in the northern portion of the site, and is bordered by scattered rural residences with small-scale agricultural uses to the north, south, and east, and single-family residences beyond the BNSF railroad tracks along the western site boundary. Furthermore, the project site and the surrounding areas have been used as agricultural land since at least 1939 and, therefore, have been subject to regular disturbance. The developed nature of the surrounding area precludes the use of the project site as a migratory corridor and, therefore, the project site and surrounding area are not anticipated to support any substantial wildlife movement corridors or wildlife nursery sites. As such, the project would not 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, and a ***less-than-significant*** impact would occur.

e. As previously noted, seven trees currently exist on the project site, all of which would be removed as part of the project.

Section 9.1.1112 of the Municipal Code defines protected trees and heritage trees, and establishes requirements governing the removal of such. Section 9.1.1112 defines a protected tree as any tree adjacent to or part of a riparian habitat, foothill woodland, or oak savanna that measures 20 inches or larger and an indigenous tree that measures 40 inches or larger or as a California native oak that measures at least 50 inches in circumference (15.6 inches diameter). Section 9.1.1112 also requires that any protected trees that are to be removed shall be replaced.

The seven on-site trees proposed for removal have not been evaluated by an arborist to determine whether any are considered protected by the City. If the on-site trees are determined to be protected, removal of such would require replacement, consistent with the regulations established in Section 9.1.1112 of the City's Municipal Code. Therefore, the proposed project would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and a ***less-than-significant*** impact would occur.

V. CULTURAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 dedicated cemeteries.	☐	✖	☐	☐

Discussion

The following discussion is primarily based on a Cultural Resources Study prepared for the proposed project by Solano Archaeological Services, LLC (SAS).[15] It is noted that the off-site improvement area was not surveyed as all ground disturbance would occur within the existing ROW, where development has already occurred.

a-c. The Cultural Resources Study consisted of cultural resources background research, Native American community outreach, and an archaeological survey for the proposed project. On December 6th, 2021, SAS conducted a records search through the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University for cultural resource site records and survey reports within the project site. The record search results indicated that cultural resources have not been documented within the project site, although five cultural resource sites have been recorded within the half-mile search radius. Three previous investigations included at least a portion of the project site, and an additional 18 studies were conducted within the general vicinity. Although historic era cultural resources have not been identified on-site, the presence of such resources in the project area indicates that the project vicinity has a history of transportation, residential, and likely agricultural activity particularly during the early-mid 20th century.

On December 9th, 2021, SAS archaeologists conducted a pedestrian survey of the project site using 20-meter parallel transects where exposed mineral soil, rodent burrows, other ground exposures, and erosional areas were thoroughly inspected for archaeological materials and indications of subsurface conditions. The field survey identified two potential cultural resources on the project site. The first resource is an isolated artifact consisting of a fragment of decorative cast-iron potentially part of a late 19th or early 20th century woodstove, fence, horse-drawn buggy, or possibly outdoor furniture. Due to a lack of associations, unique characteristics, data potential, and integrity, SAS determined that the isolated artifact is not eligible for California Register of Historic Resources (CRHR) listing and as such does not constitute a historical resource per CEQA. The second cultural resource is noted as a complex of agricultural buildings and spatially associated debris located in the northeastern portion of the project site which appear to date to the early to middle decades of the 20th century. Additional archival research conducted by SAS identified the building (or buildings) in the project area appear to date to at least the early 1940s. However, the buildings are not anticipated to meet the CRHR criteria for historic resources (i.e., embodies distinctive characteristics of a specific period or region, yield

15 Solano Archaeological Services, LLC. *Cultural Resources Study – Sellers Avenue Development Project, City of Oakley, Contra Costa County, California.* December 14, 2021.

important information related to history of the local area, associated with significant historical events, etc.) as the on-site buildings appear to be consistent with the type of barn structure that is common in the project area. Nonetheless, out of an abundance of caution, SAS recommended that a qualified architectural historian evaluate the on-site buildings for consistency with the CRHR criteria. If the on-site buildings are determined to meet the criteria to be considered historical resources, then development of the proposed project could cause a substantial adverse change in the significance of a historical resource.

Additionally, while the project site has been subject to ground disturbance associated with past agricultural activities, unknown archaeological resources, including human remains, have the potential to be uncovered during future ground-disturbing construction and excavation activities at the project site. If previously unknown resources are encountered during construction activities, the proposed project could cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA Guidelines Section 15064.5 and/or disturb human remains, including those interred outside of dedicated cemeteries.

Based on the above, development of the site may cause a substantial adverse change in the significance of a historical resource, as well as unique archaeological resource, pursuant to Section 15064.5, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

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

V-1. *Prior to the demolition of any on-site buildings, a qualified architectural historian, as approved by the City of Oakley Planning Division, shall evaluate the project site and the on-site structures for qualification per CRHR criteria. If the on-site buildings do not qualify for protection, further mitigation is not required.*

If the on-site buildings meet the CRHR criteria, then the structures shall be properly documented prior to their demolition. The documentation shall, at a minimum, consist of a report documenting the historical context with descriptive narrative of the resource, and an update of the resource's Department of Parks and Recreation form 523 record. The photo-documentation shall capture the form, materials, design, and setting of the buildings to preserve those characteristics that justify their California Register eligibility. If building relocation is pursued, the photo-documentation shall include views of the resources in their new locations, with an emphasis on the context and architectural setting of their new surroundings. The photo-documentation shall be prepared in concert with a historical context statement and narrative description of the buildings to place the properties in their architectural and historical context. The documentation package shall be distributed to the NWIC, the Contra Costa County Historical Society, the City of Oakley, the Oakley Chamber of Commerce, and, for the purposes of public outreach, the Oakley Public Library.

Proof of compliance with the foregoing measure shall be submitted to the City of Oakley Planning Division for review and approval.

V-2. *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 City of Oakley 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.*

The foregoing requirements shall be noted on the project improvement plans, subject to review and approval by the City of Oakley Planning Division.

V-3. *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.*

The foregoing requirements shall be noted on the project improvement plans, subject to review and approval of compliance by the City of Oakley Planning Division.

VI. ENERGY. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 2019 California Green Building Standards Code (CALGreen Code), the Building Energy Efficiency Standards, and the City's Strategic Energy Plan (SEP), 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 are provided below.

California Green Building Standards Code

The CALGreen Code (CCR Title 24, Part 11), is a portion of the CBSC, which became effective on January 1, 2020.[16] 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 CALGreen Code standards regulate the method of use, properties, performance, types of materials used in construction, alteration repair, improvement and rehabilitation of a structure or improvement to property. The provisions of the CALGreen Code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California. Requirements of the CALGreen Code include, but are not limited to, the following measures:

- Compliance with relevant regulations related to future installation of Electric Vehicle (EV) charging infrastructure in residential and non-residential structures;
- Indoor water use consumption is reduced through the establishment of maximum fixture water use rates;
- Outdoor landscaping must comply with the California Department of Water Resources' MWELO, or a local ordinance, whichever is more stringent, to reduce outdoor water use;
- Diversion of 65 percent of construction and demolition waste from landfills;
- Mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particle board; and
- For most single-family and low-rise residential development developed after January 1, 2020, mandatory on-site solar energy systems capable of producing 100 percent of the electricity demand created by the residence(s). Certain residential developments, including those developments that are subject to substantial shading, rendering the use of on-site solar photovoltaic systems infeasible, are exempted from the foregoing requirement.

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16 California Building Standards Commission. *California Green Building Standards Code*. 2019.

Building Energy Efficiency Standards

The 2019 Building Energy Efficiency Standards is a portion of the CBSC. Energy reductions relative to previous Building Energy Efficiency Standards are achieved through various regulations including requirements for the use of high-efficacy lighting, improved water heating system efficiency, and high-performance attics and walls. For residential buildings, compliance with the 2019 standards would use approximately seven percent less energy due to energy efficiency measures compared to homes built under the 2016 standards.[17] The Building Energy Efficiency Standards require residential buildings that are three stories or less to include solar photovoltaic systems. Rooftop solar electricity generation would ensure future residences that are built under the 2019 standards further reduce energy consumption and result in about 53 percent less energy use than those residences built under the 2016 Building Energy Efficiency Standards.

Strategic Energy Plan

In the fall of 2015, the City of Oakley adopted a SEP to help meet State mandates for required energy use and GHG emission reductions.[18] The SEP included six energy planning goals and priorities, including, but not limited to, improving energy performance to exceed Title 24 requirements for new construction and major renovations of the City facilities; exploring opportunities for energy efficiency, demand reduction, and/or clean self-generation measures; and exploring existing economic and fiscal criteria commonly used for the evaluation and implementation of energy use reduction and energy generation strategies.

Construction Energy Use

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 site where energy supply cannot be met via a hookup to the existing electricity grid. Project construction would not involve the use of natural gas appliances or equipment.

All construction equipment and operation thereof would be regulated per the CARB's In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation 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. In addition, as a means of reducing emissions, construction vehicles are required to become cleaner through the use of renewable energy resources. The In-Use Off-Road Diesel Vehicle Regulation would therefore help to improve fuel efficiency for equipment used in construction of the proposed project. Technological innovations and more stringent standards are constantly being researched nationwide, such as multi-function equipment, hybrid equipment, or other design changes, which could help to further reduce demand on oil and limit emissions associated with construction.

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17 California Energy Commission. *Title 24 2019 Building Energy Efficiency Standards FAQ*. November 2018.
18 City of Oakley. *Strategic Energy Plan*. Fall 2015.

The CARB prepared the 2017 Climate Change Scoping Plan Update (2017 Scoping Plan),[19] 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 regulation described above, with which the proposed project must comply, would be consistent with the intention of the 2017 Scoping Plan and the recommended actions included in Appendix B of the 2017 Scoping Plan.

Based on the above, the temporary increase in energy use occurring during construction of the proposed project 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.

Operational Energy Use

Following implementation of the proposed project, PG&E would provide electricity to the project site. Energy use associated with operation of the proposed project would be typical of residential uses, requiring electricity for interior and exterior building lighting, heating, ventilation, and air conditioning (HVAC), electronic equipment, machinery, refrigeration, appliances, security systems, and more. Maintenance activities during operations, such as landscape maintenance, would 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 vehicle trips generated by the proposed residential development. It should be noted that, as required by Mitigation Measure VIII-1 in this IS/MND, natural gas infrastructure would be prohibited in the proposed residences.

The proposed project would be subject to all relevant provisions of the most recent update of the CBSC, including the CALGreen Code and the Building Energy Efficiency Standards. Adherence to the most recent CALGreen Code and the Building Energy Efficiency Standards would ensure that the proposed structures would consume energy efficiently through the incorporation of such features as efficient water heating systems, high performance attics and walls, and high efficacy lighting. As noted previously, pursuant to the CALGreen Code, residential structures three stories or less, including those proposed as part of the project, must include on-site solar energy systems sufficient to meet 100 percent of the residences' electricity demand.

Additionally, the proposed project would be consistent with the goals of the SEP, as the proposed project would comply with the latest CBSC standards regarding energy conservation, renewable energy resources, and green building standards.

With regard to transportation energy use, the proposed project would comply with all applicable regulations associated with vehicle efficiency and fuel economy. In addition, as

[19] California Air Resources Board. *The 2017 Climate Change Scoping Plan Update.* January 20, 2017.

discussed in Section XVII, Transportation, of this IS/MND, the project site is not anticipated to substantially increase Vehicle Miles Traveled (VMT).

Conclusion

Based on the above, construction and operations of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Thus, a ***less-than-significant*** impact would occur.

VII. GEOLOGY AND SOILS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Directly or indirectly cause 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 or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	✖	☐
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 (1994), creating substantial direct or indirect risks to life or property?	☐	☐	✖	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	✖
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	✖	☐	☐

Discussion

ai-ii. The project site does not contain any active or potentially active faults, nor is the site located within a State-designated Alquist-Priolo Fault Zone.[20] However, according to the City's General Plan EIR, the City of Oakley is subject to seismic risk because the City is within the San Francisco Bay Area, an area of high seismicity.[21]

Proper engineering of the proposed buildings in compliance with the CBSC would ensure that the proposed project would not be subject to substantial risks related to seismic ground shaking. Projects designed in accordance with the CBSC 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 earthquakes without collapse but with some structural as well as nonstructural damage. Conformance

20 California Geologic Survey. *Seismic Hazard Zone Report for the Brentwood 7.5-Minute Quadrangle, Contra Costa County, California.* 2018.

21 City of Oakley. *City of Oakley 2020 General Plan Draft Environmental Impact Report* [pg. 3-161]. September 2002.

with the CBSC design standards would be enforced through building plan review and require approval by the City.

Based on the above, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault or strong seismic ground shaking. Thus, a ***less-than-significant*** impact would occur.

aiii,aiv, c,d. The proposed project's potential effects related to liquefaction, subsidence/settlement, landslides, lateral spreading, and expansive soil are discussed in detail below.

Liquefaction and Subsidence/Settlement

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Because saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths. Additionally, loose unsaturated sandy soils have the potential to settle during strong seismic shaking. Liquefaction can often result in subsidence, which refers to the gradual settling or sudden sinking of land surface, or settlement, which refers to the vertical movement of soil when a load is applied to the surface.

According to the MTC/ABAG Hazard Viewer Map, project site is located within a "High" Earthquake Liquefaction Susceptibility zone.[22] As a result, the potential exists that on-site soils may be subjected to liquefaction, and associated subsidence could occur. However, Oakley Municipal Code Section 6.9.328 requires that as part of obtaining a Grading Permit, an application must be accompanied, among other documents, with three copies of a geotechnical or engineering geology report to excavate and grade the project site. The project's Improvement Plans would be required to be signed by a State-certified civil engineer who prepared the geotechnical report and reviewed to ensure that the plans conform to all recommendations contained in the report. Furthermore, Oakley Municipal Code Section 6.9.702 provides that, upon completion of rough grading work, but before the issuance of building permits, the City Engineer may require that a soil engineering report be prepared certifying the adequacy of the site for the intended use, as affected by soil engineering reports.

Therefore, because compliance with the requirements set forth in Oakley Municipal Code Sections 6.9.328 and 6.9.702 would ensure that all potentially hazardous on-site subsurface soil conditions are identified and addressed in conformance with industry standard recommendations, including potential conditions, the proposed project would not directly or indirectly cause potential substantial adverse effects involving seismic-related ground failure or be located on a geologic unit that would potentially result in on-site or off-site liquefaction or subsidence.

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22 Association of Bay Area Governments. *Hazard Viewer.* Available at: https://abag.ca.gov/our-work/resilience/data-research/hazard-viewer/. Accessed May 2022.

Landslides

Seismically-induced landslides are triggered by earthquake ground shaking. The risk of landslide hazard is greatest in areas with steep, unstable slopes. The project site is relatively flat and is not located near any slopes. Therefore, the proposed project would not be subject to landslide risks and would not expose people or structures to potential risk of loss, injury, or death involving landslides.

Lateral Spreading

Lateral spreading involves horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically, lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. Given that the project site does not contain, and is not adjacent to, any free faces including excavations, channels, or open bodies of water, lateral spreading would not present a likely hazard at the site.

Expansive Soils

Expansive soils can undergo significant volume changes with variations in moisture content. Specifically, such soils shrink and harden when dried and expand and soften when wetted. If structures are underlain by expansive soils, foundation systems must be capable of withstanding the potential damaging movements of the soil.

Pursuant to the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey, the project site is comprised of two primary soil types. Approximately 90 percent of the project site is comprised of Sycamore silty clay loam with 0 to 2 percent slopes, which has a shrink-swell numerical rating of 0.12. The remaining approximately 10 percent of the project site is comprised of Sorrento silty clay loam, which has a shrink-swell numerical rating of 0.50. The numerical ratings indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00). Therefore, the potential exists for expansive soils to exist on site and adversely affect the proposed project. However, as detailed above, the proposed project would be subject to Oakley Municipal Code Sections 6.9.328 and 6.9.792, which would ensure on-site expansive soils are identified and addressed in accordance with industry standard recommendations set forth by a State-certified civil engineer, prior to the issuance of a Building Permit. Compliance with such would ensure that adverse effects do not occur within the project site.

Conclusion

Based on the above, impacts related to seismic-related ground failure, landslides, or lateral spreading are not anticipated to occur. Through compliance with all applicable regulations, including those set forth by Oakley Municipal Code Sections 6.9.328 and 6.9.792, impacts related to liquefaction, subsidence/settlement, and expansive soils would not occur. Thus, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, or landslides, would not 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, and would not be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property. Thus, a ***less-than-significant*** impact would occur.

b. During construction activities, topsoil would be exposed following site grading and prior to constructing building foundations. As a result, the potential for topsoil erosion would exist. Following development of the site, all exposed soils would be covered with impervious surfaces or landscaping and, thus, the potential for erosion to occur would not exist long-term.

As discussed further under questions 'ci' and 'ciii' in Section X, Hydrology and Water Quality, of this IS/MND, pursuant to the City of Oakley Municipal Code Sections 6.9.308 and 6.11.212, preparation of an Erosion Control Plan and Stormwater Pollution Prevention Plan (SWPPP) prior to construction activities and implementation of Best Management Practices (BMPs) during construction is required. The erosion control measures required by both the SWPPP and the Erosion Control Plan would ensure that the proposed project would not result in substantial erosion or the loss of topsoil. Therefore, the proposed project would not result in substantial soil erosion or the loss of topsoil, and a ***less-than-significant*** impact would occur.

e. The proposed project would connect to existing City sewer services. Thus, the construction or operation of septic tanks or other alternative wastewater disposal systems would not be included as part of the project. Therefore, ***no impact*** regarding the capability of soil to adequately support the use of septic tanks or alternative wastewater disposal systems would occur.

f. The City's General Plan does not note the existence of any unique geologic features within the City. Consequently, implementation of the proposed project is not anticipated to result in direct or indirect destruction of unique geologic features.

The City's General Plan indicates that few paleontological resources are known to occur within the City Planning Area.[23] In addition, portions of the surrounding area are developed and paleontological resources have not been encountered in the vicinity. Thus, existing paleontological resources are not expected to occur on the site. Nonetheless, the potential exists for previously unknown paleontological resources could exist within the project site. Ground-disturbing activity such as grading, trenching, or excavating associated with implementation of the proposed project would have the potential to disturb or destroy such resources if present. Therefore, the proposed project could result in the direct or indirect destruction of a unique paleontological resource, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

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

VII-1. Implement Mitigation Measures V-2 and V-3.

[23] City of Oakley. *City of Oakley General Plan* [pg. 6-19]. Adopted January 11, 2022.

VIII. GREENHOUSE GAS EMISSIONS. *Would the project:*	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 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.

Implementation of the proposed project would cumulatively contribute to increases of 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), water usage, wastewater generation, and the generation of solid waste. The primary source of GHG emissions for the project would be mobile source emissions. The common unit of measurement for GHG is expressed in terms of annual metric tons of CO_2 equivalents ($MTCO_2e$/yr).

The proposed project is located within the jurisdictional boundaries of BAAQMD. While updated CEQA Guidelines have not yet been released, on April 20, 2022, the BAAQMD Board of Directors held a public meeting and adopted proposed CEQA Thresholds for Evaluating the Significance of Climate Change Impacts from Land Use Projects and Plans.[24] The updated GHG thresholds address more recent climate change legislation, including Senate Bill (SB) 32, and provide qualitative thresholds related to Buildings and Transportation.

Based on the modeling conducted for the proposed project, as discussed in Section III, Air Quality, of this IS/MND, operational GHG emissions are presented in Table 4. However, as noted previously, the BAAQMD's applicable threshold of significance for GHG emissions are qualitative, and the foregoing information is provided for disclosure purposes only. Potential impacts related to GHG emissions resulting from implementation of the proposed project are considered in comparison with BAAQMD's adopted thresholds of significance below.

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24 Bay Area Air Quality Management District. *CEQA Thresholds and Guidelines Update.* Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed August 2022.

Table 4
Unmitigated Operational GHG Emissions

Source	GHG Emissions ($MTCO_2e/yr$)
Mobile	*1,020.00*
Area	*2.28*
Energy	*234.00*
Water	*11.60*
Waste	*5.76*
Refrigerants	*0.18*
Total Operational GHG Emissions	1,273.82
Operational GHG Emissions per Capita	4.83 $MTCO_2e$/yr/capita

Note: Operational GHG Emissions per Capita = $MTCO_2e$/yr / 264 residents.

Source: CalEEMod, September 2022 (see Appendix A).

BAAQMD Thresholds of Significance

As discussed above, on April 20, 2022, the BAAQMD Board of Directors held a public meeting and adopted proposed CEQA Thresholds for Evaluating the Significance of Climate Change Impacts from Land Use Projects and Plans. According to the new thresholds of significance, a project must either include specific project design elements (e.g., exclude use of natural gas, achieve a specific reduction in project-generated VMT below the regional average) or be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).[25]

The City of Oakley does not have a GHG reduction strategy under CEQA Guidelines Section 15183.5(b). Therefore, the following analysis focuses on the new BAAQMD GHG thresholds related to specific project design elements.

According to the BAAQMD's thresholds of significance, in order to find a less-than-significant GHG impact, projects must include, at a minimum, the following project design elements:

- The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development);
- The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines;
- The project will achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA; and
- The project will achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

In order to be consistent with the first criterion, the proposed project would be required to include all electric appliances and plumbing. Mitigation would be required to ensure that

25 Bay Area Air Quality Management District. *CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans*. April 2022.

the proposed project would not include the use of natural gas appliances or natural gas plumbing and, thus, would comply with the first criterion.

Regarding the second criterion, as discussed in Section VI, Energy, of this IS/MND, the proposed project would comply with all applicable federal, State, and local regulations regarding energy use during both project construction and project operations. Required compliance with applicable standards and regulations ensure that the building energy use associated with the proposed project would not be wasteful, inefficient, or unnecessary.

With respect to the third criterion, as discussed in Section XVII, Transportation, of this IS/MND, the citywide VMT per capita was calculated to be 26.76, and, as a result, the impact threshold of 15 percent below the Citywide average VMT per capita equates to 22.75 VMT per capita. The project is projected to generate VMT per capita of 22.06. Therefore, the project would achieve a 15 percent reduction in project-generated VMT below the regional average consistent with the current version of the California Climate Change Scoping Plan.

With respect to the fourth criterion, the proposed project would be subject to the single-family residential requirements set forth in the CALGreen standards. Per the 2019 CALGreen Code, single-family residential projects are required to install a listed raceway to accommodate a dedicated 208/240-volt branch circuit for each unit, which would be suitable for EV charging. Compliance with this requirement would be sufficient to comply with the Tier 2 CALGreen standards, as required by BAAQMD.

Conclusion

Based on the above, without the implementation of mitigation, the project may not comply with the BAAQMD's required thresholds of significance. Therefore, the proposed project could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, or could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. Thus, a ***potentially significant*** impact could occur.

Mitigation Measure(s)

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

VIII-1. *Consistent with the BAAQMD's thresholds of significance, prior to issuance of building permits for the proposed project, the project applicant shall demonstrate via project design and/or notation included on project design that natural gas infrastructure shall be prohibited.*

Conformance with the foregoing requirement shall be confirmed through review and approval of building permit plans by the City of Oakley Planning Division.

IX. HAZARDS AND HAZARDOUS MATERIALS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 the risk of loss, injury or death involving wildland fires?	☐	☐	✖	☐

Discussion

a. A significant hazard to the public or the environment could result from the routine transport, use, or disposal of hazardous materials. Future operations of the proposed residences on the project site could involve the use of common household cleaning products, fertilizers, and herbicides on-site, any of which could contain potentially hazardous chemicals; however, such products would be expected to be used in accordance with label instructions. Due to the regulations governing use of such products and the amount that could reasonably be used on the site, routine use of such products would not represent a substantial risk to public health or the environment. Therefore, the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and a ***less-than-significant*** impact would occur.

b. A development project could 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 should a site contain potential Recognized Environmental Conditions (RECs) that are not properly addressed prior to project implementation. A REC indicates the presence or likely presence of any hazardous substances in, on, or at a property due to any release into the environment, under conditions indicative of a release to the environment, or under conditions that pose a material threat of a future release to the environment.[26]

Based on a review of historic aerial photographs, the project site was previously used as agricultural land. As a result, the potential exists that organochlorine and arsenic pesticide residues may be present within surficial soils. If such materials are present in on-site soils, a potential health hazard could occur during project construction.

Additionally, as noted in the Cultural Resources Study prepared for the proposed project, the on-site farm buildings date to at least the nearly 1940s. As the buildings were built prior to the federal ban on materials such as lead-based paint (LBP) and/or asbestos containing materials, the potential exists for such materials to exist on and/or within the structures. LBP is defined as any paint, varnish, stain, or other applied coating that has one milligram per cubic centimeter or greater (5,000 micrograms per gram or 5,000 parts per million) of lead by federal guidelines. Lead is a highly toxic material that may cause a range of serious illnesses, and in some cases death. In buildings constructed after 1978, LBP is unlikely to be present. Structures built prior to 1978 and especially prior to the 1960s should be expected to contain LBP. Asbestos is the name for a group of naturally occurring silicate minerals that are considered to be “fibrous” and, through processing, can be separated into smaller and smaller fibers. When inhaled, the material caused serious illness. For buildings constructed prior to 1980, the Code of Federal Regulations (29 CFR 1926.1101) states that all thermal system insulation (boiler insulation, pipe lagging, and related materials) and surface materials must be designated as “presumed asbestos-containing material” unless proven otherwise through sampling in accordance with the standards of the Asbestos Hazard Emergency Response Act. Asbestos-containing materials could include, but are not limited to, plaster, ceiling tiles, thermal systems insulation, floor tiles, vinyl sheet flooring, adhesives, and roofing materials. Therefore, demolition of the on-site structures could present a potential hazard risk related to LBP or asbestos.

Finally, although not observed during the review of aerial photographs, the potential exists that buried items, such as a septic system or well used for agricultural irrigation, may exist on-site due to the relative age of the farmhouse and auxiliary structures. As such, if buried items, such as septic systems or wells are to be discovered during project development, the buried items must be removed in accordance with County and State regulations prior to development of the proposed project.

Based on the above, potentially hazardous conditions could occur if pesticide residuals are present in on-site soils, if the on-site buildings contain LPB or asbestos, or if existing wells or septic systems are present on-site and are not removed in accordance with County and State regulations. Therefore, without mitigation, the proposed project could create a significant hazard to the public or the environment, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

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

[26] ASTM International. *ASTM E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.* 2013.

IX-1. Prior to initiation of ground-disturbing activities, the project applicant shall complete testing of on-site soils for organochlorine pesticides (OCPs) and arsenic in accordance with U.S. Environmental Protection Agency (USEPA) Method 8081A. In the event that soil is determined to be hazardous by exceeding the USEPA Regional Screening Level for residential exposure scenarios, the soil shall be transported and disposed of at a Class I facility permitted by the California Department of Toxic Substances Control. Hazardous waste shall be transported to disposal by a licensed hazardous waste hauler under a uniform hazardous waste manifest. The results of soil sampling and analysis, as well as verification of proper remediation and disposal, if warranted, shall be submitted to the City's Planning Division for review and approval.

IX-2. Prior to issuance of a demolition permit by the City for any on-site structures, the project applicant shall provide a site assessment that determines whether any structures to be demolished contain asbestos-containing materials (ACMs) or lead-based paint (LBP). If the on-site structures do not contain either of the foregoing materials, further mitigation is not required; however, if ACMs or LBP are identified, the materials shall be removed and disposed of by a licensed and certified contractor in accordance with California Air Resources Board recommendations and OSHA requirements. Work practice standards generally include appropriate precautions to protect construction workers and the surrounding community, and appropriate disposal methods for construction waste in accordance with federal, State, and local regulations. The results of the site assessment, as well as verification of proper disposal, if warranted, shall be submitted to the City's Planning Division for review and approval.

IX-3. During ground-disturbing activities, if one or more wells and/or septic systems are identified on-site, the project applicant shall hire a licensed contractor to obtain the applicable abandonment permit from Contra Costa County Environmental Health Division (CCCEHD), and properly abandon the on-site wells and/or septic systems for review and approval by the CCCEHD and the City's Planning Division.

c. The nearest schools relative to the project site are Iron House Elementary School and Delta Vista Middle School, which are both located 0.66-mile northwest of the site, and Faith Christian School, which is located approximately 0.90-mile southwest of the site. Therefore, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school, and ***no impact*** would occur.

d. According to the State Water Resources Control Board's (SWRCB) GeoTracker data management system, hazardous materials sites, including leaking underground storage tank (LUST) sites and Department of Toxic Substances Control (DTSC) cleanup sites, have not been identified on or within a 1,000-foot radius of the project site.[27] In addition, the project site is not located on or near any hazardous waste sites identified on the

[27] State Water Resources Control Board. *GeoTracker.* Available at: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=oakley+california. Accessed May 2022.

Envirostor's Hazardous Waste and Substance Site List, which is compiled pursuant to Government Code Section 65962.5.[28]

Based on the above, the proposed project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. As such, ***no impact*** would occur.

e. The nearest airport to the project site is the Byron Airport, located approximately 10.40 miles southeast of the project site. Therefore, the project site is not located within two miles of any public airports and does not fall within an airport land use plan area. Accordingly, ***no impact*** would occur related to a safety hazard or excessive noise for people residing or working in the project area.

f. During construction of the proposed project, all construction equipment would be staged on-site so as to prevent obstruction of local and regional travel routes in the City that could be used as evacuation routes during emergency events. For construction of the off-site improvements, travel along Sellers Avenue could be intermittently restricted. However, with implementation of the Traffic Control Plan required by Mitigation Measure XVII-1, vehicle travel would not be obstructed, and evacuation routes would remain open throughout the construction period.

During operation, the proposed project would provide adequate access for emergency vehicles and would not interfere with potential evacuation or response routes used by emergency response teams. In addition, all proposed internal roadways would accommodate emergency vehicles.

Overall, the proposed project would not substantially alter the existing circulation system in the surrounding area. As a result, the proposed project would have a ***less-than-significant*** impact with respect to impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan.

g. 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 or High Fire Hazard Severity Zone (FHSZ).[29] Furthermore, the existing roadways in the project vicinity would act as fire breaks and would reduce the risk for the uncontrolled spread of wildland fires. 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.

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28 Department of Toxic Substances Control. *Hazardous Waste and Substances Site List*. Available at: https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,FUDS&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29. Accessed May 2022.

29 California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.

X. HYDROLOGY AND WATER QUALITY. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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?	☐	☐	✖	☐

Discussion

a, ci-ciii. The following discussion provides a summary of the proposed project's potential to violate water quality standards/waste discharge requirements, alter the drainage pattern of the site resulting in erosion or siltation, increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, or otherwise degrade water quality during construction and operation.

Construction

During the early stages of construction activities, topsoil would be exposed due to grading and excavation of the site. After grading and prior to overlaying the ground with impervious surfaces and structures, the potential exists for wind and water to discharge sediment and/or urban pollutants into stormwater runoff, which could adversely affect water quality.

The SWRCB regulates stormwater discharges associated with construction activities where clearing, grading, or excavation results in land disturbance of one or more acres. The City's National Pollutant Discharge Elimination System (NPDES) permit requires applicants to show proof of coverage under the State's General Construction Permit prior to receipt of any construction permits. The State's General Construction Permit requires a SWPPP to be prepared for the site. A SWPPP describes BMPs to control or minimize pollutants from entering stormwater and must address both grading/erosion impacts and non-point source pollution impacts of the development project. Because the proposed project would disturb greater than one acre of land, the proposed project would be subject to the requirements of the State's General Construction Permit and, with implementation of the required SWPPP and BMPs included therein, construction of the proposed project would not result in a violation of water quality standards and/or degradation of water quality.

Furthermore, per Municipal Code Sections 6.9.306 and 6.9.404, the proposed project would be required to submit an erosion and sediment control plan with submittal of the grading permit application to ensure water quality is not degraded. The plan would include erosion and sediment control measures that would be implemented during grading and would be approved by the City Engineer. Given the required submittal and approval of a SWPPP and erosion and sediment control plan, the proposed project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality during construction.

Operations

Following project buildout, the surface of the site would be covered with either impervious surfaces or landscaped areas, and topsoil would no longer be exposed. As such, the potential for erosion and associated impacts to water quality would be reduced. However, the addition of impervious surfaces on the site would result in the generation of urban runoff during project operations, which could contain pollutants if the runoff comes into contact with vehicle fluids on parking surfaces and/or landscape fertilizers and herbicides. All municipalities within Contra Costa County (and the County itself) are required to develop more restrictive surface water control standards for new development projects as part of the renewal of the Countywide NPDES permit.

The City of Oakley has adopted the County C.3 Stormwater Standards, which require new development and redevelopment projects that create or alter 10,000 sf or more of impervious area to contain and treat all stormwater runoff from the project site. The proposed project would include 369,190 sf of new impervious area; therefore, the proposed project would be subject to the County C.3 Stormwater Standards.[30] The proposed project would also be subject to the requirements of the SWRCB and the Regional Water Quality Control Board (RWQCB), as well as the County C.3 Standards, which are included in the City's NPDES General Permit. In addition, the proposed project would adhere to Title 6, Chapter 11, of the Municipal Code, which establishes standards for stormwater management and discharge.[31] Prior to issuance of a building permit, the applicant would submit a Stormwater Control Plan (SWCP) that meets the criteria in the most recent version of the Contra Costa Clean Water Program Stormwater C.3 Guidebook. Compliance with such requirements would ensure that impacts to water quality standards or waste discharge requirements would not occur during operation of the proposed project.

A Preliminary Stormwater Control Plan has been prepared for the proposed project (see Figure 6). Runoff from impervious surfaces within the project site would be directed to new catch basins within the internal roads. From the catch basins, new storm drain lines

30 MLC Holdings, Inc. *DeJesus Property Preliminary Stormwater Control Plan.* December 2021.
31 City of Oakley. *Oakley Municipal Code* [Title 6, Chapter 11]. Updated February 23, 2021.

ranging in diameters of 12, 15, 18, and 24-inches would convey flows to the bioretention area located in the northwest portion of the site which would accommodate runoff from all 77 residential lots as well as the internal roadways on-site. The drainage management area (DMA) would be designed according to the criteria in the Contra Costa County Clean Water Program *Stormwater C.3 Guidebook*. Therefore, the proposed project would not adversely affect surface water quality. The on-site bioretention area would accommodate runoff from all residential lots and roadways on-site and would be designed according to the criteria in the Contra Costa County Clean Water Program *Stormwater C.3 Guidebook*. In order to adequately treat all runoff from the project site, the project would be required to provide 47,112 cubic feet (CF) of water treatment volume. The proposed infiltration basin would provide 47,112 CF of treatment volume and, thus, the project would meet the requirements and all runoff would be adequately treated on-site.

Conclusion

Based on the above, given compliance with the City's Municipal Code and existing County regulations, impacts related to water quality would not occur during project construction or operations. Thus, the proposed project would not violate water quality standards/waste discharge requirement, alter the drainage pattern of the site resulting in erosion or siltation, increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, or otherwise degrade water quality during construction, and a ***less-than-significant*** impact would occur.

b,e. Potable water service for the proposed project would be provided by the DWD. According to the DWD's 2020 Urban Water Management Plan (UWMP), the primary water supply for distribution is treated surface water.[32] As a result, any increase in water demand associated with the proposed project would be primarily met through surface water supply, rather than groundwater.

The DWD operates a groundwater supply system that currently consists of groundwater extracted from two wells in Oakley, which is then conveyed in a dedicated well supply pipeline to a blending facility. According to the DWD 2020 UWMP, the wells are connected to the East Contra Costa Subbasin underlying the City. The East Contra Costa Subbasin has been designated as a medium-priority basin by the Department of Water Resources, and is not in overdraft conditions.[33]

The project site represents a relatively small area compared to the overall surface area of the East Contra Costa Subbasin. In addition, runoff from the proposed impervious surfaces would be directed to a bioretention facility where runoff water would percolate and recharge the East Contra Costa Subbasin. Therefore, any new impervious surfaces associated with the proposed project would not interfere substantially with groundwater recharge within the East Contra Costa Subbasin.

Based on the above, the proposed project would result in a ***less-than-significant*** impact with respect to substantially decreasing groundwater supplies, interfering substantially with groundwater recharge, or conflicting with or obstructing implementation of a water quality control plan or sustainable groundwater management plan.

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[32] Diablo Water District. *2020 Urban Water Management Plan.* May 2022.
[33] *Ibid*.

civ. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for the project site, the project site is located within the 500-year floodplain (Zone X), which is not designated as a Special Flood Hazard Area.[34] Additionally, pursuant to Municipal Code Section 6.12.138(e), the project would be required to provide adequate draining to reduce flood hazards. Thus, the project would not impede or redirect flood flows, resulting in a ***less-than-significant*** impact.

d. 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 48.7 miles from the California coastline and approximately 2.08 miles south of the San Francisco Bay tributaries. Given the distance to the San Francisco Bay tributaries, it is not anticipated that the project site would be affected by flooding risks associated with tsunamis. Furthermore, seiches do not pose a risk to the proposed project because the project site is not located adjacent to a large, closed body of water. As such, the proposed project would not result in a risk related to the release of pollutants due to project inundation flooding, tsunami, or seiche, and ***no impact*** would occur.

[34] Federal Emergency Management Agency. *Flood Insurance Rate Map 06013C0355G.* Effective May 18, 2022.

XI. LAND USE AND PLANNING. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 an environmental effect?	☐	☐	✖	☐

Discussion

a. A project risks dividing an established community if the project would introduce infrastructure or alter a land use so as to change the land use conditions in the surrounding community or isolate an existing land use. Currently, the 20.42-acre project site consists of primarily undeveloped ruderal grassland, with the exception of one farmhouse structure and two ancillary buildings in the northern portion of the site.

Surrounding existing land uses include scattered rural residences with small-scale agricultural uses to the north, south, and east. The BNSF railroad tracks bound the western border of the property, and single-family residences are located further west beyond the BNSF railroad tracks. The City of Oakley General Plan designates the project site as RL and the site is zoned P-1. Thus, development of the site with the proposed uses was generally evaluated as part of the City's General Plan EIR and Update IS/ND.

The proposed project would be a continuation of the surrounding development and would not isolate an existing land use. As such, the proposed project would not physically divide an established community and a ***less-than-significant*** impact would occur.

b. The project site is currently designated RL by the City's General Plan and is zoned P-1. Therefore, single-family residential development has been anticipated at the project site. As demonstrated throughout this IS/MND, the proposed project would not conflict with City policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect. For example, in compliance with the ECCCHCP/NCCP, the proposed project would be subject to pay all applicable fees according to the Fee Zone Map of the ECCCHCP/NCP prior to construction, and would be required to complete pre-construction surveys for western burrowing owl, Swainson's hawk, golden eagle, and migratory birds.

Based on the above, the proposed project would not 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, and a ***less-than-significant*** impact would occur.

XII. MINERAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 EIR states that the only viable mineral resource currently mined in the City of Oakley is sand.[35] In addition, the General Plan does not identify any known mineral resource areas within the Planning Area, including the project site. Furthermore, because the site is located near residential development, the site would not be suitable for mining operations. Thus, the proposed project would not result in the loss of availability of a known mineral resource or a locally important mineral recovery site, and the proposed project would result in ***no impact*** related to mineral resources.

[35] City of Oakley. *City of Oakley 2020 General Plan Draft Environmental Impact Report* [pg. 278]. September 2002.

XIII. NOISE. *Would the project result in:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 following discussion presents information regarding noise standards and criteria applicable to various land uses, as well as sensitive noise receptors in proximity to the project site and the potential for the proposed project to result in impacts during project construction and operation. The following terms are referenced in the sections below:

- Decibel (dB): A unit of sound energy intensity. An A-weighted decibel (dBA) is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels. All references to decibels in this report will be A-weighted unless noted otherwise.
- Day-Night Average Level (L_{dn}): The average sound level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 PM to 7:00 AM) hours.
- Equivalent Sound Level (L_{eq}): The average sound level over a given time-period.
- Maximum Sound Level (L_{max}): The maximum sound level over a given time-period.
- Median Sound Level (L_{50}): The sound level exceeded 50 percent of the time over a given time-period.
- Community Noise Equivalent Level (CNEL): The 24-hour average noise level with noise occurring during evening (7:00 PM to 10:00 PM) hours weighted by a factor of three and nighttime hours weighted by a factor of ten prior to averaging.

Sensitive Noise Receptors

Some land uses are considered more sensitive to noise than others, and, thus, are referred to as sensitive noise receptors. Land uses often associated with sensitive noise receptors generally include residences, schools, libraries, hospitals and passive recreational areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise. The nearest sensitive uses include the single-family residences located to the west, across the BNSF tracks, and the scattered rural residences to the north, east, and south of the project site boundary. The closest residential unit is located approximately 55 feet south of the project site boundary. The closest receptor to the off-site improvement area is located approximately 30 feet west of where construction would occur.

Existing Noise Environment

The existing noise environment in the project area is primarily defined by traffic on Sellers Avenue directly east of the project site and the BNSF railroad directly west of the project site. To quantify the existing ambient noise environment in the project vicinity, Saxelby Acoustics conducted a continuous (24-hour) noise level measurement on the project site. The noise measurement location is shown on Figure 8. A summary of the noise level measurement survey result is provided in Table 5.

Table 5
Summary of Existing Background Noise Measurement Data

Site	Date	L_{dn}	Daytime			Nighttime		
			L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
LT-1	6/7/2022	69	66	44	84	62	39	61

Notes:
- All values shown in dBA
- Daytime hours: 7:00 AM to 10:00 PM
- Nighttime Hours: 10:00 PM to 7:00 AM

Source: Saxelby Acoustics. 2022.

Standards of Significance

The City of Oakley General Plan Noise Element establishes a noise level standard of 60 dB as normally acceptable at residential land uses. Based upon General Plan Figure 9-1, an ambient noise level of 60 dBA L_{dn} is considered normally acceptable for single-family residential uses. Policy 9.1.6 in the City's General Plan is summarized in Table 6.

Table 6
Significance of Changes in Noise Exposure

Ambient Noise Level Without Project, L_{dn}	Increase Required for Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: City of Oakley General Plan Noise Element, 2002.

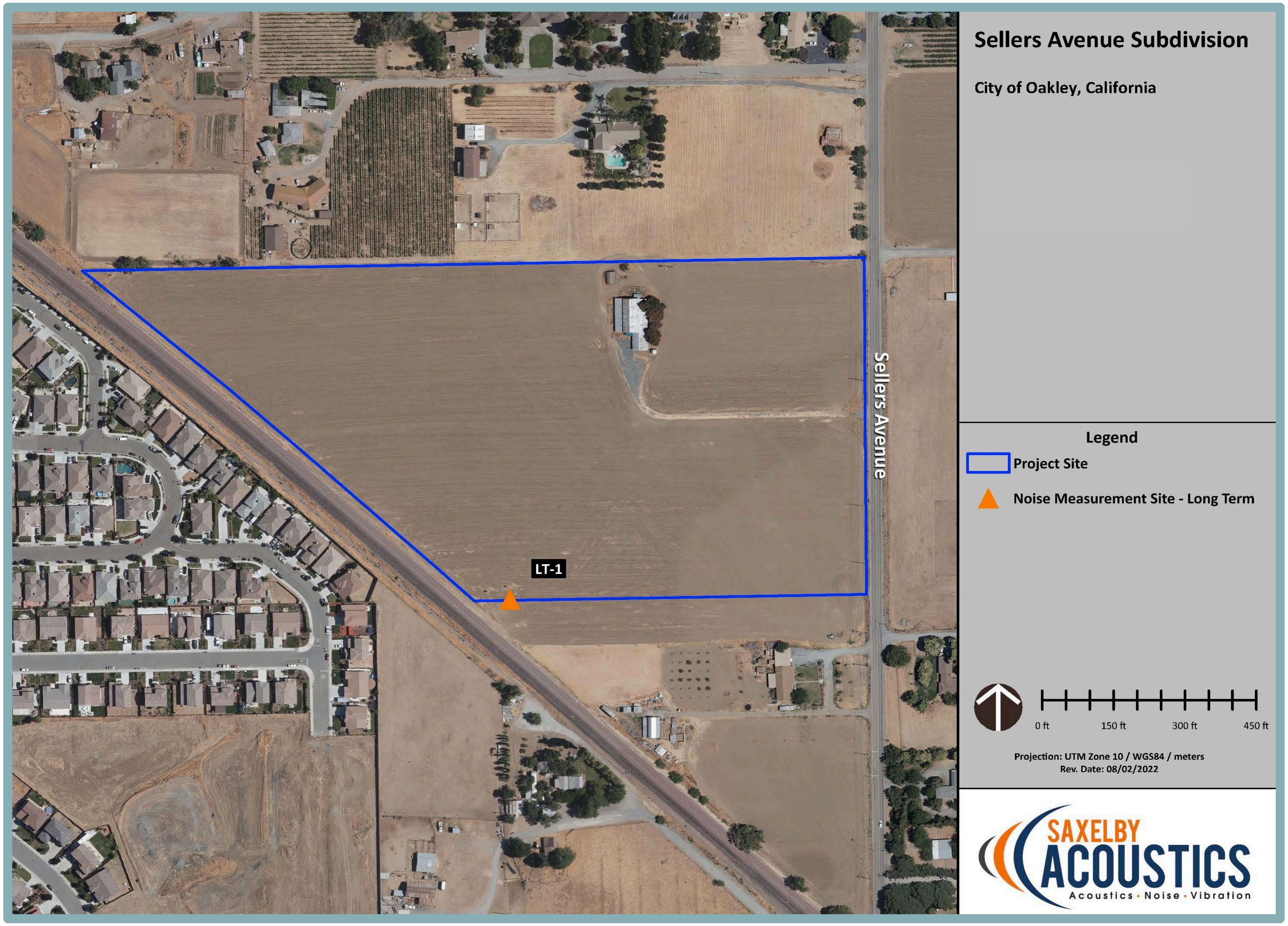
Per the City's General Plan, with regard to non-transportation noise, exterior noise levels at residences should not exceed 55 dBA during daytime hours (7:00 AM to 10:00 PM) and 45 dBA during nighttime hours (10:00 PM to 7:00 AM).

The following sections use the aforementioned thresholds of significance to determine if noise impacts associated with construction and operation of the proposed project would occur.

Construction Noise

During construction of the proposed project, heavy-duty equipment would be used for demolition, grading, excavation, paving, and building construction, which would result in temporary noise level increases. Standard construction equipment, such as backhoes, dozers, and dump trucks would be used on-site. Project haul truck traffic on local roadways would also result in a temporary noise level increase during construction activities.

Figure 8
Noise Measurement Site



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. Construction activities would be temporary in nature and are anticipated to occur during normal daytime hours. Section 4.2.208 of the Municipal Code restricts noise-producing construction activities to weekday hours between 7:30 AM and 7:00 PM Monday through Friday, and from 9:00 AM to 7:00 PM on weekends.

Table 7 shows the predicted construction noise levels for development of the proposed project.

Table 7
Construction Equipment Noise

Type of Equipment	Maximum Level, dB at 50 feet
Auger Drill Rig	84
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85

Source: Federal Highway Administration, Roadway Construction Noise Model User's Guide, January 2006.

Based on the table, activities involved in typical construction would generate maximum noise levels up to 90 dB at a distance of 50 feet. The nearest single-family residence to the site is located approximately 55 feet south of the proposed construction area. Because the nearest single-family residences are located greater than 50 feet away from the project site, sensitive receptors would be exposed to noise levels less than 90 dB during construction.

However, the nearest receptors to the off-site improvement area are located within 50 feet of the construction area and, as a result, could be exposed to noise levels in excess of 90 dB. As such, although construction activities are temporary in nature and would likely occur during normal daytime working hours, construction-related noise could result in a potentially significant increase in noise levels at existing noise-sensitive land uses in the vicinity of the construction. Therefore, impacts resulting from noise levels temporarily exceeding the threshold of significance due to construction could be considered potentially significant.

Operational Noise

Noise generated during operations of the proposed project would be limited to residential noise and traffic noise, as discussed in further detail below.

Residential Noise

Operation of the proposed project would include typical residential noise, such as landscaping maintenance and HVAC systems, which would be compatible with the adjacent existing residential uses. Assuming the project HVAC systems and maintenance equipment would be in normal working order, the proposed project is not anticipated to contribute a measurable operational noise level increase to the existing ambient noise environment at any sensitive receptor locations. Therefore, a less-than-significant impact would occur with regard to on-site operational noise.

Traffic Noise

Operations associated with the proposed project would generate noise associated with vehicle traffic on local roadways. To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels were predicted at sensitive receptors for Existing and Existing Plus Project conditions. Noise levels due to traffic were calculated using the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) and trip generation estimates from the project traffic consultant (TJKM). Table 8 summarizes traffic noise levels at the nearest sensitive receptors along each roadway segment in the project vicinity.

Table 8
Existing Traffic Noise Levels and
Project-Related Traffic Noise Level Increases

Roadway	Segment	Predicted Exterior Noise Level at Closest Sensitive Receptors (dBA L_{dn})		
		Existing No Project	Existing + Project	Change
Sellers Ave.	E Cypress Rd. To Laurel Rd.	60.7	61.4	0.7
W Cypress Rd.	Main St. to Sellers Ave.	66.3	66.7	0.4
Sellers Ave.	Project Access #2 to Delta Rd.	54.4	54.5	0.1
Delta Rd.	Main St. to Sellers Ave.	63.9	64.1	0.2
Main St.	W Cypress Rd. to Laurel Rd.	57.9	58.1	0.2
Laurel Rd.	West of Main St.	56.8	57.1	0.3
Delta Rd.	Main St. to Sellers Ave	61.7	61.7	0.0
Main St.	Laurel Rd. to Delta Rd.	64.1	64.1	0.0

Source: Saxelby Acoustics, 2022.

Based upon the table, the proposed project is predicted to result in a maximum increase in traffic noise levels of 0.7 dBA.

Based upon the Table 6 criteria, where existing traffic noise levels are greater than 65 dB L_{dn}, at the outdoor activity areas of noise-sensitive uses, a +1.5 dB L_{dn} increase in roadway noise levels would be considered significant. As shown in Table 5, the existing noise level in the project vicinity is 69 dB L_{dn}. Therefore, the maximum increase in traffic noise of 0.7 dBA would not exceed the 1.5 dB threshold of significance, and the increase in traffic noise levels associated with implementation of the proposed project is not considered to be significant.

Noise at Proposed Sensitive Receptors

It should be noted that impacts of the environment on a project (as opposed to impacts of a project on the environment) are beyond the scope of required CEQA review. “[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project.” (*Ballona Wetlands Land Trust v. City of Los Angeles,* (2011) 201 Cal.App.4th 455, 473 (*Ballona*). The California Supreme Court recently held that “CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project's future users or residents. What CEQA does mandate…is an analysis of how a project might exacerbate existing environmental hazards." (*California Building Industry Assn. v. Bay Area Air Quality Management Dist.* (2015) 62 Cal.4th 369, 392; see also *Mission Bay Alliance v. Office of Community Investment & Infrastructure* (2016) 6 Cal.App.5th 160, 197 ["identifying the effects on the project and its users of locating the project in a particular environmental setting is neither consistent with CEQA's legislative purpose nor required by the CEQA statutes"], quoting *Ballona*, *supra*, 201 Cal.App.4th at p. 474.).

Based on the above, for the purposes of the CEQA analysis, the relevant inquiry is not whether residents at the proposed single-family homes would be exposed to pre-existing environmental noise-related hazards, but instead whether project-generated noise will exacerbate the pre-existing conditions. Although the analysis of a project's existing noise environment is not required for CEQA purposes, such analysis is included in this document to evaluate compliance with applicable General Plan standards.

As shown in Figure 9, the proposed project would be exposed to exterior noise levels exceeding the City of Oakley's 65 dBA L_{eq} limit for outdoor activity areas of new residential uses. As a result, the City would require the following condition of project approval, which would reduce outdoor noise levels to below the 65 dBA threshold:

- Prior to approval of project improvement plans, the plans for the proposed project shall show that the western project boundary shall be shielded from the adjacent railroad by a 12-foot-tall masonry sound wall and the eastern project boundary shall be shielded from Sellers Avenue by a 6-foot-tall sound walls, subject to approval by the City Engineer. The locations of these barriers are shown in Figure 10. Other types of barriers may be employed but shall be reviewed by an acoustical engineer prior to being constructed. Sound wall heights are assumed to be relative to the higher of the railway/roadway centerlines or building pad elevations and may achieve the wall height through use of earthen berm and wall combinations to achieve the total height.

The maximum noise level at the proposed neighborhood park was estimated to be 63 dBA L_{dn}, which would comply with the City's acceptable noise limit of 70 dBA L_{dn}. Additionally, standard construction practices provide an exterior-to-interior noise level reduction of approximately 25 dBA. Therefore, where exterior noise levels are 70 dBA L_{eq} or less, additional interior noise control measures are typically not required. For the proposed project, exterior noise levels are predicted to be up to 62 dBA at first floors and 66 dBA L_{dn} at second floors, resulting in an interior noise level of approximately 37 dBA at first floors and 41 dBA L_{dn} at second floors, based on typical building construction, which would meet the City's 45 dBA L_{dn} interior noise level standard for residential uses.

Conclusion

Based on the above, operation of the proposed project would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the City's General Plan and the Municipal Code. However, considering the potential for construction activities to result in temporary increases in noise levels in the project area in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, a ***potentially significant*** impact could occur.

Figure 9
Future Transportation Noise Contours (dBA L_{dn})

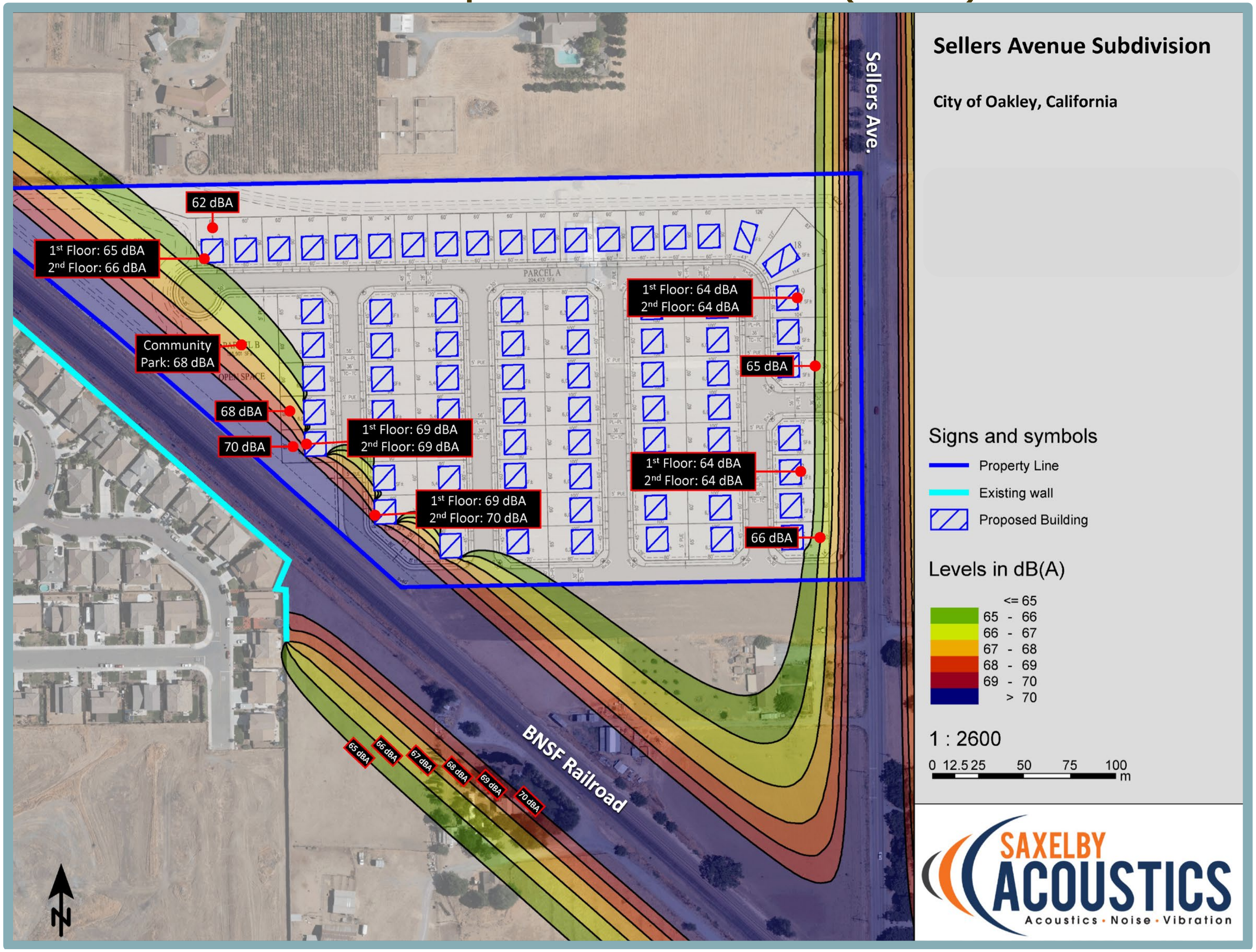
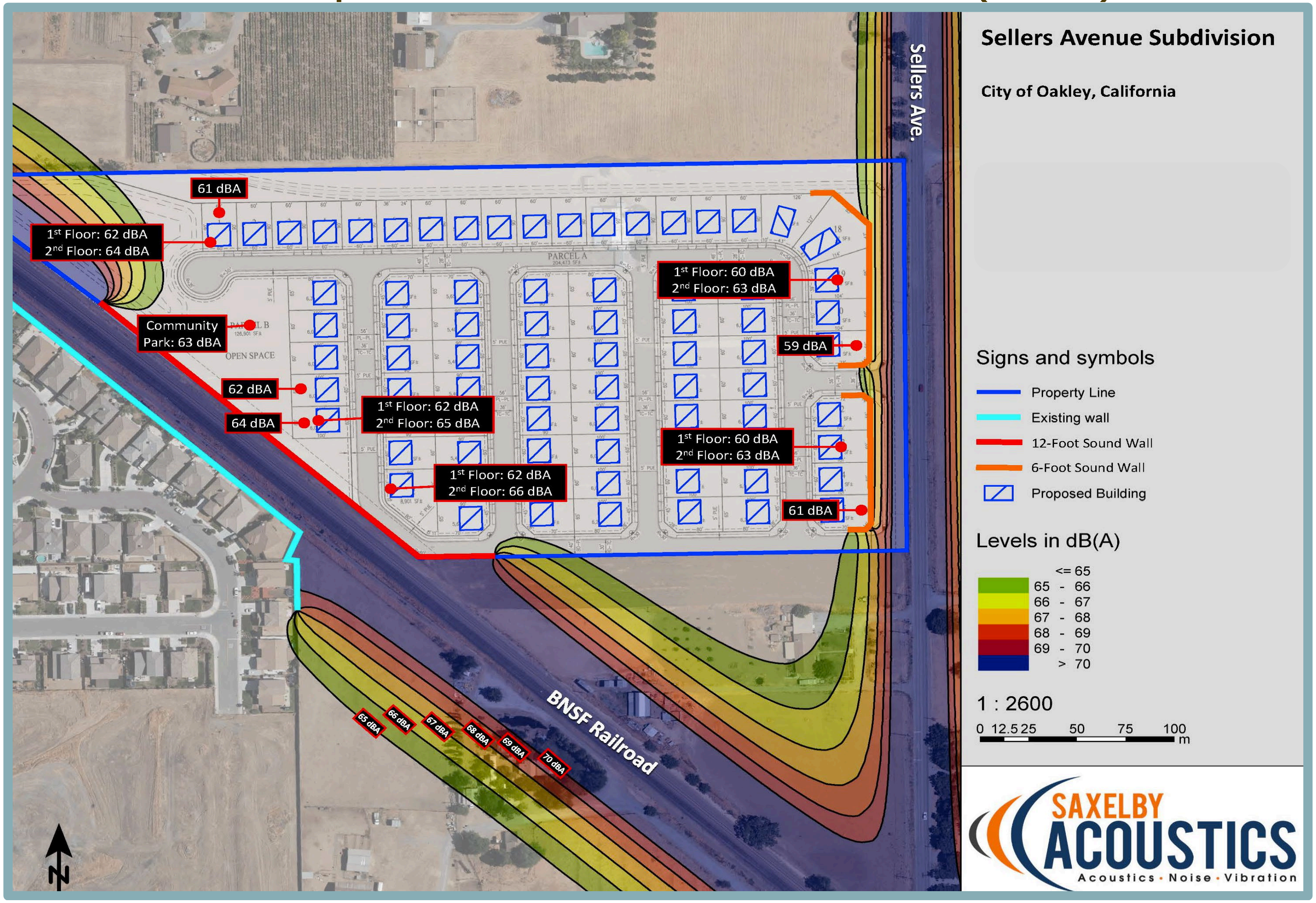


Figure 10
Future Transportation Noise Contours with Sound Walls (dBA L_{dn})



Mitigation Measure(s)

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

XIII-1. *Prior to approval of grading permits, the following criteria shall be established and noted on graded plans, subject to review and approval by the City of Oakley Planning Division:*

- *Construction activities shall be limited to between the daytime hours of 7:30 AM to 7:00 PM Monday through Friday, and 9:00 AM to 7:00 PM on Saturdays, Sundays, and holidays.*
- *Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.*
- *When not in use, motorized construction equipment shall not be left idling for more than five minutes.*
- *Stationary equipment (power generators, compressors, etc.) shall be located at the furthest practical distance from nearby noise-sensitive land uses or sufficiently shielded to reduce noise-related impacts.*

b. Similar to noise, vibration involves a source, a transmission path, and a receiver. However, noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration depends on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration is measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of peak particle velocities (PPV) in inches per second (in/sec). Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of PPV. Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 9, which was developed by the California Department of Transportation (Caltrans), shows the vibration levels that would normally be required to result in damage to structures. As shown in the table, the threshold for architectural damage to structures is 0.20 in/sec PPV and continuous vibrations of 0.10 in/sec PPV, or greater, would likely cause annoyance to sensitive receptors.

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading, utilities placement, and paving occur. Table 10 shows the typical vibration levels produced by construction equipment at various distances. The most substantial source of groundborne vibrations associated with project construction would be the use of vibratory compactors. Use of vibratory compactors/rollers could be required during construction of the proposed project.

Table 9 **Effects of Vibration on People and Buildings**			
PPV		**Human Reaction**	**Effect on Buildings**
mm/sec	**in/sec**		
0.15 to 0.30	0.006 to 0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10 to 15	0.4 to 0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage
***Source:** Caltrans. Transportation Related Earthborne Vibrations. TAV-02-01-R9601. February 20, 2002.*			

Table 10 **Vibration Levels for Various Construction Equipment**		
Type of Equipment	**PPV at 25 feet (in/sec)**	**PPV at 50 feet (in/sec)**
Large Bulldozer	0.089	0.031
Loaded Trucks	0.076	0.027
Small Bulldozer	0.003	0.001
Auger/drill Rigs	0.089	0.031
Jackhammer	0.035	0.012
Vibratory Hammer	0.070	0.025
Vibratory Compactor/roller	0.210 (less than 0.20 at 26 feet)	0.074
***Source:** Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006.*		

Based on Table 10, construction vibration levels anticipated for the project would be less than the 0.2 in/sec threshold at distances of 26 feet or more. Sensitive receptors that could be impacted by construction-related vibrations, including those affected by the off-site improvements, are located approximately 30 feet, or further, from where construction would occur. Therefore, the receptors would be subjected to vibration levels less than the 0.20 in/sec PPV threshold.

Furthermore, the proposed project would only cause elevated vibration levels during construction, as the proposed project would not involve any uses or operations that would generate substantial groundborne vibration. Additionally, construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours, consistent with Section 4.2.208 of the City's Municipal Code.

Because construction activities are not anticipated to expose people to or generate excessive groundbourne vibrations or groundborne noise levels, a ***less-than-significant*** impact would occur.

c. The nearest airport to the site is Byron Airport, located approximately 10.35 miles southeast of the site. The site is not covered by an existing airport land use plan. Given that the project site is not located within two miles of a public or private airport, the proposed project would not expose people residing or working in the project area to excessive noise levels associated with airports. Thus, ***no impact*** would occur.

XIV. POPULATION AND HOUSING. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 the development of 77 single-family residential units. Using the City of Oakley General Plan's average person per household value for single-family uses of 3.43, the proposed project would generate approximately 264 additional residents (77 x 3.43 = 264.11).[36] The 2020 U.S. Census estimated the population of Oakley to be approximately 43,357.[37] An increase in population of 264 residents would constitute an approximately 0.61 percent increase in the City's population, which is not considered substantial growth. Furthermore, as discussed in Section XIX, Utilities and Service Systems, of this IS/MND, adequate utility infrastructure would be available to support the proposed project. Finally, the population growth generated by the proposed project would not be unplanned because the proposed project is consistent with the General Plan land use designation for the site and, thus, has been planned for residential development by the City.

As part of the project, infrastructure would be extended into areas that do not currently have access to municipal water and sewer service, which could indirectly result in population growth in the area. However, the potential population growth would not be unplanned. For example, the proposed sewer line extension has been sized to accommodate flows from the proposed project and existing downstream development only, and would not allow for additional upstream development. Should future development be proposed upstream, such development would be required to upsize the sewer line and undergo project-specific CEQA evaluation. In addition, as demonstrated in Figure ES-1 of the DWD 2020 Facilities Plan, a 24-inch water pipeline has been planned along Sellers Avenue and connecting to the existing main in E. Cypress Road.[38] Thus, the proposed project would fulfill a planned infrastructure improvement for the project area.

The land east of the project site, across Sellers Avenue, is located within unincorporated Contra Costa County. Therefore, if future development is proposed and wishes to connect to the new water and sewer infrastructure in Sellers Avenue, the site would first require annexation into the City of Oakley. As part of the annexation process, CEQA review and any warranted infrastructure improvements and/or upsizing would be required.

Based on the above, the project would have a ***less-than-significant*** impact with respect to inducing substantial unplanned population growth in an area, either directly or indirectly.

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36 City of Oakley. *City of Oakley General Plan* [pg. 2-7]. Adopted January 11, 2022.

37 U.S. Census Bureau. *Quick Facts, City of Oakley, California.* Available at: https://www.census.gov/quickfacts/fact/table/oakleycitycalifornia/POP010220#POP010220. Accessed August 2022.

38 Diablo Water District. *2020 Facilities Plan* [Figure ES-1]. June 2020.

b. The proposed project would require demolition of one existing farmhouse structure and two ancillary buildings. However, the structures are not inhabited, and the removal of such would not be considered to result in the displacement of existing people or housing. As such, the proposed project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere, and a ***less-than-significant*** impact would occur.

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:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Fire protection?	☐	☐	✖	☐
b. Police protection?	☐	☐	✖	☐
c. Schools?	☐	☐	✖	☐
d. Parks?	☐	☐	✖	☐
e. Other Public Facilities?	☐	☐	✖	☐

Discussion

a. Fire protection services within the project area are provided by the Contra Costa County Fire Protection District (CCCFPD). The CCCFPD provides fire suppression and prevention, emergency medical, rescue, ambulance transport, and public education services to more than one million people across the 304-square-mile service area.[39] Services are provided from 25 fire stations, the closest to the project site located approximately 1.81 miles to the northwest. The proposed project would be subject to participation in a Community Facilities District (CFD) prepared and administered by CCCFPD. Participation in the CFD would mitigate any 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, which requires new developments to pay a fair share of costs for new fire protection facilities and services. Additionally, the proposed project would not include any alterations to the circulation system of the surrounding area which could conflict with the City of Oakley's General Plan Policy 4.4.4, or otherwise response times.

As the proposed project is consistent with the General Plan, the increased demand for fire services due to residential development was anticipated and included in the CCCFPD's planning efforts. In addition, the project would be required to pay development fees in accordance with the City of Oakley Municipal Code. As the proposed project is not expected to cause significant degradation to response times or service ratios for the CCCFPD, which would induce the need for physically altered or expanded governmental facilities for fire protection services, the project would result in a ***less-than-significant*** impact.

b. Police protection is provided to the City of Oakley by the Oakley Police Department. The Oakley Police Department currently employs 43 persons, including the Chief of Police, two Lieutenants, six Sergeants, four Detectives, 21 Police Officers, two part time Police Records Assistants, one Records Supervisor and three full time and two part time Police Services Assistants and one Property & Evidence Technician.[40] As previously discussed, the proposed project would result in the development of 77 single-family residences. As

[39] Contra Costa County Fire Protection District. *2018 Annual Report*. Available at: https://cccfpd.org/2018-annual-report/. Accessed September 2022.

[40] Kenneth W. Strelo, Planning Manager, City of Oakley. Personal communication [email] with Rod Stinson, Vice President, Raney Planning and Management. September 6, 2022.

new residences typically generate a demand for police services, an increase in demand for police services would likely occur with implementation of the project. Nevertheless, the increase in police service demand from development of the project site has been included in City of Oakley's demand predictions based on anticipated General Plan buildout. In addition, development fees would be applied to the proposed project, as well as a Police Services levy to mitigate the financial impact to the City's police services budget.

Based on the above, the proposed project would create a demand that was anticipated for the site and would not induce the need for physically altered or expanded governmental facilities for police protection services, the construction of which could cause significant environmental impacts. Therefore, the proposed project would result in a ***less-than-significant*** impact.

c. The Oakley Union Elementary School District and the Liberty Union High School District provide public educational services to the project site. Given that the proposed project would include development of the project site with 77 single-family residences, the proposed project could increase the demand for schools in the area. Using a standard student generation rate of 0.53 students per dwelling unit, the proposed project's addition of 77 single-family residences would result in approximately 41 new K-12 students.[41] The City of Oakley General Plan includes goals and policies set forth to ensure adequate primary and secondary schools are developed in response to population growth. The City expects the General Plan to assist in the goal of providing an efficient and complete educational system for the citizens of Oakley. For example, Policy 4.65, set forth in the General Plan, ensures that school facility impacts fees are collected and requires that the City shall work with developers and school districts to establish mitigation measures to ensure the availability of adequate school facilities.

The proposed project would be subject to payment of School Impact Mitigation Development Fees to fund local school services. Proposition 1A/SB 50 prohibits local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any "[…] legislative or adjudicative act…involving…the planning, use, or development of real property" (Government Code 65996[b]). Satisfaction of the Proposition 1A/SB 50 statutory requirements by a developer are deemed to be "full and complete mitigation." In other words, payment of applicable development fees would be sufficient in reducing the impacts associated with an increase in students from the project.

Therefore, the proposed project would result in a ***less-than-significant*** impact regarding an increase in demand for schools.

d,e. The City of Oakley Municipal Code Section 9.2.208 requires at least 7.02 acres of parkland per 1,000 residents. As noted previously, buildout of the proposed project would result in an increase of approximately 264 new residents to the City. As a result, approximately 1.85 acres of parkland would be required to achieve the desired parkland ratio (0.00702 acres of parkland per resident x 264 new residents = 1.85 acres of parkland). Oakley Resolution 19-03 requires subdividers of land within the City to dedicate land and/or pay fees in lieu of the dedication for the neighborhood and community parks and recreation programs which is discussed in further detail in Section XVI, Recreation, below.

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41 Antioch Unified School District. *Facilities Master Plan* [pg. 248]. July 2018.

The Oakley 2020 General Plan EIR also analyzed impacts of buildout of the General Plan on other public facilities, such as libraries. The Oakley Branch Library is located in Freedom High School at 1050 Neroly Road and is open Tuesday through Saturday. Other libraries in close proximity to the City of Oakley include the Antioch Library and the Brentwood Branch Library. Future residents of the proposed project would have access to the aforementioned facilities. The Oakley 2020 General Plan EIR concluded that with implementation of the necessary General Plan policies, impacts related to public services would be reduced to a less-than-significant level.

Given that the proposed project would be required to pay the applicable park in-lieu fee, and that development of the site was anticipated by the City and would be consistent with the General Plan, the project would result in a ***less-than-significant*** impact related to parks and other public facilities.

XVI. RECREATION. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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?	☐	☐	✖	☐

Discussion

a,b. As discussed in Section XIV, Population and Housing, of this IS/MND, the proposed project would involve the development of 77 single-family residences, which are anticipated to serve approximately 264 residents. Thus, an increase in demand on recreational facilities is anticipated. The City of Oakley Municipal Code Section 9.2.208 requires 7.02 acres of parkland per 1,000 residents. Thus, as noted previously, 1.85 acres of parkland would be required to accommodate the anticipated population increase associated with the proposed project.

Oakley Municipal Code Section 9.2.204 mandates developments that include subdivision of land to either dedicate parkland or pay fees in lieu of the dedication for the neighborhood and community parks and recreation programs. As previously noted, the project would include an approximately 126,901-sf (2.91-acre) open space and bioretention area, which would include a tot-lot. Given the small portion of land dedicated to the tot-lot, the proposed project would not meet the parkland requirements set forth in Municipal Code Section 9.2.208. Therefore, the project applicant would be subject to in-lieu fees require pursuant to the Municipal Code. The park impact fees imposed by the City are used to generate revenue to provide park and recreational services on a community-wide level and to the general project vicinity

Therefore, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of facilities would occur or be accelerated. Furthermore, the project would not require further construction or expansion which might have an adverse physical effect on the environment, and a ***less-than-significant*** impact related to recreation would occur.

XVII. TRANSPORTATION. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 law has changed with respect to how transportation-related impacts may be addressed under CEQA. Traditionally, lead agencies used level of service (LOS) to assess the significance of such impacts, with greater levels of congestion considered to be more significant than lesser levels. Mitigation measures typically took the form of capacity-increasing improvements, which often had their own environmental impacts (e.g., to biological resources). Depending on circumstances, and an agency's tolerance for congestion (e.g., as reflected in its general plan), LOS D, E, or F often represented significant environmental effects. In 2013, however, the State Legislature passed legislation with the intention of ultimately doing away with LOS in most instances as a basis for environmental analysis under CEQA. Enacted as part of SB 743 (2013), PRC Section 21099, subdivision (b)(1), directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed CEQA Guidelines addressing "criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, [OPR] shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated. The office may also establish criteria for models used to analyze transportation impacts to ensure the models are accurate, reliable, and consistent with the intent of this section."

Subdivision (b)(2) of Section 21099 further provides that "[u]pon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion *shall not be considered a significant impact on the environment* pursuant to [CEQA], except in locations specifically identified in the guidelines, if any." (Italics added.)

Pursuant to SB 743, the Natural Resources Agency promulgated CEQA Guidelines Section 15064.3 in late 2018. It became effective in early 2019. Subdivision (a) of that section provides that "[g]enerally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel.

Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact."[42]

Please refer to question 'b' for a discussion of VMT.

Project Trip Generation

The Traffic Impact Analysis was prepared by TJKM to identify the proposed project's potential trip generation and any transportation related impacts associated with such (see Appendix D).[43] Project vehicle trip generation rates were obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition). Based on the ITE rates, the proposed project is estimated to generate 802 daily vehicle trips, including 60 AM peak hour and 80 PM peak hour trips.[44]

Consistency with the City of Oakley General Plan Policies – Pedestrian, Bicycle, and Transit Facilities

The proposed project's potential impacts related to pedestrian, bicycle, and transit facilities are discussed below.

Pedestrian Facilities

Pedestrian facilities are comprised of crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access destinations such as institutions, businesses, public transportation, and recreation facilities. Sidewalks do not currently exist along the project frontage. The closest sidewalk network is located on the north side of E. Cypress Road at the intersection of E. Cypress Road and Sellers Avenue; on both sides of Main Street, south of Laurel Road; and on the south side of Laurel Road, east and west of Main Street.

The proposed project would include construction of sidewalks along the project frontage on the west side of Sellers Road and both sides of the future Laurel Road, and within the project site. All new sidewalks would be required to comply with the Americans with Disabilities Act (ADA) and would connect to the existing pedestrian network in the project vicinity. The project would add new curb ramps at both driveways of the project site and at the southwest corner of the Sellers Road and future Laurel Road intersection. The proposed curb ramps would be required comply with City standards at all intersections and driveways.

Considering the above, the proposed construction of new sidewalks and curb ramps would enhance the existing pedestrian infrastructure and would be required to comply with applicable City and ADA standards. Therefore, the proposed project would not result in the creation of a conflict with any adopted programs, plans, ordinances, or policies addressing pedestrian facilities and a less-than-significant impact would occur related to pedestrian facilities.

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42 Subdivision (b)(2) of Section 15064.3 ("transportation projects") provides that "[t]ransportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152.

43 TJKM. *Sellers Avenue Residential Development Traffic Impact Analysis.* August 1, 2022.

44 The Traffic Impact Analysis evaluated the construction of 85 dwelling units, based on a previously iteration of the proposed site plan. The currently proposed project only includes 77 dwelling units. Therefore, the analysis within the Traffic Impact Analysis is an overestimate and would be considered conservative.

Bicycle Facilities

Approximately 29 miles of bicycle facilities are installed throughout the City of Oakley, including 15 miles of Class II on-street bicycle lanes and 12.4 miles of Class I multi-use paths.[45] In addition, 23 miles of additional bicycle facilities are either planned or proposed, such as new Class II bicycle lanes on Main Street and Laurel Road in the vicinity of the project site.[46] In the vicinity of the project site, Class II bicycle facilities exist along E. Cypress Road on the north side between Knightsen Avenue and Main Street, and on the south side between Main Street and Frank Hengel Way; along Main Street between Cypress Road and Simoni Ranch Road on both sides; along Sellers Avenue, north of E. Cypress Road; and along Laurel Road between Harvest Drive and Main Street on both sides. In addition, a Class I bicycle facility exists at Marsh Creek Regional Trail along Marsh Creek, which can be accessed through Delta Road approximately 1.5 mile west of the project site.

Although the proposed project would not include any new bicycle facilities, bicycle access to the project site would be provided by nearby bicycle facilities along both sides of E. Cypress Road and both sides of Laurel Road, west of Main Street. The Contra Costa County Transportation Authority Countywide Bicycle and Pedestrian Plan identifies planned Class II bike lanes along Sellers Road, south of E. Cypress Road, which is along the project frontage. Implementation of the proposed project would not preclude the future development of the planned bike lane. As such, development of the project would not preclude construction of any planned bicycle trails, the proposed project would not result in the creation of a conflict with any adopted programs, plans, ordinances, or policies addressing bicycle facilities, and a less-than-significant impact would occur related to bicycle facilities.

Transit Facilities

Tri-Delta Transit provides transit services in the City of Oakley, with three lines connecting Brentwood and the Pittsburg/Bay Point Bay Area Rapid Transit (BART) station. Due to COVID-19 conditions, some of the routes and schedules may not currently be in full operation. The following Tri-Delta Transit Routes currently operate in the project vicinity:

- *Route 300,* the Pittsburg BART/Brentwood Park & Ride route, is a weekday express route connecting Brentwood to the Pittsburg/Bay Point BART station via Oakley and Antioch. This bus travels along Main Street, operating from 4:15 AM to approximately 10:00 PM with 15 to 30-minute headways.
- *Route 383*, the Oakley/Antioch/Freedom High School route, connects Oakley to Antioch and Freedom High School in Oakley. This route, in both clockwise and counterclockwise directions, provides only weekday service. The counterclockwise route runs with approximate one-hour headways, and the clockwise route runs twice during the AM peak hour period only.
- *Route 391,* the BART/Pittsburg/Antioch/Oakley/Brentwood route, provides weekday service to most East County cities. Route 391 operates from 4:00 AM to 1:15 AM with 30 to 60-minute headways.
- *Route 393*, the BART/Pittsburg/Antioch/Oakley/Brentwood route, provides weekend service to Route 391. Route 393 operates from 5:20 AM to 2:00 AM with approximately 60-minute headways.

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45 City of Oakley. *Mobility White Paper, City of Oakley Focused General Plan Update.* December 2021.
46 *Ibid.*

In the vicinity of the project site, the nearest existing transit facility is located at the intersection of Main Street and E. Cypress Road. Following the planned extension of Laurel Road, the nearest transit stop to the project site would be at Main Street and Laurel Road. The bus stops are not accessible by way of pedestrian and bicycle facilities; however, future planned facilities and the proposed extension of Laurel Road, would provide additional pedestrian and bicycle accessibility to and from the project site. Although the proposed project would add riders to the existing transit services, TJKM concluded that the increase in ridership could be accommodated by the existing transit capacity. Furthermore, the proposed project is consistent with the General Plan land use designation for the site; therefore, impacts related to transit were already anticipated and evaluated in the General Plan EIR and Update IS/ND. Thus, the proposed project would not conflict with a program, plan, ordinance, or policy addressing transit service and a less-than-significant impact would occur.

Conclusion

Based on the above, a ***less-than-significant*** impact would occur related to conflicting with a program, plan, ordinance, or policy addressing the circulation system, including transit, bicycle, and pedestrian facilities.

b. Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Pursuant to Section 15064.3, analysis of 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. Although the City of Oakley has not yet established any standards or thresholds regarding VMT, pursuant to Section 15064.3(b)(3), a lead agency may analyze a project's VMT qualitatively based on the availability of transit, proximity to destinations, etc. 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.

The Contra Costa Transportation Authority (CCTA) considers residential projects to have a significant impact on VMT if the project generated home-based VMT per resident is higher than the following:

- 85 percent of the home-based VMT per resident in the municipality; or
- 85 percent of the existing County-wide average home-based VMT per resident.

TJKM performed a VMT analysis for the project using the CCTA Model. Two full model runs were performed in accordance with the CCTA VMT methodology. The first model run was for Baseline Conditions, which represent the Year 2020 traffic conditions for the City of Oakley, and the second model run was for Baseline Plus Project Conditions.

Under Baseline conditions, the home-based VMT per capita for the City of Oakley is 26.76. For the project to have a less-than-significant impact, the project must produce VMT within the 85 percent threshold, which equates to 22.75 (0.85 x 26.76) VMT per resident.

Under Baseline conditions, the home-based VMT per capita for the City of Oakley is 26.76. For the project to have a less-than-significant impact, the project must produce VMT within the 85 percent threshold, which equates to 22.75 (0.85 x 26.76) VMT per resident.

Under Baseline Plus Project Conditions, the VMT per capita for the project Travel Analysis Zone is 23.39, which exceeds the 22.75 threshold. However, according to the Traffic Impact Analysis, the incorporation of sidewalk improvements and on- and off-site pedestrian connections included as part of the project would reduce project VMT to 22.06, which is less than the applicable threshold.

Based on the above, the proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b), and a ***less-than-significant*** impact would occur.

c,d. Primary access to the project site is proposed by way of two roadways from Sellers Avenue. The proposed internal roadway network would be 48 to 56 feet wide. The roadway widths are expected to accommodate on-street parking as well as emergency vehicle access.

During project operations, the proposed project would not alter the existing transportation network nor increase hazards due to a geometrical design feature, and oncoming traffic travelling northbound and southbound on Sellers Road would have a clear line of sight to vehicles exiting the project site for at least 430 feet, north and south of both proposed project entrances. As part of the Traffic Impact Analysis, TJKM conducted a vehicle queuing and storage analysis for all exclusive left-turn or right-turn pockets at the intersections in the project vicinity. The 95^{th} percentile (maximum) queues were analyzed using the HCM 6^{th} Edition Queue methodology contained in Vistro Software. According to the analysis, queue lengths at the intersection of Main Street/Laurel Road would increase by a maximum of 20 feet, or less than one vehicle length. Queue lengths would increase by approximately one vehicle at the eastbound left-turn at the intersection of Main Street and Laurel Road, and by less than one vehicle at the westbound left-turn at the intersection of Sellers Road/E. Cypress Road. Thus, safety hazards would not occur. It is noted that the intersection of Main Street and Laurel Road is significantly overloaded by projected development in the City of Oakley, and alternate access to the south may be required. However, this southern access is planned for development in the General Plan, and implementation of the proposed project would not substantially worsen the unacceptable conditions. Furthermore, as noted in the Traffic Impact Analysis, the City's planned improvements are expected to alleviate such queuing issues.

Implementation of the proposed project would introduce additional vehicle traffic along E. Cypress Road and Sellers Avenue. However, the proposed project would be consistent with the General Plan land use designation for the site and, thus, impacts related to hazards and emergency access associated with the proposed project were already analyzed and anticipated in the General Plan EIR and Update IS/ND.

During project construction, public roads in the vicinity would remain open and available for use by emergency vehicles and other traffic. In addition, the new internal roadways would provide two points of access to the project site, which would be adequate for emergency vehicle access. All interior drive aisles and parking stalls would comply with City design standards, and, thus, on-site circulation would be expected to function acceptably for emergency response vehicles. As such, the proposed on-site vehicle circulation would allow for emergency vehicle access and would not impede current response times to the project site. Additionally, the planned future extension of Laurel Road may expedite response times. However, during construction of the off-site water and sewer line extensions, vehicle travel along Sellers Avenue may be affected by truck traffic and/or road closures. As a result, during the construction period, the proposed project could increase hazards and result in inadequate emergency access.

Based on the above, operations of the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses, or result in inadequate emergency access. However, during construction, a ***potentially significant*** impact could occur.

Mitigation Measure(s)

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

XVII-1. *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 Sellers 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.*

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:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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/MND, a Cultural Resource Study was prepared for the proposed project by SAS.[47] The study indicated that Native American or historic-era cultural resources were not present in the project site. In addition, the Native American Heritage Commission (NAHC) conducted a records search of the Sacred Lands File (SLF) on December 16, 2021. According to the NAHC SLF, the search results were negative and, thus, the project site does not contain known tribal cultural resources.

In compliance with AB 52 (PRC Section 21080.3.1), a project notification letter was distributed to the chairpersons of the following tribes on June 21, 2022: Amah Mutsun Tribal Band of Mission San Juan Bautista, Chicken Ranch Rancheria of Me-Wuk Indians, Guidiville Indian Rancheria, Indian Canyon Mutsun Band of Costanoan, Muwekma Ohlone Indian Tribe of the SF Bay Area, Nashville Enterprise Miwok-Maidu-Nishinam Tribe, North Valley Yokuts Tribe, Tule River Indian Tribe, The Ohlone Indian Tribe, Wilton Rancheria, and The Confederated Villages of Lisjan. The Confederated Villages of Lisjan responded with a request for additional information, and the Northern Valley Yokuts Tribe responded with a request to observe and participate in cultural resource studies. The Indian Canyon Mutsun Band of Costanoan Ohlone People responded with a request to consult on the project, and the City responded to coordinate a meeting time. The Indian Canyon Mutsun Band of Costanoan Ohlone People have not yet responded and, as a result, consultation is ongoing.

Based on the history of disturbance at the project site and former agricultural uses, as well as the lack of identified tribal cultural resources at the site, tribal cultural resources are not expected to occur within the site. Nevertheless, the possibility exists that development of the proposed project could result in a substantial adverse change in the significance of a

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47 Solano Archaeological Services, LLC. *Cultural Resources Study – Sellers Avenue Development Project, City of Oakley, Contra Costa County, California.* December 14, 2021.

tribal cultural resource if previously unknown tribal cultural resources are uncovered during grading or other ground-disturbing activities. Thus, a ***potentially significant*** impact related to tribal cultural resources could occur.

Mitigation Measure(s)

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

XVIII-1. Implement Mitigation Measures V-2 and V-3.

XIX. UTILITIES AND SERVICE SYSTEMS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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. Water, sanitary sewer, stormwater drainage, electricity, and telecommunications services would be provided to the project site by way of new connections to existing infrastructure in the immediate project area. Brief discussions of each utility that would serve the proposed project are included below.

Water

The proposed project would include the installation of eight-inch water lines throughout the proposed internal roadway, and 1,880 LF of a northerly 24-inch water line in Sellers Avenue. The water system would connect to the existing 24-inch water main in E. Cypress Road.

Water service for the proposed project would be provided by the DWD. Pursuant to the DWD's 2020 UWMP, DWD's primary water supply for the 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 Contra Costa Canal and Los Vaqueros system and treated at the Randall-Bold Water Treatment Plant in Oakley, which is jointly owned by DWD and CCWD.[48] According to the DWD 2020 UWMP, the DWD has a baseline demand of 177 gallons per capita per day (GPCD).[49] Thus, the project is projected to increase water demand by 46,728 gallons per day (177 GPCD x 264 residents), or 52.34 acre-feet per year.

48 Diablo Water District. *2020 Urban Water Management Plan.* May 2022.
49 Diablo Water District. *2020 Urban Water Management Plan* [pg. 3-5]. May 2022.

According to the DWD 2020 UWMP, the DWD's projected water supply exceeds the water demand for normal, single-dry, and multiple-dry years until at least 2040.[50] For example, during the fifth year of drought in 2025, the anticipated supply exceeds the anticipated demand by 1,207 acre-feet per year. Therefore, the DWD would have sufficient water supply to accommodate the 52.34 acre-feet per year increase associated with the proposed project.

Furthermore, the project site has been anticipated for development by the City of Oakley's General Plan EIR and Update IS/ND. The DWD's demand estimates consider increases in demand due to buildout of the City's General Plan;[51] consequently, the DWD has anticipated some level of increased water demand due to development of the project site compared to existing conditions. Thus, given the DWD's anticipated water surplus even with consideration of building of the project, adequate long-term water supply exists to accommodate the proposed project.

Wastewater

The proposed project would include construction of new eight-inch sanitary sewer lines throughout the project site and along Sellers Avenue, which would then direct wastewater to approximately 2,600 LF of eight-inch sanitary sewer lines northwards to the existing sanitary sewer main in E. Cypress Road.

Sanitary sewer services would be provided to the project site by ISD. The wastewater system is composed of collection, treatment, and effluent recycling facilities. ISD operates and maintains the sewer system, which collects wastewater flows from individual developments within the City and conveys them to ISD's Water Recycling Facility. Wastewater is ultimately treated and stored either at the facility in a large 76 million gallon holding pond, or the treated water is conveyed to an outfall pipe in the San Joaquin River. The Water Recycling Facility has an average daily flow of 2.3 million gallons per day (MGD). The facility has a treatment capacity of approximately 4.3 MGD.[52]

Using standard industry assumptions that (1) domestic water use represents 40 percent of consumption; and (2) wastewater generation represents 90 percent of domestic water use, the proposed project would generate approximately 16,822 gallons of wastewater per day (46,728 gallons x 0.4 x 0.9). The addition of wastewater from the proposed project would represent less than 0.4 percent of the Water Recycling Facility's total capacity. Therefore, future development of 77 residences would not require the construction of new or expansion of existing wastewater treatment facilities, as the Water Recycling Facility has adequate capacity to serve the proposed project.

Furthermore, given that the project is consistent with the site's current General Plan land use, the type and intensity of growth that would be induced by the proposed project has been considered in the General Plan and associated wastewater generation has been analyzed in the General Plan EIR and IS/ND. The General Plan EIR determined that impacts related to wastewater treatment capacity would be less than significant.

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50 Diablo Water District. *2020 Urban Water Management Plan* [pg. 5-5 to 5-6]. May 2022.
51 Diablo Water District. *2020 Urban Water Management Plan* [pg. 2-2]. May 2022.
52 Ironhouse Sanitary District. *Sewer System Management Plan* [pg. I-3]. April 2017.

Therefore, given the available capacity within the wastewater facility, the proposed project would not result in inadequate capacity to serve the project's projected demand in addition to the existing commitments.

Stormwater

As discussed above in Section X, Hydrology and Water Quality, of this IS/MND, all stormwater runoff from impervious surfaces would be directed and treated at the retention basin within the project site. The proposed on-site drainage systems would be required to comply with the City's SWPPP and Erosion and Sediment Control Plan, as well as the County C.3 standards. Therefore, the proposed project would not affect stormwater flows into ISD's existing system.

Electricity and Telecommunications

Electricity and telecommunications utilities would be provided by way of connections to existing infrastructure located within the immediate project vicinity. PG&E would provide electricity services to the project site, while AT&T would provide telecommunication services. The proposed project would not require major upgrades to, or extension of, existing infrastructure. Thus, impacts related to electricity, natural gas, and telecommunications infrastructure would be less than significant.

Conclusion

Based on the above, the proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater, electric power, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. Sufficient water supplies would be available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. Furthermore, adequate wastewater capacity would also be available to serve the project's projected demand in addition to ISD's existing commitments. Thus, a ***less-than-significant*** impact would occur.

d,e. Solid waste, recyclable materials, and compostable material from the City of Oakley is hauled to Potrero Hills Landfill, located in Solano County. The landfill has a maximum permitted throughput of 4,330 tons per day. According to the California Department of Resources Recycling and Recovery (CalRecycle), the Potrero Hills Landfill has a remaining capacity of 13,872,000 cubic yards out of a total permitted capacity of 83,100,000 cubic yards.[53] Due to the substantial amount of available capacity remaining at Potrero Hills Landfill, sufficient capacity would be available to accommodate the project's solid waste disposal needs. Additionally, because the site has been anticipated for development by the City General Plan, impacts related to solid waste resulting from development of the site have already been evaluated in the City's General Plan EIR and Update IS/ND.

Furthermore, as required by CALGreen Code Section 4.408, the proposed project would be required to submit a Waste Management Plan to the City detailing on-site sorting of construction debris. Implementation of the Waste Management Plan would ensure that the proposed project meets established diversion requirements for reused or recycled construction waste.

[53] California Department of Resources Recycling and Recovery (CalRecycle). *Facility/Site Summary: Potrero Hill Landfill (48-AA-0075)*. Available at: https://www2.calrecycle.ca.gov/SolidWaste/Site/Summary/3591. Accessed May 2022.

Based on the above, the proposed project would comply with applicable federal, State, and local statutes and regulations related to solid waste. Therefore, the proposed project would have a ***less-than-significant*** impact related to solid waste.

XX. WILDFIRE. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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. According to the CALFIRE Fire and Resource Assessment Program, the project site is not located within a Very High or High FHSZ.[54] In addition, the project site is located near existing development and roadways, as well as the BNSF railroad tracks, that may act as a fire break. The presence of urban development and paved areas would preclude the uncontrolled spread of wildlife. As such, the proposed project would not result in substantial risks or hazards related to wildfires, and a ***less-than-significant*** impact would occur.

[54] California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE.	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Does the project have the potential to substantially 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, substantially 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. As discussed in Section IV, Biological Resources, of this IS/MND, while a limited potential exists for western burrowing owl, Swainson's hawk, golden eagle, and other birds protected by the MBTA to occur on-site, the proposed project would comply with the ECCCHCP/NCCP requirements including avoidance and minimization measures. In addition, Mitigation Measures V-1, V-2, and V-3 would ensure that, in the event that the on-site structures are considered historic, or if previously unknown prehistoric resources are discovered within the project site, such resources would be protected in compliance with the requirements of CEQA and other State standards.

Considering the above, the proposed project would not degrade the quality of the environment, substantially reduce or impact the habitat of fish or wildlife species, cause fish or wildlife populations 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. Therefore, with implementation of the mitigation measures identified herein, a ***less-than-significant*** impact would occur.

b. The proposed project, in conjunction with other development within the City of Oakley, could incrementally contribute to cumulative impacts in the area. However, as demonstrated in this IS/MND, all potential environmental impacts that could occur as a result of project implementation would be reduced to a less-than-significant level through compliance with the mitigation measures included in this IS/MND, as well as applicable General Plan policies, Municipal Code standards, and other applicable local and State regulations.

All cumulative impacts related to air quality, noise, and transportation are either less than significant or less than significant after mitigation. Given the scope of the project, any incremental effects would not be considerable relative to the effects of all past, current, and probable future projects. In addition, buildout of the site was anticipated by the City for residential uses. As such, the proposed project is within the realm of what has been anticipated for the site and potential impacts resulting from development of the project have been analyzed in the General Plan EIR and Update IS/ND. Therefore, when viewed in conjunction with other closely related past, present, or reasonably foreseeable future projects, with the implementation of mitigation, development of the proposed project would not result in a cumulatively considerable contribution to cumulative impacts, and the project's incremental contribution to cumulative impacts would be ***less than significant****.*

c. As described in this IS/MND, the proposed project would comply with all applicable General Plan policies, Municipal Code standards, other applicable local and State regulations, and mitigation measures included herein. In addition, as discussed in Section VII, Geology and Soils, Section IX, Hazards and Hazardous Materials, and Section XIII, Noise, of this IS/MND, the proposed project would not cause substantial effects to human beings, including effects related to exposure to hazardous materials and noise, after the implementation of the required mitigation measures. Therefore, with implementation of the required mitigation measures, the proposed project would result in a ***less-than-significant*** impact.

Appendix A
Air Quality and Greenhouse Gas Emissions – CalEEMod Results

Sellers Avenue Detailed Report

Table of Contents

7.5. Evaluation Scorecard

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Sellers Avenue
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	20.6
Location	37.98267204054916, -121.67973841346748
County	Contra Costa
City	Oakley
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1362
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	77.0	Dwelling Unit	20.4	150,150	901,890	—	223	—
User Defined Linear	0.50	Mile	0.20	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.42	5.07	44.5	42.0	0.07	1.96	9.47	11.4	1.80	3.72	5.52	—	8,266	8,266	0.34	0.08	1.97	8,299
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.10	5.06	41.7	38.5	0.07	1.81	19.8	21.6	1.66	10.1	11.8	—	7,714	7,714	0.31	0.07	0.05	7,743
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.93	3.57	15.0	15.3	0.02	0.67	2.59	3.25	0.61	1.18	1.79	—	2,759	2,759	0.11	0.05	0.57	2,775
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.35	0.65	2.73	2.79	< 0.005	0.12	0.47	0.59	0.11	0.22	0.33	—	457	457	0.02	0.01	0.10	460

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2023	5.42	5.07	44.5	42.0	0.07	1.96	9.47	11.4	1.80	3.72	5.52	—	8,266	8,266	0.34	0.08	1.97	8,299
2024	1.76	5.00	12.5	15.9	0.03	0.53	0.33	0.87	0.49	0.08	0.57	—	3,056	3,056	0.12	0.06	1.86	3,080
2025	1.65	4.91	11.7	15.7	0.03	0.46	0.33	0.80	0.43	0.08	0.51	—	3,046	3,046	0.12	0.06	1.75	3,070
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	5.10	5.06	41.7	38.5	0.07	1.81	19.8	21.6	1.66	10.1	11.8	—	7,714	7,714	0.31	0.07	0.05	7,743
2024	1.75	4.99	12.6	15.7	0.03	0.53	0.33	0.87	0.49	0.08	0.57	—	3,030	3,030	0.12	0.07	0.05	3,053
2025	1.64	4.90	11.7	15.5	0.03	0.46	0.33	0.80	0.43	0.08	0.51	—	3,022	3,022	0.12	0.06	0.05	3,044
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	1.93	3.04	15.0	15.3	0.02	0.67	2.59	3.25	0.61	1.18	1.79	—	2,759	2,759	0.11	0.04	0.48	2,775
2024	1.26	3.57	8.99	11.2	0.02	0.38	0.24	0.62	0.35	0.06	0.41	—	2,173	2,173	0.09	0.05	0.57	2,189
2025	0.82	2.55	5.87	7.76	0.01	0.23	0.17	0.40	0.21	0.04	0.25	—	1,514	1,514	0.06	0.03	0.38	1,526
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.35	0.55	2.73	2.79	< 0.005	0.12	0.47	0.59	0.11	0.22	0.33	—	457	457	0.02	0.01	0.08	460
2024	0.23	0.65	1.64	2.05	< 0.005	0.07	0.04	0.11	0.06	0.01	0.07	—	360	360	0.01	0.01	0.10	362
2025	0.15	0.46	1.07	1.42	< 0.005	0.04	0.03	0.07	0.04	0.01	0.05	—	251	251	0.01	0.01	0.06	253

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.81	7.26	3.72	32.0	0.07	0.14	2.19	2.33	0.14	0.39	0.52	15.3	8,248	8,263	1.95	0.27	26.2	8,418
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.24	6.69	4.13	25.2	0.07	0.14	2.19	2.33	0.13	0.39	0.52	15.3	7,792	7,807	1.99	0.29	1.73	7,946

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.37	6.84	3.71	26.4	0.07	0.12	2.19	2.31	0.12	0.39	0.50	15.3	7,531	7,547	1.96	0.28	11.9	7,691
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.62	1.25	0.68	4.82	0.01	0.02	0.40	0.42	0.02	0.07	0.09	2.53	1,247	1,249	0.33	0.05	1.98	1,273

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.26	3.00	2.52	27.1	0.06	0.04	2.19	2.24	0.04	0.39	0.43	—	6,459	6,459	0.25	0.24	25.1	6,563
Area	0.44	4.20	0.30	4.47	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	336	336	0.01	< 0.005	—	336
Energy	0.11	0.05	0.90	0.38	0.01	0.07	—	0.07	0.07	—	0.07	—	1,407	1,407	0.14	0.01	—	1,413
Water	—	—	—	—	—	—	—	—	—	—	—	5.37	46.4	51.8	0.56	0.01	—	69.9
Waste	—	—	—	—	—	—	—	—	—	—	—	9.94	0.00	9.94	0.99	0.00	—	34.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.08	1.08
Total	3.81	7.26	3.72	32.0	0.07	0.14	2.19	2.33	0.14	0.39	0.52	15.3	8,248	8,263	1.95	0.27	26.2	8,418
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.10	2.83	2.98	24.7	0.06	0.04	2.19	2.24	0.04	0.39	0.43	—	6,014	6,014	0.28	0.27	0.65	6,103
Area	0.03	3.81	0.26	0.11	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	324	324	0.01	< 0.005	—	325
Energy	0.11	0.05	0.90	0.38	0.01	0.07	—	0.07	0.07	—	0.07	—	1,407	1,407	0.14	0.01	—	1,413
Water	—	—	—	—	—	—	—	—	—	—	—	5.37	46.4	51.8	0.56	0.01	—	69.9
Waste	—	—	—	—	—	—	—	—	—	—	—	9.94	0.00	9.94	0.99	0.00	—	34.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.08	1.08

Total	3.24	6.69	4.13	25.2	0.07	0.14	2.19	2.33	0.13	0.39	0.52	15.3	7,792	7,807	1.99	0.29	1.73	7,946
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.06	2.80	2.79	23.9	0.06	0.04	2.19	2.24	0.04	0.39	0.43	—	6,064	6,064	0.27	0.26	10.9	6,159
Area	0.20	3.99	0.03	2.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.8	13.8	< 0.005	< 0.005	—	13.8
Energy	0.11	0.05	0.90	0.38	0.01	0.07	—	0.07	0.07	—	0.07	—	1,407	1,407	0.14	0.01	—	1,413
Water	—	—	—	—	—	—	—	—	—	—	—	5.37	46.4	51.8	0.56	0.01	—	69.9
Waste	—	—	—	—	—	—	—	—	—	—	—	9.94	0.00	9.94	0.99	0.00	—	34.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.08	1.08
Total	3.37	6.84	3.71	26.4	0.07	0.12	2.19	2.31	0.12	0.39	0.50	15.3	7,531	7,547	1.96	0.28	11.9	7,691
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.56	0.51	0.51	4.36	0.01	0.01	0.40	0.41	0.01	0.07	0.08	—	1,004	1,004	0.04	0.04	1.80	1,020
Area	0.04	0.73	< 0.005	0.39	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.28
Energy	0.02	0.01	0.16	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	233	233	0.02	< 0.005	—	234
Water	—	—	—	—	—	—	—	—	—	—	—	0.89	7.68	8.57	0.09	< 0.005	—	11.6
Waste	—	—	—	—	—	—	—	—	—	—	—	1.65	0.00	1.65	0.16	0.00	—	5.76
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.18	0.18
Total	0.62	1.25	0.68	4.82	0.01	0.02	0.40	0.42	0.02	0.07	0.09	2.53	1,247	1,249	0.33	0.05	1.98	1,273

3. Construction Emissions Details

3.1. Linear, Grading & Excavation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.55	0.46	4.27	5.86	0.01	0.19	—	0.19	0.17	—	0.17	—	864	864	0.04	0.01	—	867
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	4.27	5.86	0.01	0.19	—	0.19	0.17	—	0.17	—	864	864	0.04	0.01	—	867
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	23.7	23.7	< 0.005	< 0.005	—	23.8
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.92	3.92	< 0.005	< 0.005	—	3.93
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.49	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	91.7	91.7	< 0.005	< 0.005	0.41	93.2
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.41	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	83.8	83.8	< 0.005	< 0.005	0.01	84.9
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.32	2.32	< 0.005	< 0.005	< 0.005	2.36
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.39
Vendor	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	0.00
Hauling	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	0.00

3.3. Linear, Drainage, Utilities, & Sub-Grade (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	2.79	3.03	< 0.005	0.15	—	0.15	0.14	—	0.14	—	415	415	0.02	< 0.005	—	416
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.4	11.4	< 0.005	< 0.005	—	11.4
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.88	1.88	< 0.005	< 0.005	—	1.89
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.24	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	45.8	45.8	< 0.005	< 0.005	0.21	46.6
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	1.16	1.16	< 0.005	< 0.005	< 0.005	1.18
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.19	0.19	< 0.005	< 0.005	< 0.005	0.19
Vendor	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	0.00
Hauling	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	0.00

3.5. Linear, Paving (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.72	7.12	9.00	0.01	0.36	—	0.36	0.33	—	0.33	—	1,370	1,370	0.06	0.01	—	1,375
Onsite truck	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.19	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	37.5	37.5	< 0.005	< 0.005	—	37.7
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.21	6.21	< 0.005	< 0.005	—	6.24
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.61	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	115	115	0.01	< 0.005	0.52	117
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.90	2.90	< 0.005	< 0.005	0.01	2.94
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49
Vendor	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	0.00

Hauling	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	0.00

3.7. Demolition (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.39	2.84	27.3	23.5	0.03	1.20	—	1.20	1.10	—	1.10	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.27	0.27	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.23	2.25	1.93	< 0.005	0.10	—	0.10	0.09	—	0.09	—	282	282	0.01	< 0.005	—	282
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.41	0.35	< 0.005	0.02	—	0.02	0.02	—	0.02	—	46.6	46.6	< 0.005	< 0.005	—	46.8
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.62	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	126	126	< 0.005	0.01	0.02	127
Vendor	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	0.00
Hauling	0.02	< 0.005	0.32	0.14	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	227	227	0.02	0.04	0.01	238
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	10.4	10.4	< 0.005	< 0.005	0.02	10.6
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	18.7	18.7	< 0.005	< 0.005	0.02	19.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	1.73	1.73	< 0.005	< 0.005	< 0.005	1.75
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.09	3.09	< 0.005	< 0.005	< 0.005	3.25

3.9. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.70	3.95	39.7	35.5	0.05	1.81	—	1.81	1.66	—	1.66	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.32	3.27	2.92	< 0.005	0.15	—	0.15	0.14	—	0.14	—	435	435	0.02	< 0.005	—	437
Dust From Material Movement	—	—	—	—	—	—	1.62	1.62	—	0.83	0.83	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.60	0.53	< 0.005	0.03	—	0.03	0.02	—	0.02	—	72.1	72.1	< 0.005	< 0.005	—	72.3
Dust From Material Movement	—	—	—	—	—	—	0.29	0.29	—	0.15	0.15	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.72	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	147	147	< 0.005	0.01	0.02	149
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	12.2	12.2	< 0.005	< 0.005	0.03	12.4
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.02	2.02	< 0.005	< 0.005	< 0.005	2.05
Vendor	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	0.00
Hauling	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	0.00

3.11. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.43	3.72	37.3	31.4	0.06	1.59	—	1.59	1.47	—	1.47	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.43	3.72	37.3	31.4	0.06	1.59	—	1.59	1.47	—	1.47	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.31	3.07	2.58	0.01	0.13	—	0.13	0.12	—	0.12	—	542	542	0.02	< 0.005	—	544
Dust From Material Movement	—	—	—	—	—	—	0.76	0.76	—	0.30	0.30	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.56	0.47	< 0.005	0.02	—	0.02	0.02	—	0.02	—	89.8	89.8	< 0.005	< 0.005	—	90.1
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.97	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	183	183	0.01	0.01	0.83	186

Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.82	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	168	168	< 0.005	0.01	0.02	170
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	13.9	13.9	< 0.005	< 0.005	0.03	14.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.31	2.31	< 0.005	< 0.005	< 0.005	2.34
Vendor	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	0.00
Hauling	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	0.00

3.13. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.50	1.26	11.8	13.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.50	1.26	11.8	13.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.64	0.54	5.06	5.64	0.01	0.24	—	0.24	0.22	—	0.22	—	1,027	1,027	0.04	0.01	—	1,031
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.92	1.03	< 0.005	0.04	—	0.04	0.04	—	0.04	—	170	170	0.01	< 0.005	—	171
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.08	1.35	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	254	254	0.01	0.01	1.15	258
Vendor	0.02	0.01	0.33	0.16	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	—	228	228	0.01	0.03	0.59	239
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.10	1.14	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	232	232	0.01	0.01	0.03	235
Vendor	0.02	0.01	0.34	0.16	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	—	229	229	0.01	0.03	0.02	239
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.05	0.04	0.04	0.48	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	101	101	< 0.005	< 0.005	0.21	102
Vendor	0.01	< 0.005	0.14	0.07	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	97.9	97.9	0.01	0.01	0.11	102
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	16.7	16.7	< 0.005	< 0.005	0.04	16.9
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	16.2	16.2	< 0.005	< 0.005	0.02	17.0
Hauling	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	0.00

3.15. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.03	0.86	8.04	9.39	0.02	0.36	—	0.36	0.33	—	0.33	—	1,717	1,717	0.07	0.01	—	1,723

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.47	1.71	< 0.005	0.07	—	0.07	0.06	—	0.06	—	284	284	0.01	< 0.005	—	285
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.08	1.25	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	249	249	< 0.005	0.01	1.05	253
Vendor	0.02	0.01	0.31	0.15	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	—	226	226	0.01	0.03	0.59	237
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.10	1.06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	228	228	0.01	0.01	0.03	231
Vendor	0.02	0.01	0.33	0.15	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	—	226	226	0.01	0.03	0.02	236
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.06	0.74	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	165	165	< 0.005	0.01	0.33	168
Vendor	0.02	0.01	0.23	0.11	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01	—	162	162	0.01	0.02	0.18	169
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	27.3	27.3	< 0.005	< 0.005	0.05	27.7
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	26.8	26.8	< 0.005	< 0.005	0.03	28.0
Hauling	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	0.00

3.17. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.67	0.56	5.21	6.51	0.01	0.22	—	0.22	0.20	—	0.20	—	1,196	1,196	0.05	0.01	—	1,201
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.95	1.19	< 0.005	0.04	—	0.04	0.04	—	0.04	—	198	198	0.01	< 0.005	—	199
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.16	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	244	244	< 0.005	0.01	0.97	248
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	—	222	222	0.01	0.03	0.59	232
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.09	0.99	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	224	224	0.01	0.01	0.03	227
Vendor	0.02	0.01	0.31	0.15	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	—	222	222	0.01	0.03	0.02	232
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.48	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	113	113	< 0.005	< 0.005	0.21	114
Vendor	0.01	< 0.005	0.15	0.07	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	111	111	0.01	0.02	0.13	116
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	18.7	18.7	< 0.005	< 0.005	0.03	18.9
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	18.3	18.3	< 0.005	< 0.005	0.02	19.2
Hauling	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	0.00

3.19. Paving (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.04	0.88	8.06	10.0	0.01	0.41	—	0.41	0.38	—	0.38	—	1,512	1,512	0.06	0.01	—	1,517
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.33	0.41	< 0.005	0.02	—	0.02	0.02	—	0.02	—	62.1	62.1	< 0.005	< 0.005	—	62.3
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.3	10.3	< 0.005	< 0.005	—	10.3
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.04	0.73	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	137	137	0.01	0.01	0.62	140
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	5.22	5.22	< 0.005	< 0.005	0.01	5.30
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.88
Vendor	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	0.00
Hauling	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	0.00

3.21. Architectural Coating (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	0.93	1.15	< 0.005	0.04	—	0.04	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	3.52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	0.93	1.15	< 0.005	0.04	—	0.04	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	3.52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.37	0.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	53.6	53.6	< 0.005	< 0.005	—	53.7
Architectural Coatings	—	1.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.87	8.87	< 0.005	< 0.005	—	8.90
Architectural Coatings	—	0.26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.27	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	50.8	50.8	< 0.005	< 0.005	0.23	51.7
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.23	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	46.5	46.5	< 0.005	< 0.005	0.01	47.1
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	18.8	18.8	< 0.005	< 0.005	0.04	19.1

Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	3.12	3.12	< 0.005	< 0.005	0.01	3.17
Vendor	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	0.00
Hauling	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	0.00

3.23. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	3.52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	3.52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.65	0.82	< 0.005	0.02	—	0.02	0.02	—	0.02	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	—	2.52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.12	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	—	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.25	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	49.9	49.9	< 0.005	< 0.005	0.21	50.6
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.21	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	45.6	45.6	< 0.005	< 0.005	0.01	46.2
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.15	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	33.0	33.0	< 0.005	< 0.005	0.07	33.5

Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	5.47	5.47	< 0.005	< 0.005	0.01	5.55
Vendor	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	0.00
Hauling	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	0.00

3.25. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	3.52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	3.52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.46	0.60	< 0.005	0.01	—	0.01	0.01	—	0.01	—	70.3	70.3	< 0.005	< 0.005	—	70.5
Architectural Coatings	—	1.86	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.6	11.6	< 0.005	< 0.005	—	11.7
Architectural Coatings	—	0.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.23	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	48.9	48.9	< 0.005	< 0.005	0.19	49.6
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.20	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	44.7	44.7	< 0.005	< 0.005	0.01	45.3
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	23.8	23.8	< 0.005	< 0.005	0.04	24.1

Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	3.94	3.94	< 0.005	< 0.005	0.01	4.00
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	3.26	3.00	2.52	27.1	0.06	0.04	0.35	0.39	0.04	0.11	0.15	—	6,459	6,459	0.25	0.24	25.1	6,563
Total	3.26	3.00	2.52	27.1	0.06	0.04	0.35	0.39	0.04	0.11	0.15	—	6,459	6,459	0.25	0.24	25.1	6,563
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	3.10	2.83	2.98	24.7	0.06	0.04	0.35	0.39	0.04	0.11	0.15	—	6,014	6,014	0.28	0.27	0.65	6,103
Total	3.10	2.83	2.98	24.7	0.06	0.04	0.35	0.39	0.04	0.11	0.15	—	6,014	6,014	0.28	0.27	0.65	6,103
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	0.56	0.51	0.51	4.36	0.01	0.01	0.06	0.07	0.01	0.02	0.03	—	1,004	1,004	0.04	0.04	1.80	1,020
Total	0.56	0.51	0.51	4.36	0.01	0.01	0.06	0.07	0.01	0.02	0.03	—	1,004	1,004	0.04	0.04	1.80	1,020

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	266	266	0.04	0.01	—	269
Total	—	—	—	—	—	—	—	—	—	—	—	—	266	266	0.04	0.01	—	269
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	266	266	0.04	0.01	—	269
Total	—	—	—	—	—	—	—	—	—	—	—	—	266	266	0.04	0.01	—	269
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	44.1	44.1	0.01	< 0.005	—	44.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	44.1	44.1	0.01	< 0.005	—	44.5

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.11	0.05	0.90	0.38	0.01	0.07	—	0.07	0.07	—	0.07	—	1,141	1,141	0.10	< 0.005	—	1,144
Total	0.11	0.05	0.90	0.38	0.01	0.07	—	0.07	0.07	—	0.07	—	1,141	1,141	0.10	< 0.005	—	1,144
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.11	0.05	0.90	0.38	0.01	0.07	—	0.07	0.07	—	0.07	—	1,141	1,141	0.10	< 0.005	—	1,144
Total	0.11	0.05	0.90	0.38	0.01	0.07	—	0.07	0.07	—	0.07	—	1,141	1,141	0.10	< 0.005	—	1,144
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.16	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	189	189	0.02	< 0.005	—	189
Total	0.02	0.01	0.16	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	189	189	0.02	< 0.005	—	189

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	—	11.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.03	0.01	0.26	0.11	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	324	324	0.01	< 0.005	—	325
Consumer Products	—	3.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.41	0.39	0.04	4.36	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.7	11.7	< 0.005	< 0.005	—	11.7
Total	0.44	14.8	0.30	4.47	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	336	336	0.01	< 0.005	—	336
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	11.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.03	0.01	0.26	0.11	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	324	324	0.01	< 0.005	—	325
Consumer Products	—	3.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.03	14.4	0.26	0.11	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	324	324	0.01	< 0.005	—	325
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	1.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.32	1.32	< 0.005	< 0.005	—	1.33
Consumer Products	—	0.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.04	< 0.005	0.39	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.95	0.95	< 0.005	< 0.005	—	0.96

Total	0.04	1.78	< 0.005	0.39	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.28	2.28	< 0.005	< 0.005	—	2.28

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	5.37	46.4	51.8	0.56	0.01	—	69.9
Total	—	—	—	—	—	—	—	—	—	—	—	5.37	46.4	51.8	0.56	0.01	—	69.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	5.37	46.4	51.8	0.56	0.01	—	69.9
Total	—	—	—	—	—	—	—	—	—	—	—	5.37	46.4	51.8	0.56	0.01	—	69.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.89	7.68	8.57	0.09	< 0.005	—	11.6
Total	—	—	—	—	—	—	—	—	—	—	—	0.89	7.68	8.57	0.09	< 0.005	—	11.6

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	9.94	0.00	9.94	0.99	0.00	—	34.8
Total	—	—	—	—	—	—	—	—	—	—	—	9.94	0.00	9.94	0.99	0.00	—	34.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	9.94	0.00	9.94	0.99	0.00	—	34.8
Total	—	—	—	—	—	—	—	—	—	—	—	9.94	0.00	9.94	0.99	0.00	—	34.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.65	0.00	1.65	0.16	0.00	—	5.76
Total	—	—	—	—	—	—	—	—	—	—	—	1.65	0.00	1.65	0.16	0.00	—	5.76

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.08	1.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.08	1.08
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.08	1.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.08	1.08
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.18	0.18
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.18	0.18

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grading & Excavation	Linear, Grading & Excavation	3/25/2023	4/7/2023	5.00	10.0	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	4/8/2023	4/21/2023	5.00	10.0	—
Linear, Paving	Linear, Paving	4/22/2023	5/5/2023	5.00	10.0	—
Demolition	Demolition	1/1/2023	2/12/2023	5.00	30.0	—
Site Preparation	Site Preparation	2/13/2023	3/24/2023	5.00	30.0	—
Grading	Grading	3/25/2023	5/5/2023	5.00	30.0	—
Building Construction	Building Construction	5/27/2023	9/12/2025	5.00	600	—
Paving	Paving	5/6/2023	5/26/2023	5.00	15.0	—

Architectural Coating	Architectural Coating	6/10/2023	9/26/2025	5.00	600	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

Linear, Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Linear, Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Linear, Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Linear, Grading & Excavation	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Trenchers	Diesel	Average	2.00	8.00	40.0	0.50

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	3.07	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT

Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	27.7	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	8.23	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.54	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	10.0	11.7	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	0.00	8.40	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	5.00	11.7	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	8.40	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—

Linear, Paving	Worker	12.5	11.7	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.40	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	304,054	101,351	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Linear, Grading & Excavation	—	—	0.20	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	—	—	0.20	0.00	—
Demolition	0.00	0.00	0.00	8,000	—
Site Preparation	—	—	45.0	0.00	—
Grading	—	—	90.0	0.00	—
Paving	0.00	0.00	0.00	0.00	1.05

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	0.85	0%
User Defined Linear	0.20	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	204	0.03	< 0.005
2024	0.00	204	0.03	< 0.005
2025	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	727	726	726	265,197	7,964	7,957	7,957	2,906,073

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—

Wood Fireplaces	0
Gas Fireplaces	15
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	62
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
304053.75	101,351	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	476,234	204	0.0330	0.0040	3,559,088

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	2,802,209	13,156,231

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	18.4	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	19.4	annual days of extreme heat
Extreme Precipitation	1.95	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	0	0	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	1	1	2
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	37.6
AQ-PM	24.9
AQ-DPM	42.8
Drinking Water	43.3
Lead Risk Housing	37.4
Pesticides	62.3
Toxic Releases	24.8
Traffic	9.01
Effect Indicators	—
CleanUp Sites	80.9
Groundwater	39.4
Haz Waste Facilities/Generators	0.00
Impaired Water Bodies	96.3
Solid Waste	22.1
Sensitive Population	—
Asthma	78.9
Cardio-vascular	79.5
Low Birth Weights	40.9
Socioeconomic Factor Indicators	—
Education	46.8
Housing	25.3
Linguistic	9.46
Poverty	44.2

Unemployment	26.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	53.47106378
Employed	45.74618247
Education	—
Bachelor's or higher	38.0341332
High school enrollment	100
Preschool enrollment	78.60900808
Transportation	—
Auto Access	40.33106634
Active commuting	17.10509432
Social	—
2-parent households	12.13909919
Voting	48.44090851
Neighborhood	—
Alcohol availability	80.59797254
Park access	50.03208007
Retail density	10.07314256
Supermarket access	2.399589375
Tree canopy	47.18336969
Housing	—
Homeownership	62.29949955
Housing habitability	86.79584242

Low-inc homeowner severe housing cost burden	48.45374054
Low-inc renter severe housing cost burden	95.30347748
Uncrowded housing	52.3675093
Health Outcomes	—
Insured adults	44.9121006
Arthritis	0.0
Asthma ER Admissions	12.2
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	20.9
Cognitively Disabled	46.5
Physically Disabled	57.4
Heart Attack ER Admissions	10.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0

Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	25.4
Elderly	75.4
English Speaking	70.3
Foreign-born	43.5
Outdoor Workers	12.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	74.3
Traffic Density	9.9
Traffic Access	56.2
Other Indices	—
Hardship	54.9
Other Decision Support	—
2016 Voting	35.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	47.0
Healthy Places Index Score for Project Location (b)	55.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health and Equity Evaluation Scorecard not completed.

8. User Changes to Default Data

Screen	Justification
Land Use	Per CGS map, project site is composed of marine and continental sedimentary rock.
Construction: Construction Phases	Linear construction assumed to occur entirely during grading phase.
Construction: Off-Road Equipment	Construction equipment assumed to be generally consistent with the normal construction defaults.
Operations: Vehicle Data	Trip generation updated based on project-specific traffic report.

Appendix B
Planning Survey Report

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: DeJesus Property	
PROJECT TYPE: ☒ Residential ☐ Commercial ☐ Transportation ☐ Utility ☐ Other	
PROJECT DESCRIPTION (BRIEF): Construction of a 77-lot residential subdivision. A detailed project description is included in Attachment A.	
PROJECT ADDRESS/LOCATION: West side of Sellers Road in Oakley, Contra Costa County, California.	
PARCEL/PROJECT SIZE (ACRES): 20.75+/- acres (20.42+/- acre parcel + 0.33+/- acres off-site improvements to Sellers Avenue)	
PROJECT APN(S): 033-150-013	
APPLICATION SUBMITTAL DATE: May 2022	**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: MLC Holdings, Inc.	
AUTHORIZED AGENT'S NAME AND TITLE: Paul Manyisha, Forward Planning Manager	
PHONE NO.: (925) 324-6178	**APPLICANT'S E-MAIL:** paul.manyisha@mlcholdings.net
MAILING ADDRESS: 2603 Camino Ramon, Suite 140, San Ramon, CA 94583	

BIOLOGIST INFORMATION[1]	
BIOLOGICAL/ENVIRONMENTAL FIRM: Moore Biological Consultants	
CONTACT NAME AND TITLE: Diane S. Moore, M.S.	
PHONE NO.: (209) 745-1159	**CONTACT'S E-MAIL:** moorebio@softcom.net
MAILING ADDRESS: Moore Biological Consultants, 10330 Twin Cities Rd., Ste. 30, Galt, California 95632	

[1] A USFWS/CDFW-approved biologist (project-specific) is required to conduct the surveys. Please submit biologist(s) approval request to the Conservancy.

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	underway	2022
☐ Notice of Preparation		
☐ Draft EIR		
☐ 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 <u>including</u> 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 <u>total parcel acreage</u> (development project) or <u>project footprint acreage</u> (rural infrastructure or utility project).

<u>Table 1: Land Cover Types and Impacts</u>

Land Cover Type	Permanent Impacts	Temporary Impacts	*Proposed for HCP/NCCP Dedication on the Parcel (Requires Conservancy Approval)* Stream Setback	Preserve System Dedication
Grassland				
Annual Grassland				
Alkali Grassland				
Ruderal	20.10			
Shrubland				
Chaparral and Scrub				
Woodland				
Oak Savannah				
Oak Woodland				
Riparian				
Riparian Woodland/Scrub				
Wetland				
Permanent Wetland				
Seasonal Wetland				
Alkali Wetland				
Aquatic				
Aquatic (Reservoir/Open Water)				
Slough/Channel				
Pond				
Stream (in linear feet)	-	-	-	-
Irrigated Agriculture				
Pasture				
Cropland				
Orchard				
Vineyard				
Other				
Nonnative woodland				
Wind turbines				
Developed (not counted toward Fees)				
Urban	0.65			
Aqueduct				
Turf				
Landfill				
TOTAL IMPACTS	20.75			

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]	7 trees	

Please provide details of impacts to stream features:

Stream Name: None

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.

The first field survey conducted at the site was on October 21, 2020. This report reflects current site conditions based on the recent May 13th, 2022 field survey.

Ruderal Grassland: The project site is an open field that contained rows of recently cut grasses and weeds presumably being prepared for a hay harvest; there are weedier strips of grassland along the edges of the site (fence lines, road, and railroad tracks) and around the barn in the site (Figures 4a – 4d). Grasslands in the site have been highly disturbed by past agricultural use, grazing, development on the site and surrounding parcels, and other human activities (Figure 3). Dominant grassland species in the site include oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), prickly lettuce (*Lactuca serriola*), black mustard (*Brassica nigra*), telegraph weed (*Heterotheca grandiflora*), long-beaked stork's fill (*Erodium botrys*), and Russian thistle (*Salsola tragus*).

Urban/Developed: The developed areas in the site include an historical driveway from Sellers Avenue that leads to the barn in the north part of the site; this driveway is barely discernible in present day. The barn, graveled and landscaped areas surrounding the barn, and a small structure northwest of the barn are also considered urban (Figure 3 and 4d).

There are 7 trees in the project site. There are six ornamental trees associated with the large barn and an olive tree in the northeast corner of the site adjacent to Sellers Avenue.

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):

An assessment of potentially jurisdictional Waters of the U.S. or wetlands in the site was undertaken on May 13, 2022. There are no potentially jurisdictional Waters of the U.S. or wetlands of any type in the site. The site consists primarily of highly disturbed ruderal grassland, with soils that appear to be well draining.

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[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).

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.

General Setting: The project site is in Oakley, in Contra Costa County, California (Figure 1). The site is within Section 31 in Township 2 North, Range 3 East of the USGS 7.5-minute Brentwood topographic quadrangle (Figure 1). The site is situated at an elevation of approximately 20 feet above mean sea level. Land uses in this portion of Oakley are primarily residential and agricultural. Sellers Avenue bounds the east edge of the site and railroad tracks bound the west edge of the site. There is a residential subdivision to the west of the railroad tracks. The south edge of the site is adjacent to a fallow field and the north edge of the site is adjacent to ranchette-style residential parcels.

Western Burrowing Owl: The project site contains ruderal grassland and is within the range of western burrowing owl (*Athene cunicularia*). California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB, 2022) does not contain any records of western burrowing owl within 500 feet of the site (Figure 5b) The nearest record of burrowing owl in the CNDDB (2022) search area is approximately 0.25 miles northwest of the site. The site was 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 meandering transects throughout the property. No western burrowing owls or burrows with evidence of burrowing owl occupancy were observed. Very few ground squirrel burrows were observed in the project site; the burrows were primarily located along the southern fence line and along the railroad tracks.

Swainson's Hawk: The site contains areas of ruderal grassland and is along the western edge of the range of Swainson's hawks (*Buteo swainsoni*). There are 7 trees in the site that are potentially suitable for nesting Swainson's hawks, as well as several potential nest trees near and visible from the site. Trees in the site and visible from the site were inspected for raptor stick nests. No raptor stick nests were observed in the on-site trees or in trees visible from the site. No Swainson's hawks were observed during the field survey, which was conducted just outside of the nesting season of this species. CDFW's CNDDB contains no occurrences of Swainson's hawk within 1,000 feet of the site and only 1 record within 0.5 mile of the site (Figure 5b).

Golden Eagle: The site contains ruderal grassland and is within the range of golden eagles (*Aquila chrysaetos*). CDFW's CNDDB contains no occurrences of golden eagle within 0.5 miles of the site or within the larger geographical area depicted in Figure 5b. There are 7 trees in the site that are potentially suitable for nesting golden eagles and only a few potential nest trees near and visible from the site. Trees on the site and visible from the site were inspected for raptor stick nests. No raptor stick nests were observed in the trees on site or any of the off-site trees visible from the site. No golden eagles were observed and this species nests more often on cliffs in remote natural areas than in trees near urban areas.

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 21, 2020 and May 13, 2022. The site was systematically searched by walking throughout the site.

Survey Results and Discussion

The site is 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.

IV. 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]

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

[10] The requirements in this table are not comprehensive; they are detailed in the next section on the following page.

☐ 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.

<u>SWAINSON'S HAWK</u>

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.

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.

[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.

☐ **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 <u>and</u> when applicant plans to submit payment.

The 20.75+/- acre site contains 20.10 acres of ruderal grassland and 0.65 acres of urban land.

The site is within Fee Zone 1 and construction is expected to commence in late-2022.

Using the current fee schedule, fees would be paid on 20.10+/- acres within Fee Zone 1, at a cost of $18,937.95 per acre ($380,652.83). Fees will be paid pursuant to the fee schedule that is in place at the time construction commences.

ATTACHMENT A: PROJECT DESCRIPTION

DeJesus Property

Project Description

May 2022

The 20.75+/- acre project site is along the west side of Sellers Road, approximately 0.5 miles south of Sellers Avenue, in Oakley, Contra Costa County, California (Figure 1). The site is within Sections 31 and 32, in Township 2 North, Range 3 East of the USGS 7.5-minute Brentwood topographic quadrangle. The project site includes a parcel encompassing 20.42+/- acres, and an offsite 0.33+/- acre sliver along Sellers Avenue.

MLC Holdings, Inc. plans to divide the property in to a 77-lot residential subdivision with single family medium-sized homes (Figures 2a -2c). Access to the site will be from tow locations along Sellers Avenue. One road will be in the approximate location as the existing access road in to the site and the second access point will be a new road along the south edge of the site. A network of roads and a cul-de-sac will provide access to all of lots in the subdivision. There will be an open space/water quality area in the west part of the site, adjacent to the railroad tracks.

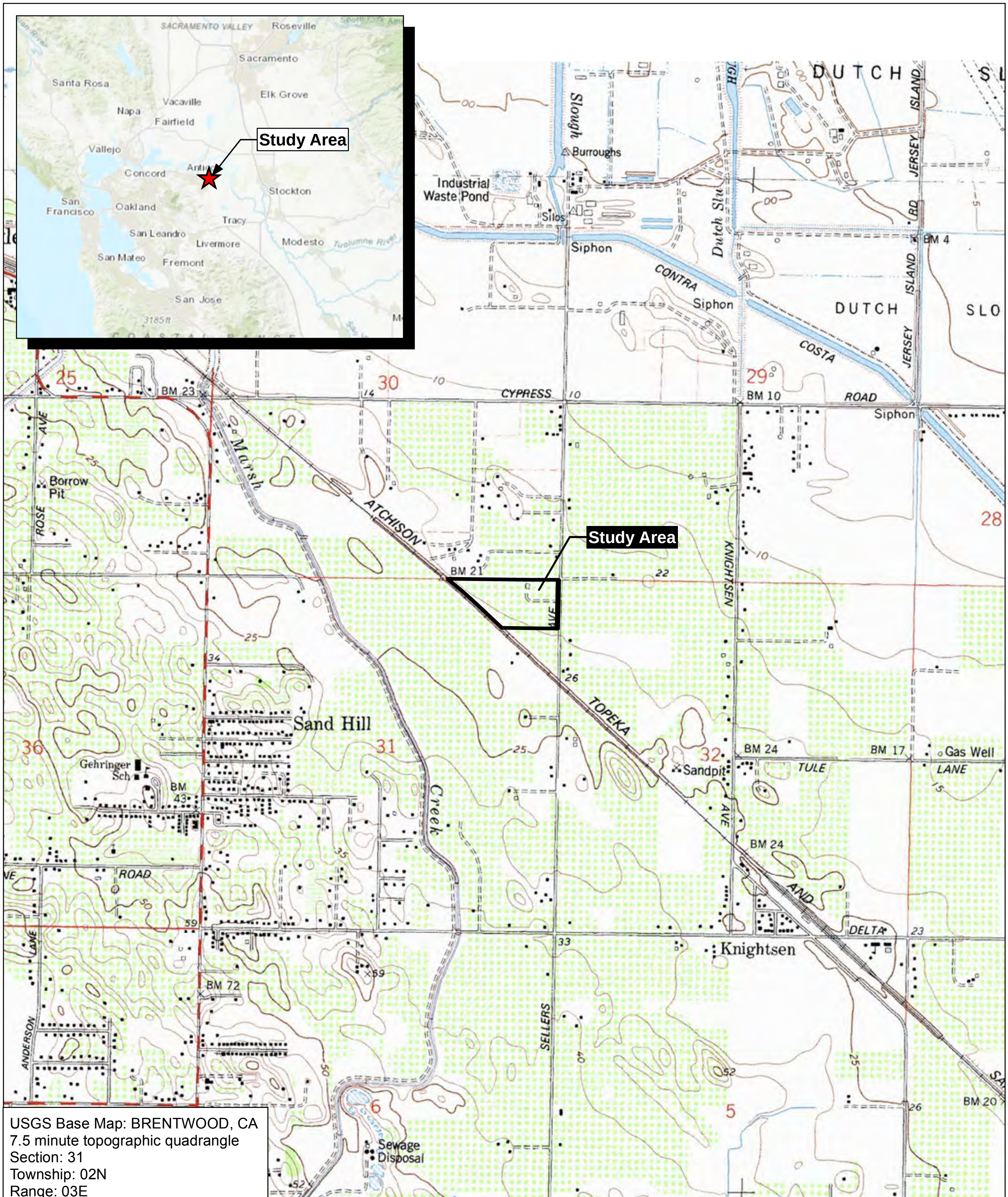
The project may require minor improvements to the edge of Sellers Avenue for shoulder work and/or construction of a sidewalk along the edge of the road. If needed, these off-site improvements will occur on 0.33+/- acres of land immediately east of the site. The north edge of the site is reserved for the future extension of Laurel Road.

The proposed project will connect to existing City infrastructure to provide sewer and water to the site. The storm water will be detained in a water quality treatment basin prior to its discharge into the City's storm drain system.

Standard construction best management practices (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 hydromulch.

Construction is expected to begin in late-2022 and is expected to continue through 2023.

ATTACHMENT B: FIGURES



USGS Base Map: BRENTWOOD, CA
7.5 minute topographic quadrangle
Section: 31
Township: 02N
Range: 03E

Figure 1

Moore Biological Consultants

0 1,000 2,000
Feet

Map Date: 10/29/2020

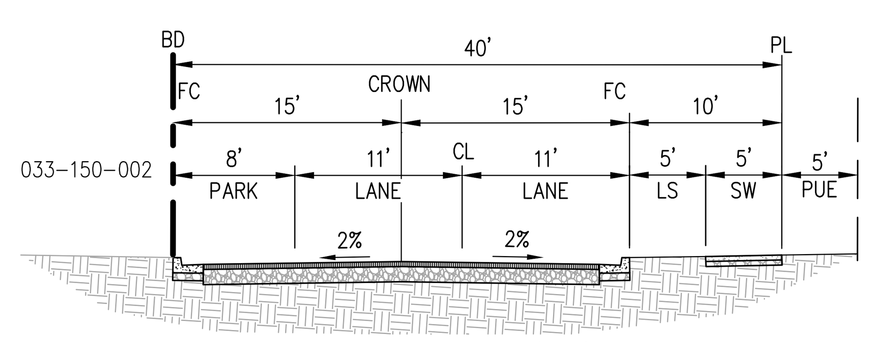
Site Map/USGS

DeJesus Property

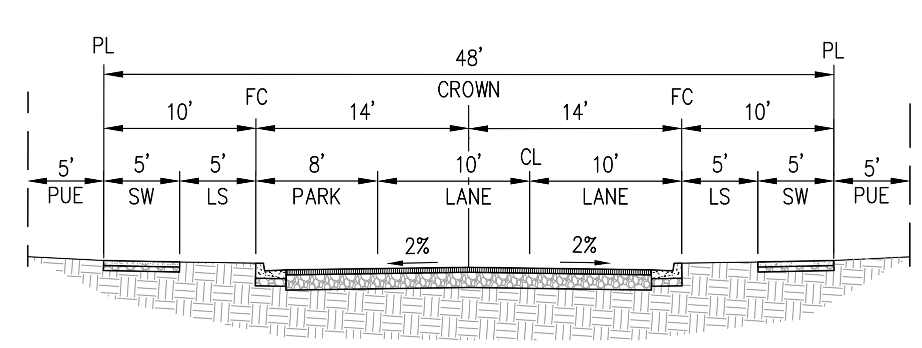
City of Oakley, Contra Costa County, CA

GENERAL NOTES

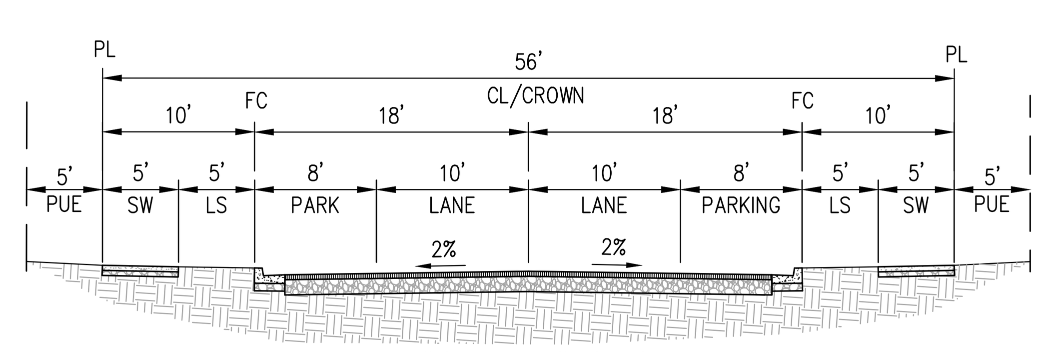
1. ASSESSORS PARCEL NO. 033-150-013
2. SITE AREA: GROSS: 20.42± ACRES
   NET: 18.07± ACRES (SELLERS AVE & LAUREL ROAD DEDICATIONS)
3. LOTS: RESIDENTIAL: 77 (LOTS 1-63)
   PRIVATE STREETS: 5 (PARCEL A)
   OPEN SPACE: 1 (PARCEL B)
4. DWELLING UNITS: 77
5. SITE DENSITY: GROSS: 3.77 DU/AC
   NET: 4.26 DU/AC
6. EXISTING GENERAL PLAN: SINGLE FAMILY RESIDENTIAL – MEDIUM
   PROPOSED GENERAL PLAN: SINGLE FAMILY RESIDENTIAL – MEDIUM
7. EXISTING ZONING: P-1Y (PLANNED DEVELOPMENT)
   PROPOSED ZONING: P-1Y (PLANNED DEVELOPMENT)
8. EXISTING LAND USE: VACANT LAND
   PROPOSED LAND USE: SINGLE FAMILY RESIDENTIAL
9. BENCHMARK: BEING A BRASS DISK STAMPED CONTRA COSTA COUNTY BM #3095, IN CONCRETE NORTHWEST CORNER OF NEW BRIDGE OVER MARSH CREEK, AT ITS INTERSECTION WTH CYPRESS ROAD, 400 FT. EAST OF THE INTERSECTION OF CYPRESS ROAD AND STATE HIGHWAY 4, HAVING AN ELEVATION OF 22.993 FEET
10. BASIS OF BEARINGS: THE BASIS OF BEARINGS FOR THIS SURVEY IS BETWEEN FOUND NGS MONUMENTS, HAVING PID NO. AA3821 AND JS4835, EPOCH 2010, THE BEARING BEING N70°45'54"E (CALCULATED AND MEASURED)
11. FLOOD ZONE: ZONE X: 0.2% ANNUAL CHANCE FLOOD HAZARD, AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTH LESS THAN ONE FOOT OR WITH DRAINAGE AREAS OF LESS THAN ONE SQUARE MILE
    SOURCE: FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), FLOOD INSURANCE RATE MAP, MAP NUMBER 06013C0360G
    DATE: MARCH 21, 2017
12. UTILITIES:
    WATER: DIABLO WATER DISTRICT
    SEWER: IRONHOUSE SANITARY DISTRICT
    STORM DRAIN: CITY OF OAKLEY
    GAS & ELECTRIC: PG&E
    TELEPHONE: AT&T
13. DIMENSIONS: ALL DIMENSIONS ARE PRELIMINARY AND SUBJECT TO FINAL MAP
14. GRADING: GRADING SHOWN IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL DESIGN. PAD GRADES SHOWN ON SITE DEVELOPMENT PERMIT PLANS MUST BE IN SUBSTANTIAL CONFORMANCE WITH THOSE DEPICTED ON THE APPROVED TENTATIVE MAP.
15. PHASING: PROJECT MAY BE CONSTRUCTED IN PHASES
16. FINAL MAP: THIS PROJECT MAY BE PHASED. MULTIPLE FINAL MAPS MAY BE FILED UPON APPROVAL OF THE VESTING TENTATIVE SUBDIVISION MAP.



40' STREET SECTION
NOT TO SCALE



48' STREET SECTION
NOT TO SCALE



56' STREET SECTION
NOT TO SCALE

VESTING TENTATIVE MAP
DEJESUS PROPERTY
SELLERS AVENUE

CITY OF OAKLEY CONTRA COSTA COUNTY CALIFORNIA

0 60 120 180

CIVIL ENGINEERS • SURVEYORS • PLANNERS

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ROSEVILLE • (916) 788-4456
WWW.CBANDG.COM

SHEET NO.
TM-1

F:\3247-000\ACAD\TM\TM-1.DWG

Figure 2a: Tcqrgl e Rclr_rgtc K_n

Figure 2`: Npcjgkg1_pw Ep_bg1e Plan

Figure 2c: Npcjgkg1_pw Srgjgrw Plan

	Ruderal Grassland (Acres)	Urban/Developed (Acres)
On-Site	19.78	0.64
Off-Site	0.32	0.01
Total	**20.10**	**0.65**

Figure 3

Moore Biological Consultants

On-Site (20.42 ac.)

Off-Site Improvements (0.33 ac.)

Urban/Developed (0.65 ac.)

Ruderal Grassland (20.10 ac.)

N W E S

0 250 500

Map Date: 10/29/2020
Aerial Source: Google Earth (02/2020)

Field Verified Landcover Map

DeJesus Property

City of Oakley, Contra Costa County, CA

Rows of recently cut hay in the west part of the site, looking southwest from the north edge of the site; 05/13/22.

Rows of recently cut hay in the body of the site, looking west from the east edge of the site; 05/13/22. This is the location of an old access road from Sellers Avenue to the large barn in the site.

FIGURE 4a

MOORE BIOLOGICAL

REPRESENTATIVE PHOTOGRAPHS

East edge of the site, looking north along Sellers Avenue from the southeast corner of the site; 05/13/22. There will be road improvements along Sellers Avenue.

South edge of the site, looking west from the southeast corner of the site; 05/13/22.

FIGURE 4b

MOORE BIOLOGICAL **REPRESENTATIVE PHOTOGRAPHS**

West edge of the site, looking northwest from the southwest corner of the site; 05/13/22. Railroad tracks are situated just west of the site.

North edge of the site, looking west from the northeast corner of the site; 05/13/22.

FIGURE 4c

MOORE BIOLOGICAL

REPRESENTATIVE PHOTOGRAPHS

Large barn and a few smaller structures in the north part of the site, looking northwest; 05/13/22. There are a total of six trees associated with the barn in the site.

Ground squirrel burrows along the west edge of the site; 05/13/22. There are a few ground squirrels burrows within the site, primarily located along the railroad tracks and edges of the site.

FIGURE 4d

MOORE BIOLOGICAL

REPRESENTATIVE PHOTOGRAPHS

	Ruderal Grassland (Acres)	Urban/Developed (Acres)
On-Site	19.78	0.64
Off-Site	0.32	0.01
Total	**20.10**	**0.65**

Figure 5a

On-Site (20.42 ac.)

Off-Site Improvements (0.33 ac.)

Urban/Developed (0.65 ac.)

Ruderal Grassland (20.10 ac.); assumed habitat for western burrowing owl.

Trees; assumed habitat for Swainson's hawk, golden eagle, and white-tailed kite.

N W E S

0 250 500

Field Verified Landcover Map

DeJesus Property

City of Oakley, Contra Costa County, CA

Moore Biological Consultants

Map Date: 10/29/2020
Aerial Source: Google Earth (02/2020)

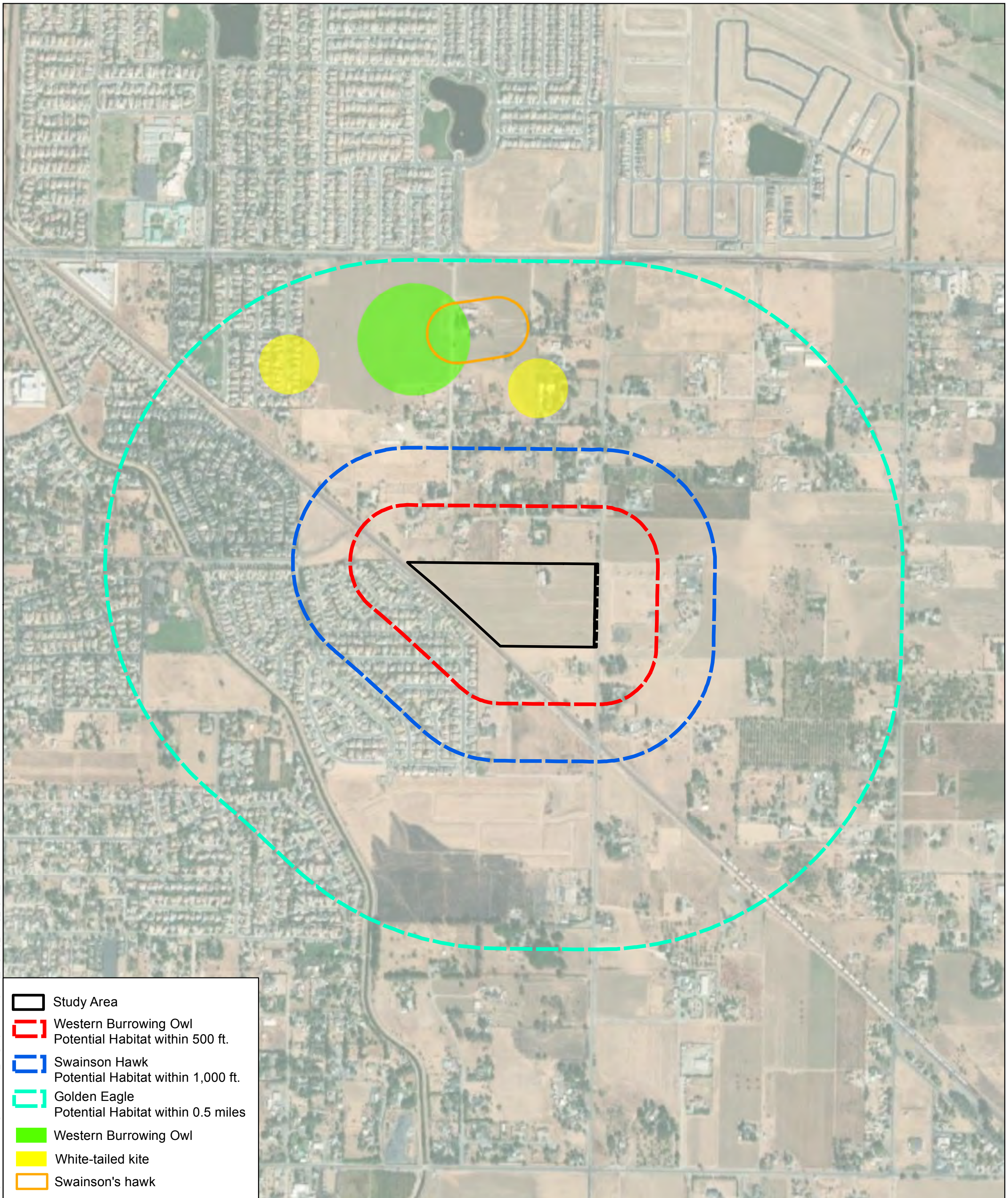

Figure 5b

Moore Biological Consultants

0 500 1,000

N S E W

Map Date: 10/29/2020
Aerial Photo: DigitalGlobe (2020)

Regional Species Habitat Map

DeJesus Property

City of Oakley, Contra Costa County, CA

ATTACHMENT C: PROJECT COMPLIANCE TO HCP CONDITIONS

DeJesus Property

Project Compliance to HCP Conditions

May 2022

<u>HCP/NCCP Conservation Measure 1.11. Avoid Direct Impacts on Extremely Rare Plants, Fully Protected Wildlife Species, or Covered Migratory Birds</u>:

The potential for special-status plants to occur within the site is considered extremely remote, 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 and near the site. This species is documented in CDFW's CNDDB in two locations within 0.5 mile of the site (Figure 5b). 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 in or visible from the site. In the event active nests are found, the applicant shall notify the Implementing Entity (i.e., City of Oakley) and consult with CDFW for further guidance.

On-site tree, shrubs, and grasslands 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.

<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. Standard construction best management practices (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 hydromulch.

ATTACHMENT D: FEE CALCULATOR

ECCC HCP/NCCP 2022 Fee Calculator Worksheet
Clayton, Oakley, Pittsburg, County, PSE[1]
Permanent Impacts

PROJECT APPLICANT: MLC Holdings, Inc.
PROJECT NAME: DeJesus Property
APN(s): 033-150-013
JURISDICTION: Oakley
DATE: May 2022

DEVELOPMENT FEE

See appropriate ordinance or HCP/NCCP Figure 9-1 to determine Fee Zone

	PERMANENT IMPACTS (ACRES)		2022 FEE/ACRE *subject to change* [2]		
Fee Zone 1	20.10	x	$18,937.95	=	$380,652.83
Fee Zone 2		x	$37,875.90	=	$0.00
Fee Zone 3		x	$9,468.98	=	$0.00
Fee Zone 4[3]		x	$28,406.93	=	$0.00
			Development Fee Total	=	**$380,652.83**

WETLAND MITIGATION FEE

Impacts to riparian/scrub, wetlands, ponds, aquatic, and slough/channel are charged both a wetland mitigation fee and a development fee. Please also include these impact acres to development fee above.[4]

	PERMANENT IMPACTS (ACRES)		2022 FEE/ACRE *subject to change* [2]		
Riparian woodland / scrub		x	$105,515.99	=	$0.00
Perennial Wetland		x	$159,911.71	=	$0.00
Seasonal Wetland		x	$374,220.31	=	$0.00
Alkali Wetland		x	$378,310.21	=	$0.00
Ponds		x	$205,923.71	=	$0.00
Aquatic (open water)		x	$102,962.44	=	$0.00
Slough / Channel		x	$147,029.10	=	$0.00

STREAMS	PERMANENT IMPACTS (LINEAR FEET)		2022 FEE/LINEAR FT *subject to change* [2]		
Streams 25 feet wide or less		x	$542.59	=	$0.00
Streams greater than 25 feet wide		x	$814.47	=	$0.00
			Wetland Mitigation Fee Total	=	**$0.00**

FEE REDUCTION[5]

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		$380,652.83
Wetland Mitigation Fee Total	+	$0.00
Mitigation Fee Subtotal	=	**$380,652.83**
Contribution to Recovery[6]	+	
TOTAL AMOUNT TO BE PAID	=	**$380,652.83**

[1] The City of Brentwood is on a separate fee schedule until the 2017 Fee Audit has been adopted by the city. For projects within Brentwood, please use the Brentwood fee calculator worksheets.
[2] Development fees are adjusted annually (no later than March 15 of each year) 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.
[3] Fee Zone 4 is not shown on Figure 9-1 of the HCP/NCCP but refers to the fee applicable to those few covered acitivities located in northeastern Antioch (p. 9-21).
[4] Per Chapter 9.3.1 of the HCP/NCCP, for every acre of impact on wetlands, streams, ponds, and riparian woodland/scrub, applicants will pay the appropriate development fee (according to fee zone) towards land acquisition and the conservation program as a whole, as well as a wetland mitigation fee to cover the costs of successful restoration or creation.
[5] Fee reductions must be reviewed and approved by the Conservancy.
[6] Participating Special Entities (PSEs) are required to pay fees over and above permanent and temporary impact mitigation fees to cover indirect costs of extending permit coverage, including a portion of the costs of the initial preparation of the Plan, and a portion of the costs of conservation actions designed to contribute to species recovery. This amount will be determined in accordance with the Contribution to Recovery Implementation Policy adopted by the Conservancy Governing Board on December 8, 2014.

Appendix C
CNDDB Search Results

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

Query Summary:
Quad IS (Brentwood (3712186))
AND Other Status CONTAINS (CDFW_FP-Fully Protected OR CDFW_SSC-Species of Special Concern)

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	1	None	Threatened	G1G2	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Anniella pulchra	Northern California legless lizard	Reptiles	ARACC01020	383	3	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Chaparral, Coastal dunes, Coastal scrub
Athene cunicularia	burrowing owl	Birds	ABNSB10010	2011	48	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland
Elanus leucurus	white-tailed kite	Birds	ABNKC06010	184	4	None	None	G5	S3S4	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_LC-Least Concern	Cismontane woodland, Marsh & swamp, Riparian woodland, Valley & foothill grassland, Wetland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1404	7	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Lanius ludovicianus	loggerhead shrike	Birds	ABPBR01030	110	1	None	None	G4	S4	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Broadleaved upland forest, Desert wash, Joshua tree woodland, Mojavean desert scrub, Pinon & juniper woodlands, Riparian woodland, Sonoran desert scrub

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

Query Summary:
Quad IS (Brentwood (3712186))
AND CA Rare Plant Rank IS (1A OR 1B OR 1B.1 OR 1B.2 OR 1B.3 OR 2A OR 2B OR 2B.1 OR 2B.2 OR 2B.3)

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Blepharizonia plumosa	big tarplant	Dicots	PDAST1C011	53	6	None	None	G1G2	S1S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Valley & foothill grassland
Centromadia parryi ssp. congdonii	Congdon's tarplant	Dicots	PDAST4R0P1	98	1	None	None	G3T2	S2	1B.1	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Valley & foothill grassland
Cicuta maculata var. bolanderi	Bolander's water-hemlock	Dicots	PDAPI0M051	17	1	None	None	G5T4T5	S2?	2B.1	null	Marsh & swamp, Salt marsh, Wetland
Extriplex joaquinana	San Joaquin spearscale	Dicots	PDCHE041F3	127	3	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Alkali playa, Chenopod scrub, Meadow & seep, Valley & foothill grassland
Hesperolinon breweri	Brewer's western flax	Dicots	PDLIN01030	29	1	None	None	G2	S2	1B.2	null	Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland
Oenothera deltoides ssp. howellii	Antioch Dunes evening-primrose	Dicots	PDONA0C0B4	10	1	Endangered	Endangered	G5T1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Interior dunes
Symphyotrichum lentum	Suisun Marsh aster	Dicots	PDASTE8470	175	1	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_USDA-US Dept of Agriculture	Brackish marsh, Freshwater marsh, Marsh & swamp, Wetland
Tropidocarpum capparideum	caper-fruited tropidocarpum	Dicots	PDBRA2R010	20	1	None	None	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Valley & foothill grassland

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

Query Summary:
Quad IS (Brentwood (3712186))
AND Federal Listing Status IS (Endangered OR Threatened OR Proposed Endangered OR Proposed Threatened OR Candidate) OR State Listing Status IS (Endangered OR Threatened OR Candidate Endangered OR Candidate Threatened)

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	1	None	Threatened	G1G2	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Ambystoma californiense pop. 1	California tiger salamander - central California DPS	Amphibians	AAAAA01181	1265	21	Threatened	Threatened	G2G3T3	S3	null	CDFW_WL-Watch List, IUCN_VU-Vulnerable	Cismontane woodland, Meadow & seep, Riparian woodland, Valley & foothill grassland, Vernal pool, Wetland
Branchinecta lynchi	vernal pool fairy shrimp	Crustaceans	ICBRA03030	796	3	Threatened	None	G3	S3	null	IUCN_VU-Vulnerable	Valley & foothill grassland, Vernal pool, Wetland
Buteo swainsoni	Swainson's hawk	Birds	ABNKC19070	2548	11	None	Threatened	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland
Oenothera deltoides ssp. howellii	Antioch Dunes evening-primrose	Dicots	PDONA0C0B4	10	1	Endangered	Endangered	G5T1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Interior dunes
Vulpes macrotis mutica	San Joaquin kit fox	Mammals	AMAJA03041	1020	3	Endangered	Threatened	G4T2	S2	null	null	Chenopod scrub, Valley & foothill grassland

Appendix D
Traffic Impact Analysis

OAKLEY

CALIFORNIA

Sellers Avenue Residential Development

Draft Traffic Impact Analysis

Oakley, CA

August 1, 2022

TJKM

Table of Contents

Tables

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Appendices

1.0 INTRODUCTION

This report describes results of the Transportation Impact Assessment (TIA) for a proposed Sellers Road residential development in the City of Oakley in Contra Costa County. The project site is located in east Oakley, on the southwest corner of the future intersection at Sellers Road and E. Laurel Road. The proposed residential development includes 85 single-family residential lots. The entire development is within the City of Oakley. Direct access to and from the site is proposed via two proposed driveways on Sellers Road. There are no existing sidewalks on Sellers Road in the vicinity of the project area.

This chapter discusses the TIS Purpose, project study area, and analysis scenarios. **Figure 1** shows the study area and project site location. **Figure 2** shows the project site plan, dated November 2021.

1.1 Study Purpose

The purpose of the TIA is to evaluate potential transportation impacts that could result from the proposed project, identify short-term and long-term multi-modal circulation needs where relevant to site access and/or project impacts, identify potential mitigation measures for any significant transportation impacts, and evaluate the adequacy of the proposed site plan for accommodating multi-modal site access and meeting City of Oakley Guidelines.

1.2 Study Intersections

TJKM evaluated transportation conditions at three existing study intersections, and one proposed new driveway which would provide access to the project site. All intersections were evaluated based on conditions provided from recent traffic counts conducted for the a.m. (7:00 a.m.-9:00 a.m.) and p.m. (4:00 p.m.-6:00 p.m.) peak periods for a typical weekday. The following study intersections were selected in consultation with City staff based on the anticipated trip generation and travel pattern for project trips:

1. E. Cypress Road / Sellers Avenue
2. Sellers Avenue / Future E. Laurel Road*
3. Sellers Avenue / Delta Road
4. Sellers Avenue / Project Access 1**
5. Sellers Avenue / Project Access 2**
6. Main Street / E. Laurel Road
7. Main Street / Delta Road

*Indicates intersection would be evaluated under Background scenarios only

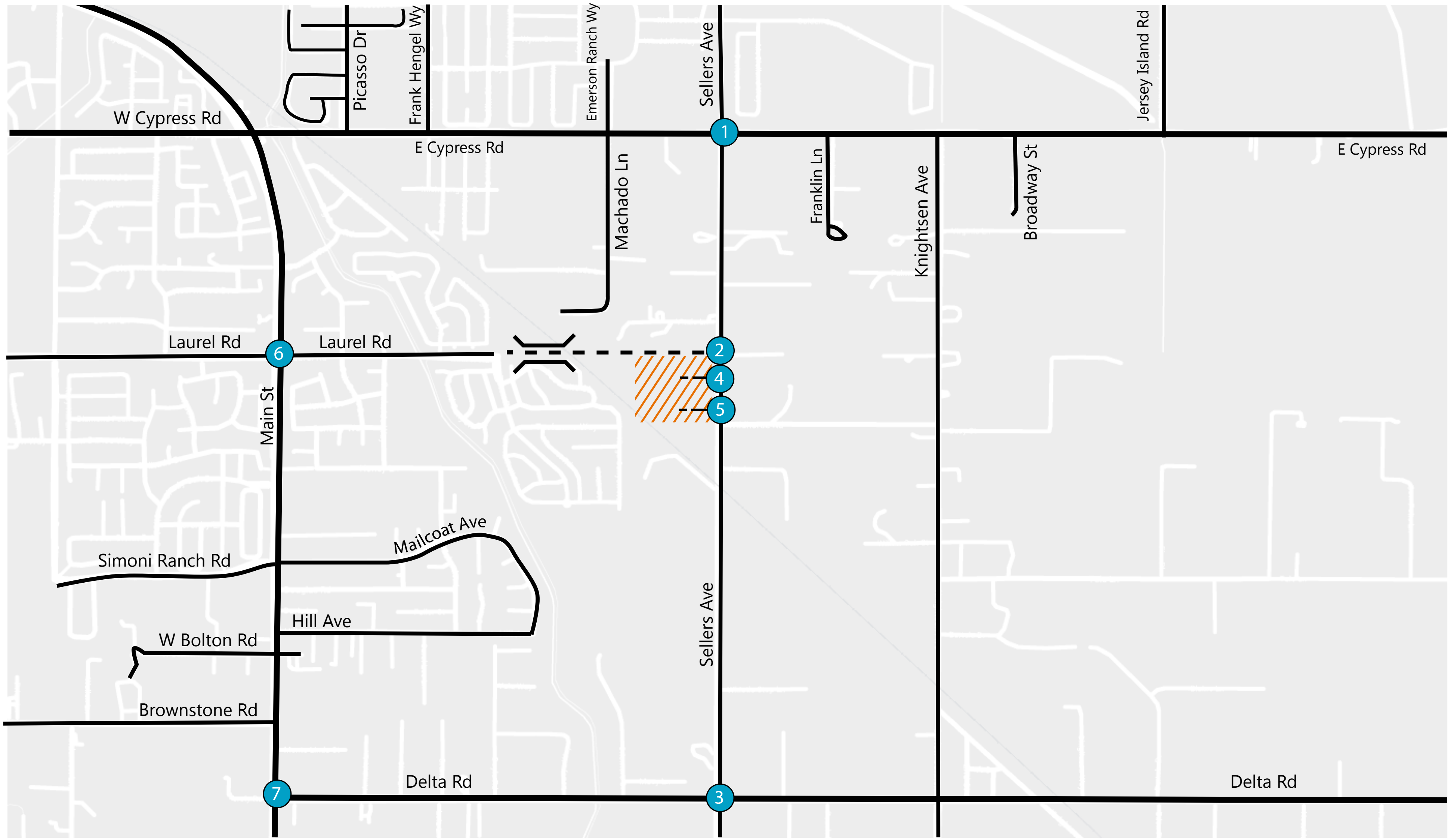
**Indicates intersection would be evaluated under "plus Project" scenarios only

1.3 Study Scenarios

The roadway operations analysis addresses the following six traffic scenarios:

- ***Existing Conditions*** – This scenario describes existing transportation conditions in the study area based on the current roadway and sidewalk network characteristics, transit service, and the existing Oakley Citywide Traffic Model.
- ***Existing plus Project Conditions*** – This scenario is similar to Existing Conditions but with the additions of net new trips that would be generated by the project.
- ***Background Conditions*** –This scenario describes the projected peak hour traffic operations based on the net change to travel patterns anticipated from approved (but not yet constructed) or fully/partially occupied developments in the City at the time of the Existing Conditions assessment. This includes additional trips that would be generated if the proposed approved developments were to operate at full occupancy. The conditions in this scenario were developed using the Updated Citywide Vistro Model.
- ***Background plus Project Conditions*** – This scenario is similar to Background Conditions but with the inclusion of vehicle trips that would be generated by the project. The Background plus Project Conditions analysis provides an assessment of project impacts that takes into account other projects that would be completed within a similar timeframe as the project.

Figure 1: Vicinity Map



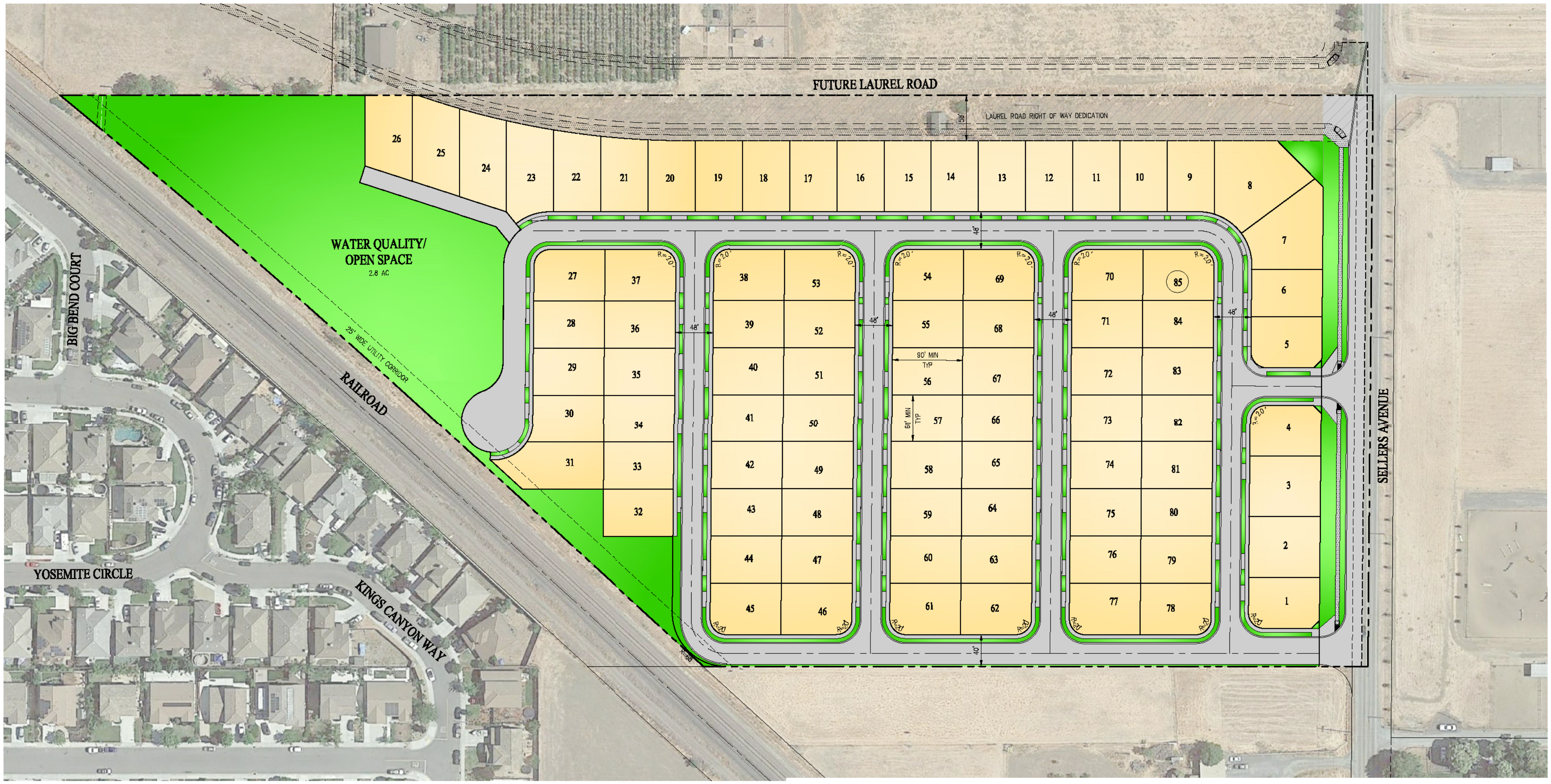
LEGEND

x Study Intersection
Project Entrance
Project Site

TJKM

270-044

Figure 2: Site Plan



2.0 STUDY METHODOLOGY

2.1 Vehicle Miles Traveled

The City of Oakley has not yet established standards of significance for vehicle miles traveled which is now a mandatory CEQA component of traffic studies. The Governor's Office of Planning and Research (OPR) *Technical Advisory* (December 2018) provides guidance to analysts and local jurisdictions for implementing VMT as a metric for determining the transportation impact for land use projects. The OPR guidelines state that for analysis purposes, "VMT" refers to automobile VMT, specifically passenger vehicles and light trucks. Heavy truck traffic is typically excluded. This study evaluates project-related VMT as outlined in the adopted CCTA VMT methodology. The methodology and implementation guidelines were adopted by CCTA in July 2020.

The CCTA guidelines include a screening process that describes five scenarios in which a project would be exempted from a VMT analysis requirement: 1) projects exempt from CEQA analysis, 2) small projects, 3) local serving projects, 4) projects in transit priority areas, and 5) projects in low VMT areas. It should be noted that even if a project satisfies one or more of the screening criteria, lead agencies may still require a VMT analysis if there is evidence that the project has characteristics that might lead to a significant amount of VMT. The project does not satisfy the requirements for screening criteria 1-4.

Under the CCTA VMT methodology, a low VMT area is defined as a city or unincorporated portion within one of the CCTA subregions where home-based VMT per resident is at least 15 percent below the countywide or where the commute VMT per employee is at least 15 percent below the regional average. A conservative reading of the methodology would indicate that when the citywide average VMT per resident is above the countywide average, projects cannot be screened out based on location, and a VMT analysis must be completed. In such cases, the appropriate significance thresholds based on countywide or regional average would be applied. The methodology also permits the applicable average VMT for the subject municipality or unincorporated CCTA subregion to be utilized instead of the countywide or regional average, if it is less stringent.

Under CCTA guidelines, a residential project would have a significant impact on VMT if it would generate residential VMT per capita higher than 85 percent of the City of Oakley average.

2.2 Level of Service Analysis Methodology

Level of Service (LOS) is a qualitative measure that describes operational conditions as they relate to the traffic stream and perceptions by motorists and passengers. LOS generally describes these conditions in terms of speed and travel time, delays, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. The operational LOS are given letter designations from A to F, with A representing the best operating conditions (free-flow with little or no delay) and F representing the worst conditions (severely congested flow with high delays). Intersections are generally the capacity-controlling locations, with respect to traffic operations, on arterial and collector streets.

Signalized Intersections

The study intersections under traffic signal control were analyzed using Highway Capacity Manual 6th Edition (HCM 6) Operations Methodology for Signalized Intersections (Transportation Research Board, 2016), as described in Chapter 19. This methodology determines LOS based on overall average control delay per vehicle for the intersection during peak hour operating conditions. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections was calculated using Vistro analysis software version 7.00-05 and correlated to a LOS designation. **Table 1** presents the HCM 6 delay and LOS definitions.

Unsignalized Intersections

Stop-control study intersections were analyzed using HCM 6 Operations Methodology for Unsignalized Intersections, as described in Chapters 20 and 21. LOS ratings for stop-control intersections are based on average control delay expressed in seconds per vehicle. At the side street of one-way stop-controlled intersections or two-way stop sign intersections, the control delay is calculated for each movement, not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. The weighted average delay for the entire intersections is presented for all-way stop-controlled (AWSC) intersections, while the worst-movement delay is presented for side-street stop-controlled intersections. The average control delay for unsignalized intersections was calculated using Vistro analysis software version (7.00-04) and correlated to a LOS designation. At an unsignalized intersection, most of the major street traffic is not delayed, and by definition has acceptable conditions. The major street left-turn movements and minor street movements are all susceptible to delay of varying degrees. Generally, higher major street traffic volumes are associated with higher delay for minor movements. HCM 6 definitions for delay and LOS at signalized intersections are presented in **Table 1**. The analysis methodology described above was used to measure a.m. and p.m. peak hour traffic operations for all study intersections.

Table 1 describes the LOS thresholds from the HCM 6th edition for intersections. The intersection LOS thresholds differ between signalized and unsignalized intersections.

Table 1: Level of Service Thresholds Based on Intersection Control Delay

Level of Service	Description	Signalized Intersection Delay (D) (sec)	Unsignalized Intersection Delay (D) (sec)
A	Very low control delay, up to 10 seconds per vehicle. Progression is extremely favorable, and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.	0 ≤ D ≤ 10	0 ≤ D ≤ 10
B	Control delay greater than 10 and up to 20 seconds per vehicle. There is good progression or short cycle lengths or both. More vehicles stop causing higher levels of delay.	10 < D ≤ 20	10 < D ≤ 15

C	Control delay greater than 20 and up to 35 seconds per vehicle. Fair progression or longer cycle lengths, or both cause higher delays. Individual cycle failures may begin to appear. Cycle failure occurs when a given green phase does not serve queued vehicles and overflow occurs. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.	$20 < D \leq 35$	$15 < D \leq 25$
D	Control delay greater than 35 and up to 55 seconds per vehicle. The influence of congestions becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volumes. Many vehicles stop, the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	$35 < D \leq 55$	$25 < D \leq 35$
E	Control delay greater than 55 and up to 80 seconds per vehicle. The limit of acceptable delay. High delays usually indicate poor progression, long cycle lengths, and high volumes. Individual cycle failures are frequent.	$55 < D \leq 80$	$35 < D \leq 50$
F	Control delay in excess of 80 seconds per vehicle. Unacceptable to most drivers. Oversaturation, arrival flow rates exceed the capacity of the intersection. Many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to higher delay.	$80 < D$	$50 < D$

Source: HCM 6th Edition

2.3 Level of Service Standards

Although level of service is no longer used for identifying impacts under CEQA, level of service analysis is still used for determining consistency with adopted agency plans and standards. Where standards refer to significant environmental impacts, this analysis instead identifies these as significant inconsistencies with adopted plans. In most cases, in this report LOS exceedances are characterized as *substantial*.

Per the City of Oakley General Plan, LOS D or a volume-to-capacity (V/C) ratio of 0.90 are the thresholds of acceptability for signalized intersections. Any signalized intersection operating worse than LOS D would be considered inconsistent with this standard. The intersection of Main Street and E. Cypress Road, which is a CMP intersection (Contra Costa County 2019 Congestion Management Program, CCTA, 2019), and the intersections along Main Street at Laurel Road and Delta Road, which are within Priority Development Areas (Plan Bay Area 2040, Metropolitan Transportation Commission, 2017), have standards of LOS E or better. For this study, the study intersections were analyzed using HCM 6th Edition Methodology as per the City's guidance. Average control delay is reported in seconds per vehicle for signalized and all-way-stop-control intersections and critical delay for minor approaches is reported for two-way-stop-control intersections. Intersections operating worse than LOS D are considered inconsistent with the City's standard.

Appendix G of the State CEQA Guidelines includes criteria for potential transportation impacts. Although no longer applicable for CEQA, they are still relevant issues for consideration by Oakley. These include whether a project would result in one of the following:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, bicycle and pedestrian paths, and mass transit.
- Conflict with an applicable congestion management program, including, but not limited to LOS standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
- Section 4B of the Contra Costa County Transportation Analysis Guidelines identifies significance criteria based on level of service analysis results. Significant impacts occur if:
- The addition of project traffic results in the degradation of intersection operations from acceptable LOS D or better to unacceptable operations (LOS E or LOS F), except for intersections in Priority Development Areas ("PDA") where the minimum acceptable operational standard is LOS E. This document refers to these exceedances as "substantial".
- The addition of project traffic to an intersection operating unacceptably before the addition of project trips results in an increase in average controlled delay (for signalized and all-way stop-controlled intersections) or worst movement/approach delay (for side-street stop-controlled intersections) at the intersection by 5.0 seconds or more.

3.0 EXISTING CONDITIONS

This section describes existing conditions in the immediate project site vicinity, including roadway facilities, bicycle and pedestrian facilities, and available transit service. In addition, existing traffic volumes and operations are presented for the study intersections, including the results of LOS calculations.

3.1 Existing Setting and Roadway System

Relevant roadways in the project vicinity are discussed below and shown in **Figure 1.**

E. Cypress Road – E. Cypress Road is a two to four lane major arterial roadway. E. Cypress Road extends east-west between Main Street and Sandmound Boulevard. Residential, school, and agricultural uses, along with vacant land, characterize the lands along both sides of E. Cypress Road. Posted speed limits on E. Cypress Road are 35 miles per hour (mph) between Main Street and Frank Hengel Way and east of Summer Lake Drive, 45 mph between Frank Hengel Way and Sellers Avenue and between Bethel Island Road and Summer Lake Drive, and 50 mph between Sellers Avenue and Bethel Island Road.

Sellers Avenue – Sellers Avenue is a two lane, north-south collector roadway north of E. Cypress Road, and minor arterial south of E. Cypress Road. Residential and agricultural uses characterize the lands along both sides of Sellers Avenue. The maximum posted speed limit on Sellers Avenue is 50 mph between E. Cypress Road and Delta Road.

Laurel Road – Laurel Road is a two- to four-lane, east-west divided roadway. Currently, Laurel Road extends to Teton Road in the east and terminates at SR 4 to the west. Laurel Road mainly serves to collect and distribute traffic to/from residential streets and SR 4. In the future Laurel Road will extend to Sellers Avenue in the east and will be widened to four lanes for the portion east of Main Street. The posted speed limit on Laurel Road ranges between 35 to 40 mph near the project site.

Main Street – Main Street is a two to four lane major arterial roadway. Main Street is currently the major north-south transportation corridor in the City of Oakley. Mixed residential, commercial, and agricultural uses characterize the lands along both sides of Main Street between Rose Avenue and Laurel Avenue. Maximum speeds posted on Main Street are 35 mph west of Rose Avenue, 45 mph between Rose Avenue and Bernard Road, and 40 mph south of Bernard Road.

Delta Road – Delta Road is a two-lane, east-west rural road that extends east from Main Street providing connection to the north end of the planned Byron Highway. Delta Road mainly provides access to residential and agricultural land uses. The posted speed limit on Delta Road is 40 mph.

3.2 Existing Pedestrian Facilities

Walkability is defined as the ability to travel easily and safely between various origins and destinations without having to rely on automobiles or other motorized travel. The ideal "walkable" community includes wide sidewalks, a mix of land uses providing residential, employment, and shopping opportunities, minimal conflict points with vehicle traffic, and access to transit facilities and services.

Pedestrian facilities are comprised of crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access destinations such as institutions, businesses, public transportation, and recreation facilities.

There are no existing sidewalks provided along the project frontage. The closest sidewalk network is located on the north side of E. Cypress Road at the intersection of E. Cypress Road and Sellers Avenue; on both sides of Main Street, south of Laurel Road; and on the south side of Laurel Road, east and west of Main Street.

3.3 Existing Bicycle Facilities

Bicycle facilities include the following:

Multi-Use Paths (Class I) – A path physically separated from motor vehicle traffic by an open space or barrier, and either within a highway or an independent right-of-way (ROW), used by bicyclists, pedestrians, joggers, skaters, and other non-motorized travelers. Class I paths are the most popular type of facility. Because the availability of uninterrupted ROW is limited, this type of facility may be difficult to locate and expensive to build, relative to other types of bicycle facilities, but inexpensive compared to new roadways. Ideal locations for bike paths are areas such as powerline easements, utility easements, canal banks, river levees, drainage easements, railroad or highway ROW, or regional community parks.

Bike Lanes (Class II) – A portion of a roadway designated by striping and pavement markings for the preferential or exclusive use of bicyclists. Bike lanes are intended to promote an orderly flow of bicycle and vehicle traffic. This type of facility is established by using the appropriate striping, pavement legends, and signs.

Bike Routes (Class III) – Bike routes are shared facilities between bicycle and motor vehicle traffic. They provide for specific bicycle demand and may be used to connect discontinuous segments of bike lanes. In addition, bike routes are located on residential streets and rural roads. If the pavement width is sufficient, and traffic volume/speeds warrant, an edge line may be painted to further delineate the bike route. Bike routes are signed with the G-93 Bike Route marker but no striping or legends are required.

The City of Oakley General Plan (September 2002), City of Oakley Parks, Recreation, and Trails Master Plan 2020 (Summer 2007), and the Contra Costa County Bicycle and Pedestrian Plan (October 2009) propose that several new bicycle facilities be constructed in the future which includes trunk line bikeway network passing through Main Street and Laurel Road and a local multi-use trail on E. Cypress Road and Sellers Avenue in the vicinity of the project area.

The existing bicycle facilities are at the following locations:

- East Cypress Road – Class II bicycle facilities are provided on the north side between Knightsen Avenue and Main Street, and on the south side between Main Street and 790 feet east of Frank Hengel Way.
- Main Street- Class II bicycle facilities are provided between Cypress Road and Simoni Ranch Road on both sides.
- Sellers Avenue – Class II bicycle facilities are provided north of E. Cypress Road.
- Laurel Road- Class II bicycle facilities are provided between Harvest Drive and Main Street on both sides.
- Marsh Creek Regional Trail- Class I bicycle facility provided along Marsh Creek which can be accessed through Delta road approximately 1.5 miles west of the project site.

- Via Delta de Anza Trail- Class I bicycle facility provided along Contra Costa Canal which can be accessed through Cypress Road and O' Hara Avenue approximately two miles west of the project site.

3.4 Existing Transit Facilities

Tri-Delta Transit provides transit services in the City of Oakley, with three lines connecting Brentwood and the Pittsburg/Bay Point Bay Area Rapid Transit (BART) station. Due to COVID-19 conditions, some of the routes and schedules may not currently be in full operation.

- *Route 300,* the Pittsburg BART/Brentwood Park & Ride route, is a weekday express route connecting Brentwood to the Pittsburg/Bay Point BART station via Oakley and Antioch. This bus travels along Main Street, operating from 4:15 a.m. to approximately 10:00 p.m. with 15 to 30-minute headways.
- *Route 383,* the Oakley/Antioch/Freedom High School route, connects Oakley to Antioch and Freedom High School in Oakley. This route, in both clockwise and counterclockwise directions, provides only weekday service. The counterclockwise route runs with approximate one-hour headways, and the clockwise route runs twice during the a.m. peak hour period only.
- *Route 391,* the BART/Pittsburg/Antioch/Oakley/Brentwood route, provides weekday service to most East County Cities. The route operates from 4:00 a.m. to 1:15 a.m. with 30 to 60-minute headways.
- *Route 393*, the BART/Pittsburg/Antioch/Oakley/Brentwood route, provides weekend service to Route 391. The route operates from 5:20 a.m. to 2:00 a.m. with approximately 60-minute headways.

Routes 391 and 393 operate via bus stops located at the study intersections of Main Street and Laurel Road, and Main Street and Delta Road. **Table 2** summarizes the services and frequency during the weekday and on weekends for transit in the City of Oakley. **Figure 3** shows a map of transit routes operated by Tri-Delta Transit.

Table 2: Existing Transit Facilities

Route	From	To	Weekdays		Saturday		Sunday	
			Hours	Headway (min)	Hours	Headway (min)	Hours	Headway (min)
300	Pittsburg/ Bay Point BART Station	Brentwood Park & Ride	4:15 a.m. – 10:00 p.m.	10-30	....	....	....	....
383	Antioch Park & Ride	Antioch Park & Ride 1	6:52 a.m. – 5:26 p.m.	60-120	....	....	....	....
391	Pittsburg/ Bay Point BART Station	Brentwood Park & Ride	4:03 a.m. - 1:14 a.m.	30-60	....	....	....	....
393	Pacifica & Mariners Cove	Brentwood Park & Ride	....	....	5:22 a.m. – 1:39 a.m.	60	6:24 a.m. – 1:49 a.m.	60

Source: www.trideltatransit.com

Figure 3: Transit Service Map

3.5 Existing Traffic Conditions

The Existing Conditions turning movement volumes for vehicles, bicycles and pedestrians at all study intersections reflect those of the most recently approved City of Oakley Citywide Model for the a.m. and p.m. peak hours. Since the City of Oakley is currently in the process of updating the model, the analysis may be updated with current counts at all intersections. Existing lane patterns and traffic control are illustrated in **Figure 4.** Existing turning movement volumes at each existing study intersection are illustrated in **Figure 5**.

3.6 Intersection Level of Service Analysis – Existing Conditions

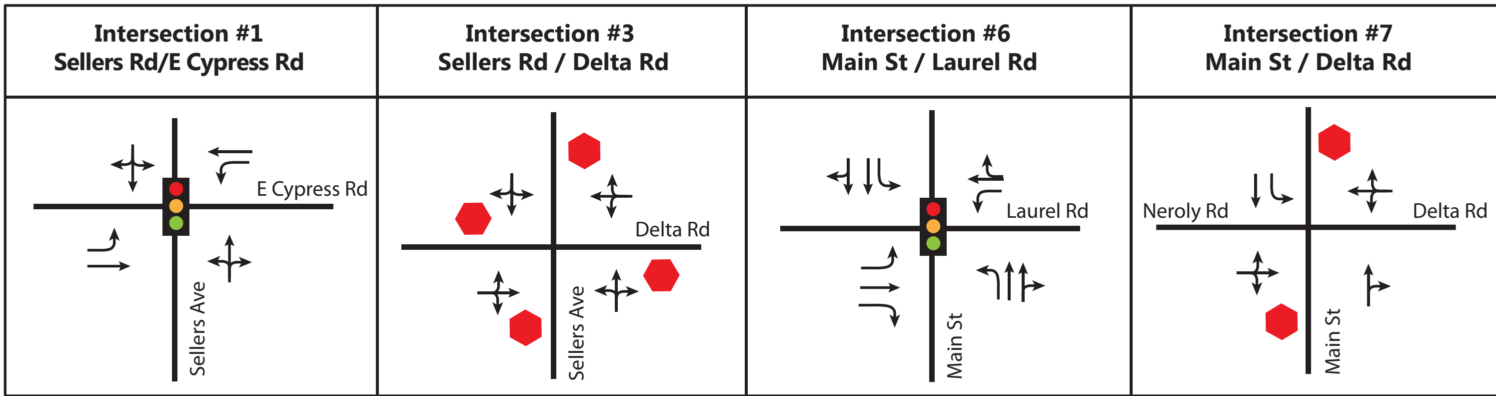
Under Existing Conditions, intersections were analyzed based on lane geometries and traffic controls provided by the Existing Conditions scenario of the Citywide Traffic Model and observed in the field. **Table 3** summarizes peak hour levels of service at the study intersections under Existing Conditions. Detailed LOS worksheets for this scenario are provided in **Appendix A**. Under Existing Conditions, all study intersections operate within acceptable jurisdictional standards of LOS D/E or better during both peak hours, except the intersection at Main Street/Delta Road (Intersection #7), which operate at LOS F during the a.m. peak hour.

Table 3: Intersection Level of Service Analysis – Existing Conditions

ID	Intersection	Control[2]	Peak Hour[3]	Existing Conditions	
				Average Delay[4]	LOS[5]
1	Sellers Road / E. Cypress Road*	Signalized	A.M.	18.4	B
			P.M.	17.2	B
2	Sellers Road / Laurel Road***	Signalized	A.M.	-	-
			P.M.	-	-
3	Sellers Road / Delta Road	AWSC	A.M.	9.4	A
			P.M.	13.0	B
4	Sellers Road / Project Access 1**	One-Way Stop	A.M.	-	-
			P.M.	-	-
5	Seller Road / Project Access 2**	One-Way Stop	A.M.	-	-
			P.M.	-	-
6	Main Street / Laurel Road*[1]	Signalized	A.M.	40.7	D
			P.M.	32.8	C
7	Main Street / Delta Road*[1]	TWSC	A.M.	**70.2**	**F**
			P.M.	40.5	E

Notes: **Bold** text indicates unacceptable intersection operations.
*Indicates Routes of Regional Significance (East County Action Plan, CCTA, 2019).
**Analyzed under plus Project Scenarios, only.
***Analyzed under Background Scenarios, only.
[1]Indicates intersection is located in Priority Development Area and has standard of LOS E (Plan Bay Area 2050).
[2]AWSC – All-way stop control; TWSC – Two-way stop control.
[3]A.M. – Morning peak hour; P.M. – Evening peak hour.
[4]Delay: Average control delay in seconds per vehicle, reported values are overall for signalized and all-way-stop-control intersections; and critical minor approaches for one- and two-way stop-control intersections.
[5]LOS: Level of Service.

Figure 4: Existing Lane Patterns and Traffic Control



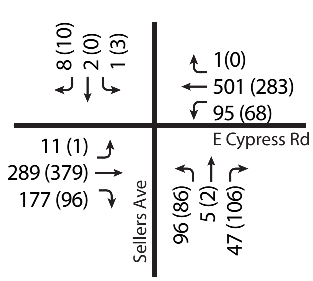
LEGEND

Traffic Signal   Stop Sign

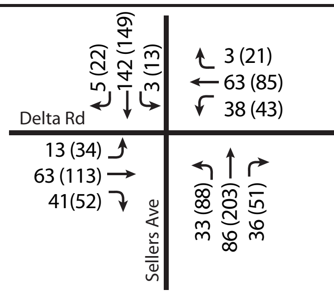
TJKM

Figure 5: Existing Peak Hour Traffic Volumes

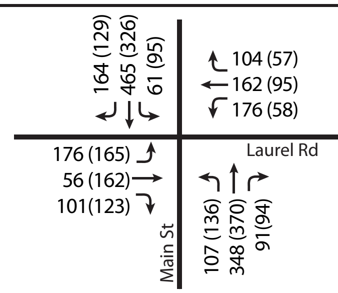
Intersection #1
Sellers Rd/E Cypress Rd



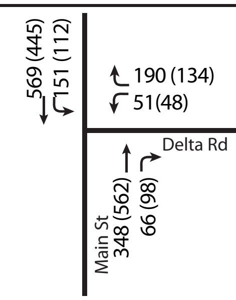
Intersection #3
Sellers Rd / Delta Rd



Intersection #6
Main St / Laurel Rd



Intersection #7
Main St / Delta Rd



LEGEND

XX AM Peak Hour Traffic Volume

(XX) PM Peak Hour Traffic Volume

4.0 EXISTING PLUS PROJECT CONDITIONS

4.1 Vehicle Miles Traveled

TJKM conducted Vehicle Miles Travelled (VMT) analysis for the project in compliance with Senate Bill 743 (SB 743) via the Contra Costa Transportation Authority's (CCTA) recommended VMT analysis methodology. The CCTA VMT analysis methodology provides different screening criteria and significance thresholds based on the project land use type. CCTA considers residential projects to have a significant impact on VMT if the project generated home-based VMT per resident is higher than the less stringent of the following:

- 85% of the home-based VMT per resident in the municipality or
- 85% of the existing County-wide average home-based VMT per resident.

TJKM conducted a VMT (Vehicle Miles Traveled) analysis for the proposed housing project located at the intersection of E. Laurel Road and Sellers Road Lane in Oakley, CA. The project proposes build 85 single family units in a residential subdivision.

The VMT Analysis was performed for this project in the Contra Costa Transportation Authority (CCTA) Model. The Travel Analysis Zone (TAZ) for this project in the model is #30267. The 85 single family dwelling units were added into the TAZ for the base year to see if the project creates significant VMT impacts.

As this project is not screened out from VMT analysis, two full model runs were performed for this project in accordance to CCTA VMT methodology. The first one is a base year 2020 run to analyze existing VMT per capita numbers for the City of Oakley. The second run is a base year plus project 2020 run with the housing units added in to see if its impact on VMT is significant.

From the 2020 Base Year run, the home based VMT per capita for the City of Oakley is **26.76**. For a project to not be significant, the 85% threshold is set at 0.85 x 26.76 which is **22.75**. This value is the less stringent home-based VMT per capita number as mentioned in the CCTA VMT methodology guidelines.

The 2020 Base Year plus Project model run added 85 Single Family Dwelling Units into TAZ #30267. The resultant home based VMT per capita for the project TAZ is **23.39**. Since this value is higher than the threshold, some mitigation is required for this project to have an insignificant impact on VMT.

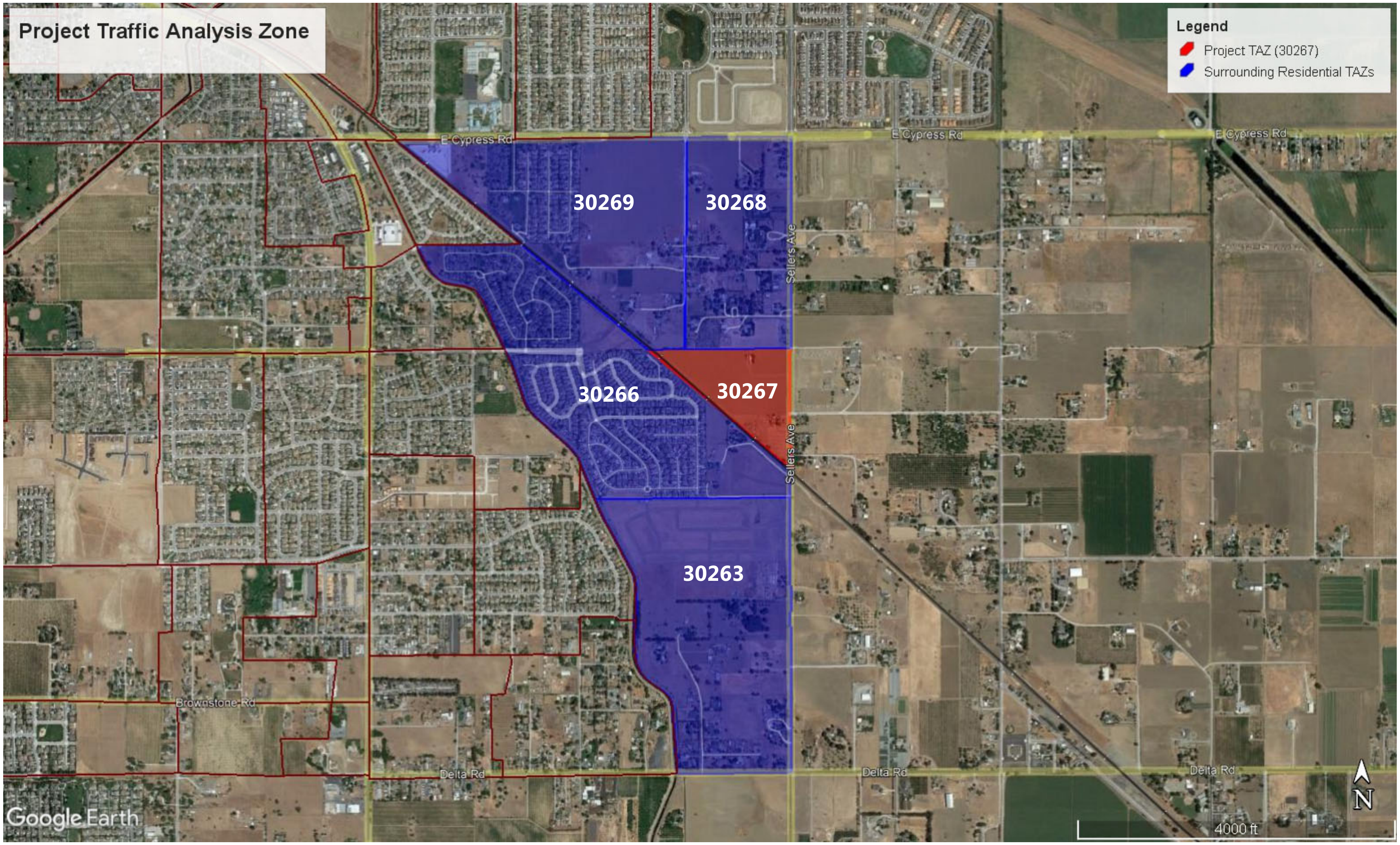
A mitigation measure that this project may attempt is:

1. Improve the pedestrian network – this strategy focuses on creating a pedestrian network within the project and connecting to nearby destinations. Sidewalk improvements count as part of this strategy and the maximum VMT reduction allowed is **5.7%.**

A 5.7% reduction in VMT for the project reduces the value from 23.39 to **22.06.** With mitigation, the Sellers Ave residential project is found to have a ***less than significant*** impact on VMT for the base year.

Figure 6 illustrates the traffic analysis zones surrounding the proposed project.

Figure 6: Traffic Analysis Zones in Project Study Area



4.2 Project Trip Generation

The project vehicle trip generation rates were obtained from the reference *Trip Generation, 11h Edition (2021)*, published by the Institute of Transportation Engineers (ITE). Based on the applicable rates for Single-Family Detached Housing (ITE Code 210), the Project is forecasted to generate 802 daily vehicle trips, including 60 (16 inbound, 44 outbound) a.m. peak hour and 80 (50 inbound, 30 outbound) p.m. peak hour vehicle trips. **Table 4** summarizes the trip generation calculation for the proposed single-family home development.

Table 4: Project Vehicle Trip Generation

	Land Use (ITE Code)	Size[1]		Daily		A.M. Peak[2]					P.M. Peak[2]				
				Rate	Trips	Rate	In:Out	In	Out	Total	Rate	In:Out	In	Out	Total
Proposed	Single-Family Detached Housing (210)	85	DU	9.43	802	0.70	26:74	16	44	60	0.94	63:37	50	30	80
	Net New Trips				**802**			**16**	**44**	**60**			**50**	**30**	**80**

Notes:

Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, 2021.

[1]DU – Dwelling Units

[2]A.M. Peak – morning peak period (7:00 a.m.-9:00 a.m.); P.M. Peak – evening peak period (4:00p.m.-6:00 p.m.)

4.3 Project Trip Distribution and Assignment

The peak-hour vehicle trips generated by the project were manually assigned to each study intersection based on two origin and destination trip-distribution assumptions for Existing and Background scenarios. The trip distribution assumptions under Existing plus Project Conditions follow:

- 19 percent to/from Main Street North
- 63 percent to/from Laurel Road west of Main Street
- 15 percent to/from Main Street South
- 2 percent to/from Sellers Road South
- 1 percent to/from E. Cypress Road East

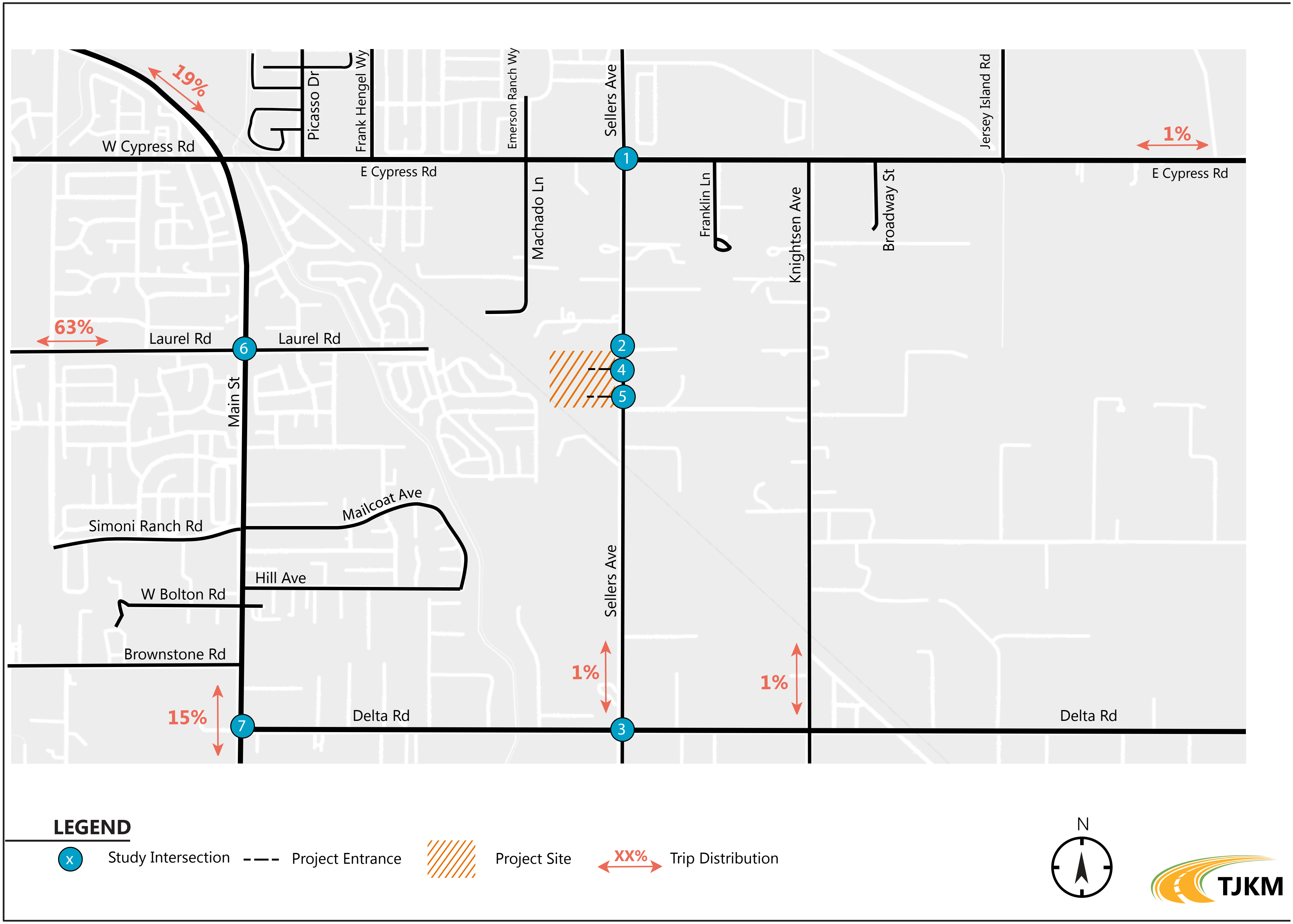
Figures 7a and 7b illustrate the distribution of project trips to origins/destinations, and the assignment of project trips to study intersections based on the anticipated path(s) of travel under Existing plus Project Conditions.

The trip distribution assumptions under Background plus Project Conditions follow:

- 19 percent to/from Main Street North
- 53 percent to/from Laurel Road west of Main Street
- 15 percent to/from Main Street South
- 2 percent to/from Sellers Road South
- 1 percent to/from E. Cypress Road East

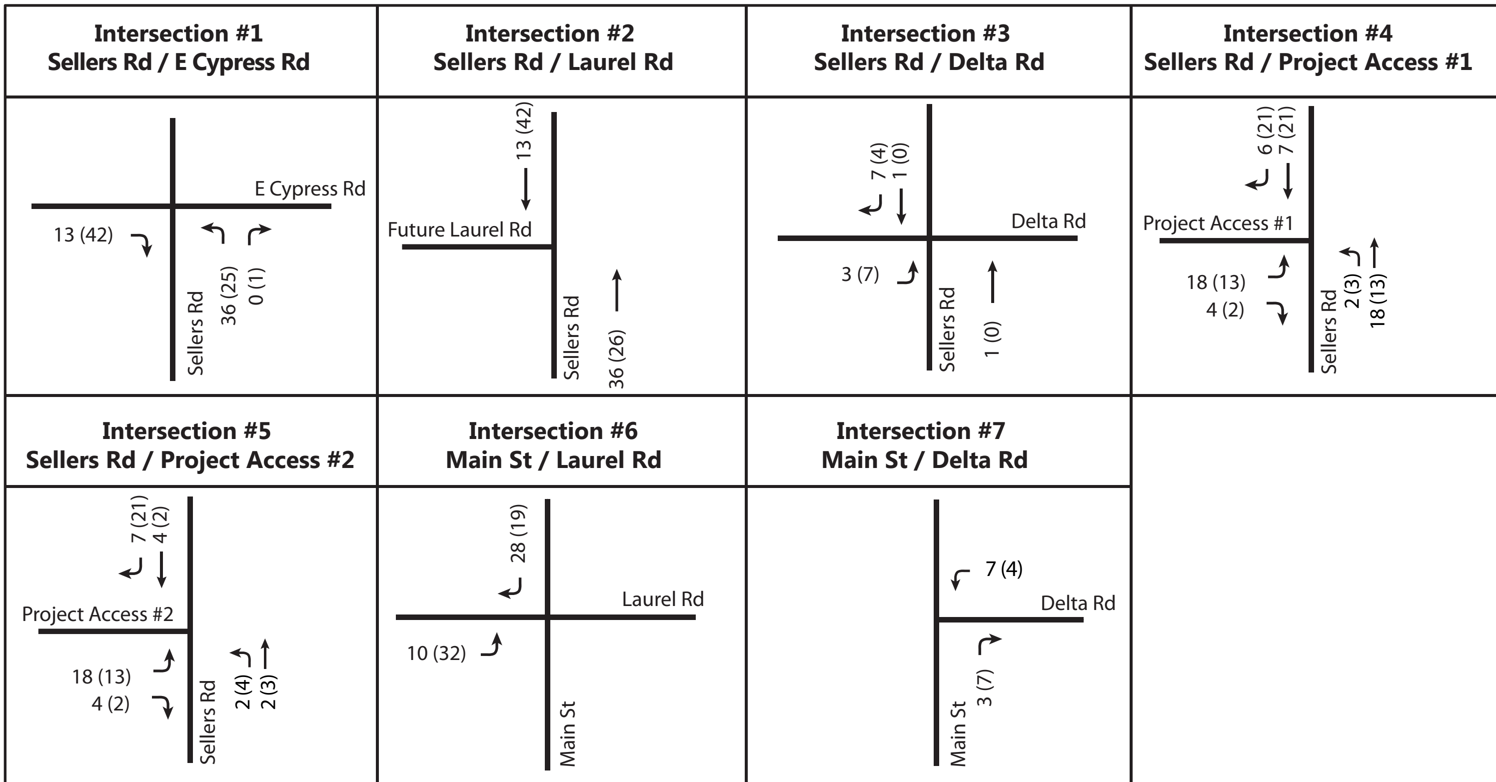
Figures 8a and 8b illustrate the distribution of project trips to origins/destinations, and the assignment of project trips to study intersections based on the anticipated path(s) of travel under Bakcground plus Project Conditions.

Figure 7a: Existing Conditions Trip Distribution



270-044

Figure 7b: Existing Conditions Trip Distribution & Assignment



LEGEND

XX AM Peak Hour Project Volume

(XX) PM Peak Hour Project Volume

Figure 8a: Background Conditions Trip Distribution

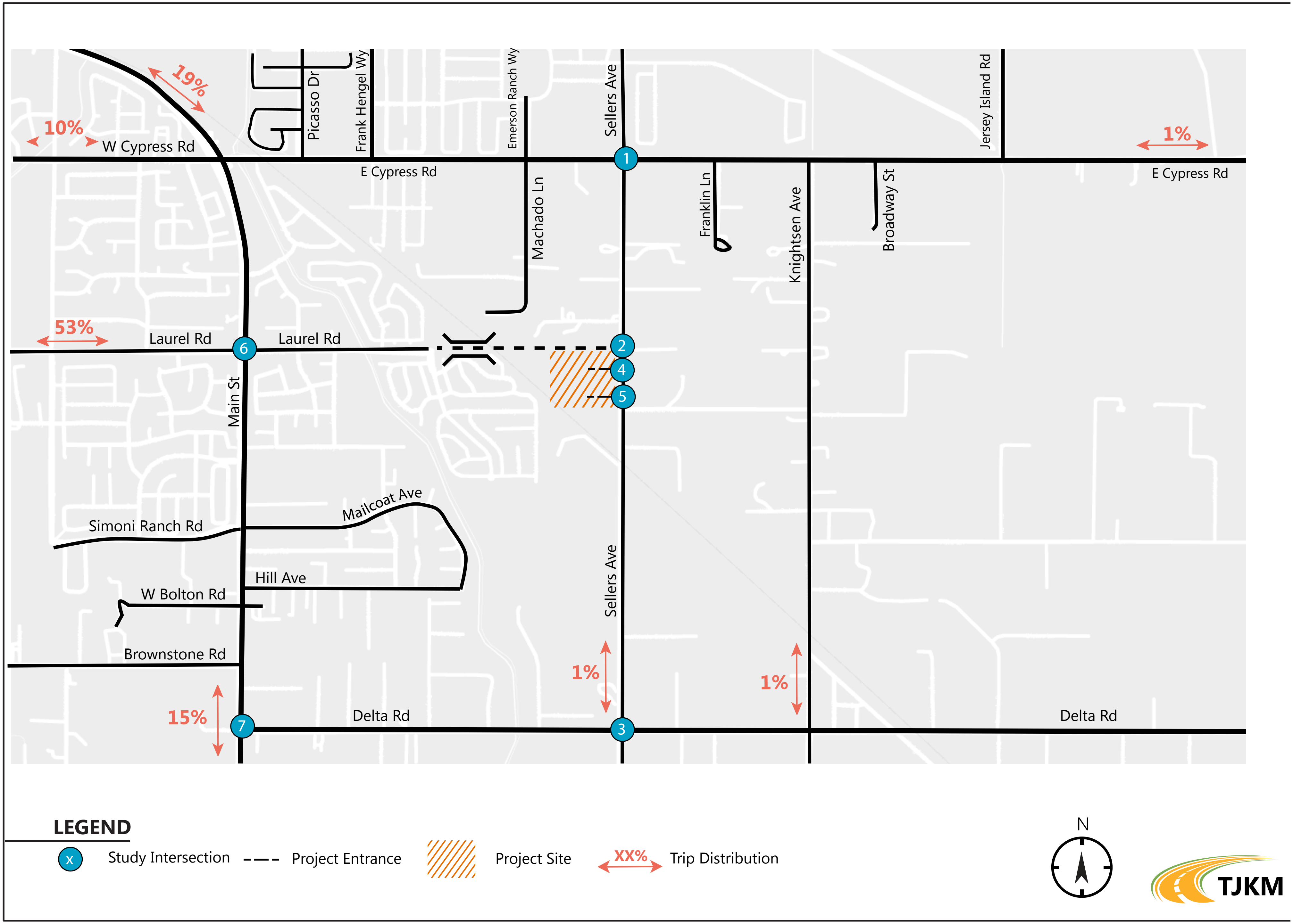
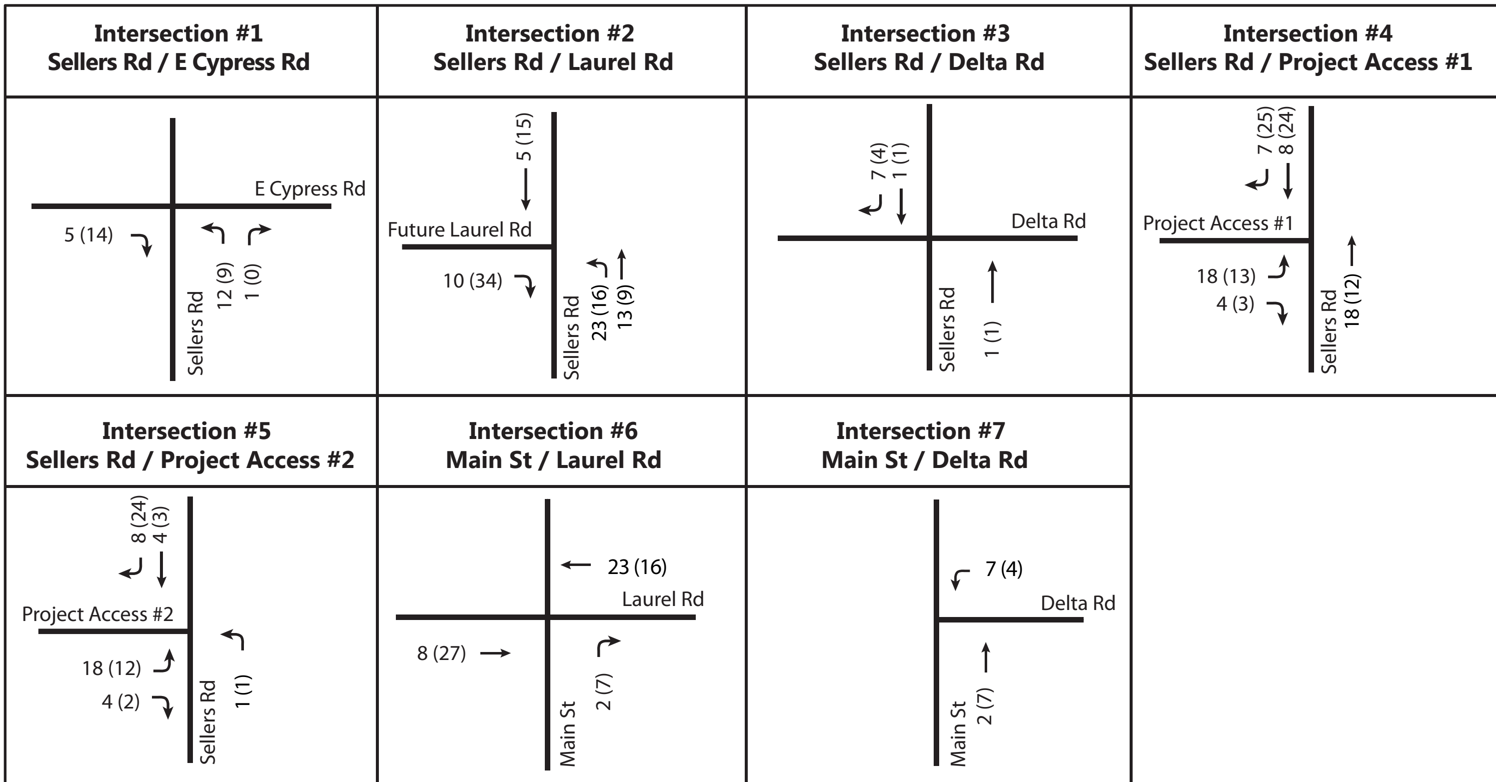
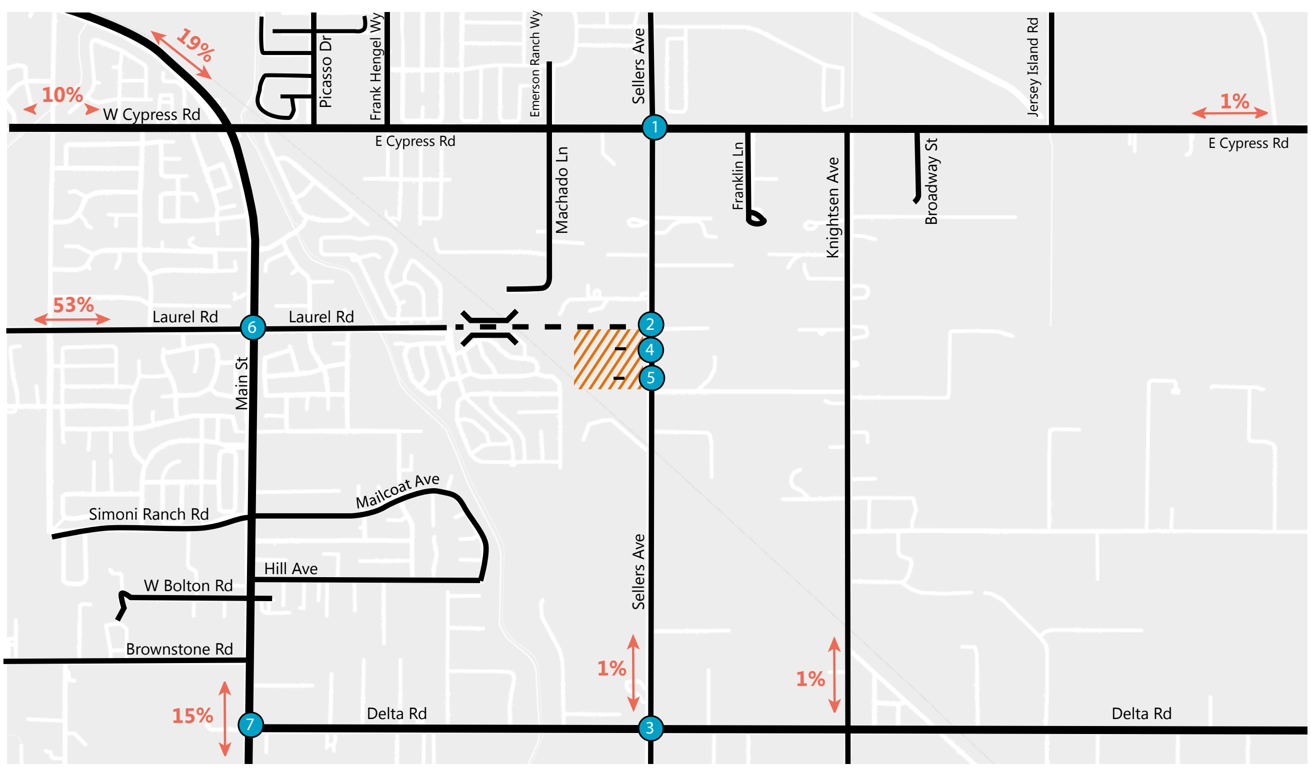


Figure 8b: Background Conditions Trip Distribution & Assignment





LEGEND

XX AM Peak Hour Project Volume

(XX) PM Peak Hour Project Volume

TJKM

4.4 Intersection Level of Service Analysis – Existing plus Project Conditions

Figure 9 shows the peak hour volumes at each intersection under Existing plus Project Conditions. **Table 5** summarizes peak hour levels of service at the study intersections under Existing plus Project Conditions, based on the addition of project trips to each study intersection. Detailed LOS worksheets for this scenario are provided in **Appendix B**. As shown, all study intersections will continue to operate at acceptable LOS under Existing plus Project conditions, except the intersection at Main Street/Delta Road (Intersection #7), which operates at LOS F during the a.m. peak.

Table 5: Intersection Level of Service Analysis – Existing plus Project Conditions

ID	Intersection	Control[2]	Peak Hour[3]	Existing Conditions		Existing plus Project Conditions		Substantial Impact? (Y/N)
				Average Delay[4]	LOS[5]	Average Delay[4]	LOS[5]	
1	Sellers Road / E. Cypress Road*	Signalized	A.M.	18.4	B	19.8	B	N
			P.M.	17.2	B	18.5	B	N
2	Sellers Road / Laurel Road***	Signalized	A.M.	-	-			N
			P.M.	-	-			N
3	Sellers Road / Delta Road	AWSC	A.M.	9.4	A	9.5	A	N
			P.M.	13.0	B	13.2	B	N
4	Sellers Road / Project Access 1**	One-Way Stop	A.M.	-	-	11.3	B	N
			P.M.	-	-	10.9	B	N
5	Seller Road / Project Access 2**	One-Way Stop	A.M.	-	-	11.2	B	N
			P.M.	-	-	10.7	B	N
6	Main Street / Laurel Road*[1]	Signalized	A.M.	40.7	D	40.5	D	N
			P.M.	32.8	C	32.1	C	N
7	Main Street / Delta Road*[1]	TWSC	A.M.	**70.2**	**F**	**113.5**	**F**	**Y**
			P.M.	40.5	E	44.5	E	N

Notes: **Bold** text indicates unacceptable intersection operations.
*Indicates Routes of Regional Significance (East County Action Plan, CCTA, 2019).
**Analyzed under plus Project Scenarios, only.
***Analyzed under Background Scenarios, only.
[1]Indicates intersection is located in Priority Development Area and has standard of LOS E (Plan Bay Area 2050).
[2]AWSC – All-way stop control; TWSC – Two-way stop control.
[3]A.M. – Morning peak hour; P.M. – Evening peak hour.
[4]Delay: Average control delay in seconds per vehicle, reported values are overall for signalized and all-way-stop-control intersections; and critical minor approaches for one- and two-way stop-control intersections.
[5]LOS: Level of Service.

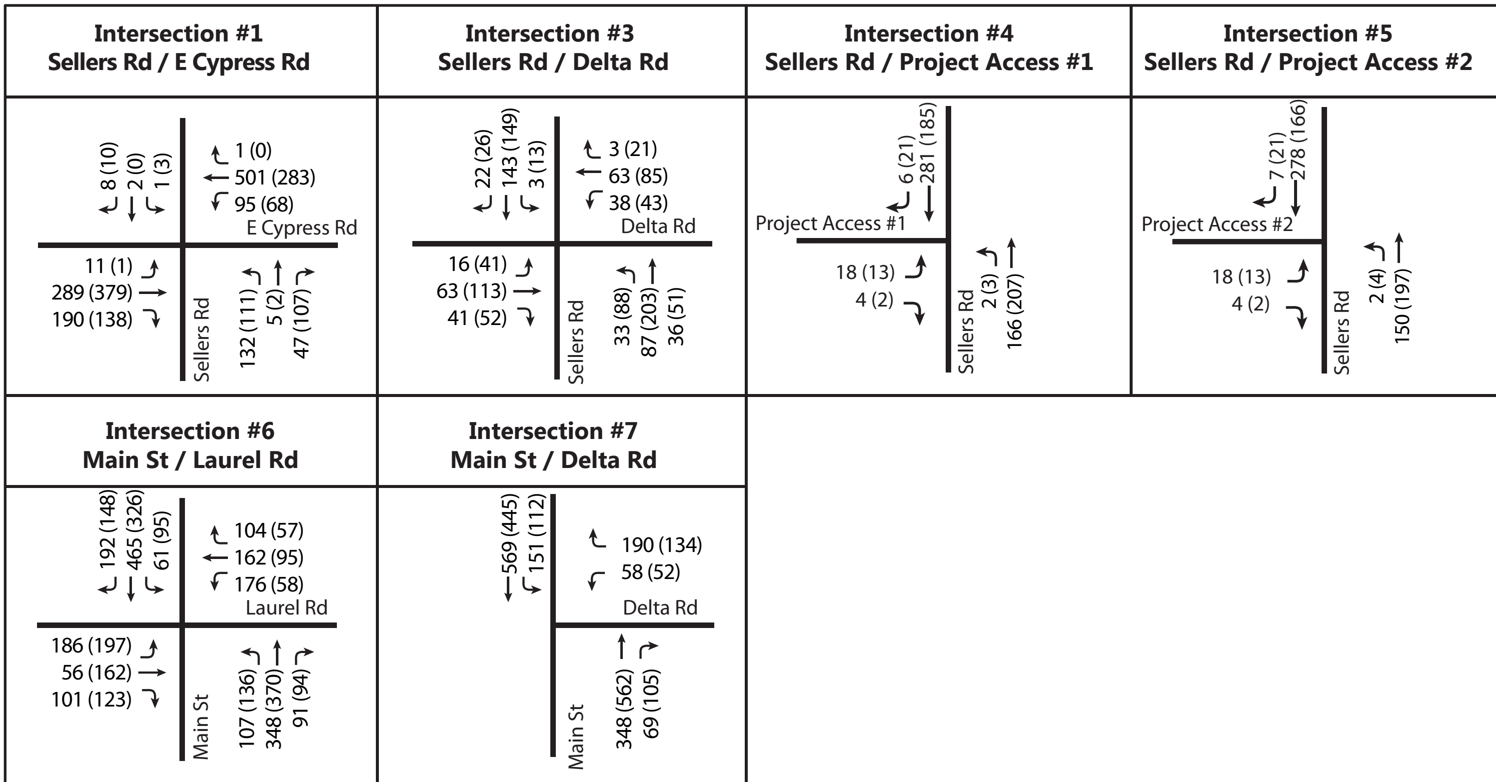
Traffic Impact Findings

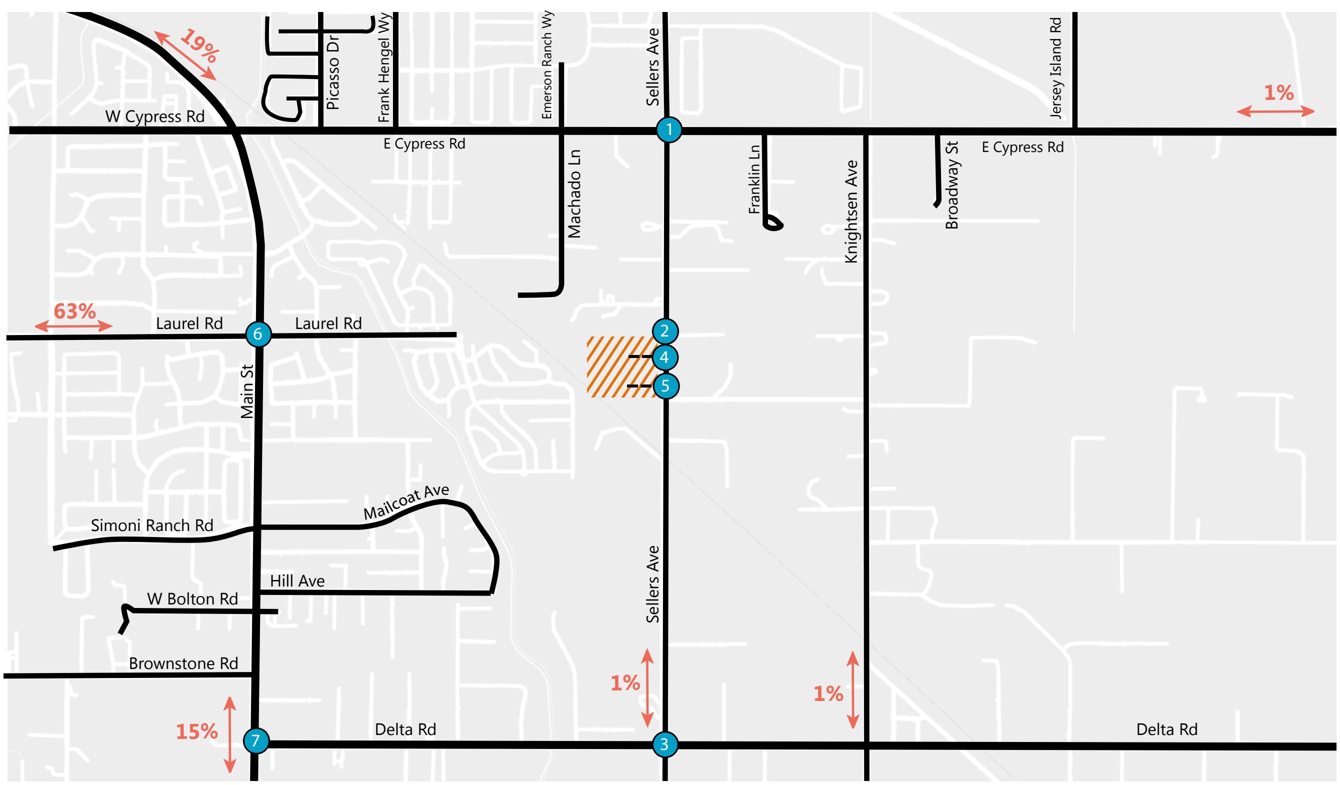
The project impact to the intersection at Main Street/E. Cypress Delta Road (Intersection #7) is potentially substantial because the project adds five or more seconds of delay in the a.m. peak period.

The stop-controlled intersection of Main Street/Delta Road (Study Intersection #7) operates at unacceptable LOS F during the a.m. peak hour under Existing Conditions without and with the proposed project. During the a.m. peak hour, the addition of project traffic increases delay by over five seconds, and thus a potential substantial impact, due to lack of acceptable gaps to the westbound left-turn movement, is observed. TJKM performed a peak hour signal warrant analysis, based on the California Manual on Uniform Traffic Control Devices (CA MUTCD) standards, at the intersection for existing peak hour traffic volumes. A signal is warranted in the a.m. and p.m. peak hour, based on the peak hour signal warrant (Warrant #3). Installing a signal control at this intersection improves intersection operations to LOS C or better during both a.m. and p.m. peak hours.

Appendix C contains detailed LOS worksheets for mitigations under Existing plus Project Conditions and the peak hour signal warrant worksheets.

Figure 9: Existing plus Project Conditions Peak Hour Traffic Volumes





LEGEND

XX AM Peak Hour Volume

(XX) PM Peak Hour Volume

TJKM

5.0 BACKGROUND CONDITIONS

This scenario evaluates the project's contribution to potential background traffic impacts. Future impacts were evaluated taking into account key planned improvements in the City of Oakley. The most notable project is the completion of the Laurel Road extension between Main Street and Sellers Avenue. This includes a railroad grade separation and widening/construction of Laurel Road to four lanes in this section. In addition, Sellers Avenue is planned to be widened to four lanes between Laurel Road and E. Cypress Road. Cypress Road is planned to be fully improved to six lanes east of Sellers Avenue and to four lanes west of Sellers Avenue. Other roads and intersections are scheduled to be improved as well. **Figure 10** shows the redistribution of existing traffic as depicted in the Updated Oakley Traffic Model with the Laurel Road extension.

5.1 Background Traffic Growth

Using the calibrated and validated updated Citywide Traffic Model, additional traffic projected to be generated from approved developments was forecasted for Background Conditions. The Background Conditions scenario includes additional traffic that would be generated by various approved projects completed within the City of Oakley and redistribution of traffic due to the Laurel Road extension. The approved projects include the Acacia Residential, Emerson Ranch Commercial, and Burroughs/WestGate Ventures Residential projects previously completed by TJKM.

Additionally, he following planned improvements, as per the Capital Improvement Program, are considered at the study intersections with and without the proposed project:

- Sellers Avenue/E. Cypress Road is analyzed with the recent upgrade to lane geometry and signal timing. Additionally, the intersection considers planned widenings of Sellers Avenue and E. Cypress Road segments. The intersection is analyzed with one shared through-left lane and two right-turn lanes at the southbound approach; one exclusive left-turn lane, one shared through-right lane and two right-turn lanes at the northbound approach; one left-turn lane, two through lanes and one shared through-right lane at the eastbound approach; and two exclusive left-turn lanes, one through lane and one shared through-right lane at the westbound approach.
- Main Street/Laurel Road is analyzed with future planned upgrade to striping at the northbound, eastbound and westbound approaches under Background Conditions. The intersection is analyzed with one exclusive left-turn lane, two through lanes and one exclusive right-turn lane at the northbound approach; one exclusive left-turn lane, two through lanes and one exclusive right-turn lane at the eastbound approach; and one exclusive left-turn lane, three through lanes and one exclusive right-turn lane at the westbound approach.
- Main Street/Delta Road is analyzed as a signalized intersection with updated lane geometry under Background Conditions. The intersection is analyzed with exclusive left-turn and right-turn lanes at the westbound approach, one through lane and one shared through-right lane at the northbound approach, and one exclusive left-turn lane and two through lanes at the southbound approach.
- Sellers Avenue/Laurel Road is a new intersection analyzed under Background Conditions. This intersection is formed due to the extension of Laurel Road. The intersection is analyzed as a

signalized intersection with two left-turn lanes and one right-turn lane at the eastbound approach, one exclusive left-turn lane and two through lanes at the northbound approach, and one through lane and two right-turn lanes at the southbound approach.

5.2 Intersections Level of Service Analysis – Background No-Project Conditions

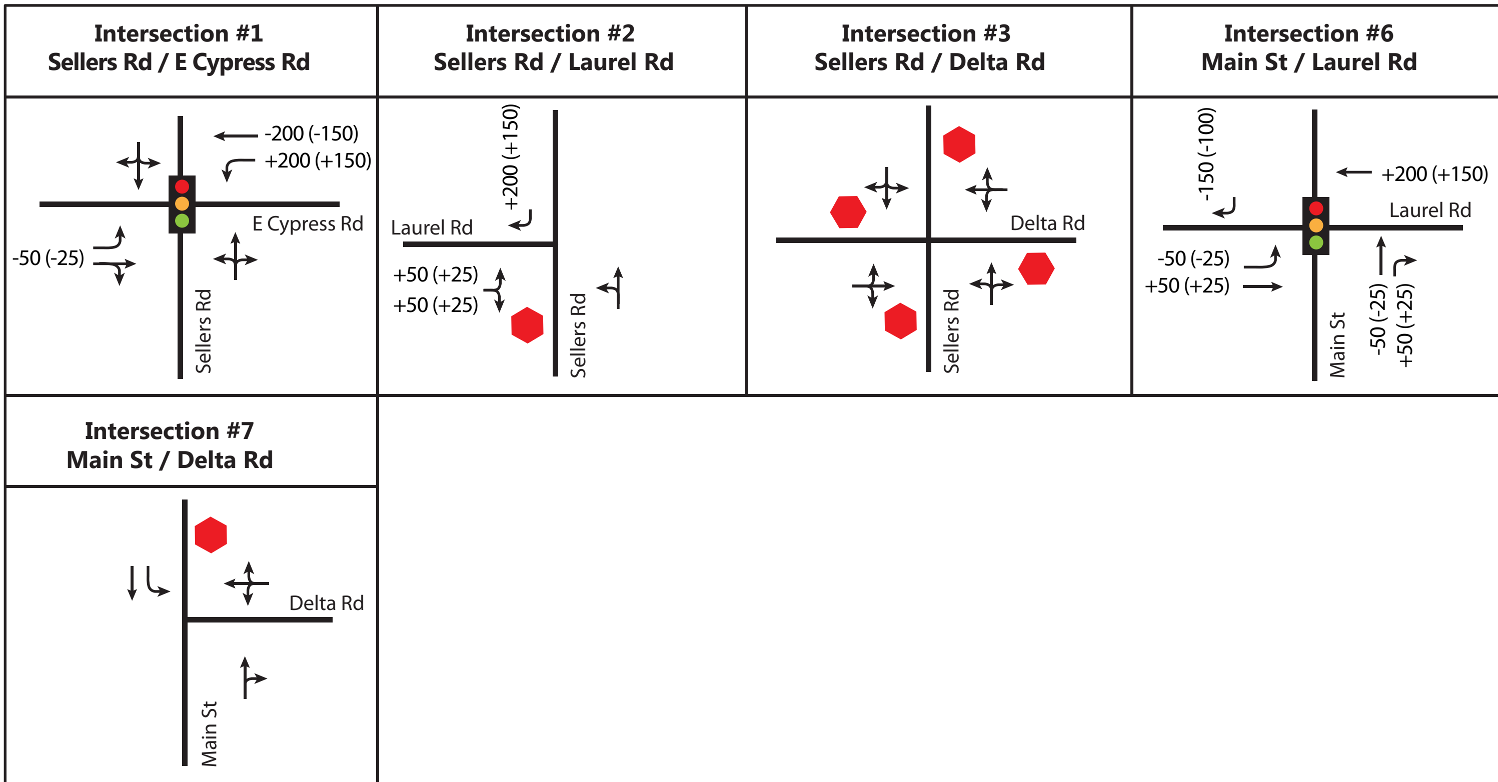
Figure 11 shows the forecasted volumes at each intersection under Background Conditions, based on the update of the Oakley Citywide Traffic Model. **Table 6** summarizes peak hour levels of service at the study intersections under Background Conditions without the proposed Project. Detailed LOS worksheets for this scenario are provided in **Appendix D**. Under Background Conditions, all study intersections operate within acceptable jurisdictional standards of LOS D/E or better during the both peak hours.

Table 6: Intersection Level of Service – Background Conditions

ID	Intersection	Control[2]	Peak Hour[3]	Background Conditions	
				Average Delay[4]	LOS[5]
1	Sellers Road / E. Cypress Road*	Signalized	A.M.	43.8	D
			P.M.	36.7	D
2	Sellers Road / Laurel Road***	Signalized	A.M.	48.7	D
			P.M.	50.5	D
3	Sellers Road / Delta Road	AWSC	A.M.	10.2	B
			P.M.	19.1	C
4	Sellers Road / Project Access 1**	One-Way Stop	A.M.	-	-
			P.M.	-	-
5	Seller Road / Project Access 2**	One-Way Stop	A.M.	-	-
			P.M.	-	-
6	Main Street / Laurel Road*[1]	Signalized	A.M.	52.6	D
			P.M.	52.0	D
7	Main Street / Delta Road*[1]	Signalized	A.M.	11.9	B
			P.M.	7.9	A

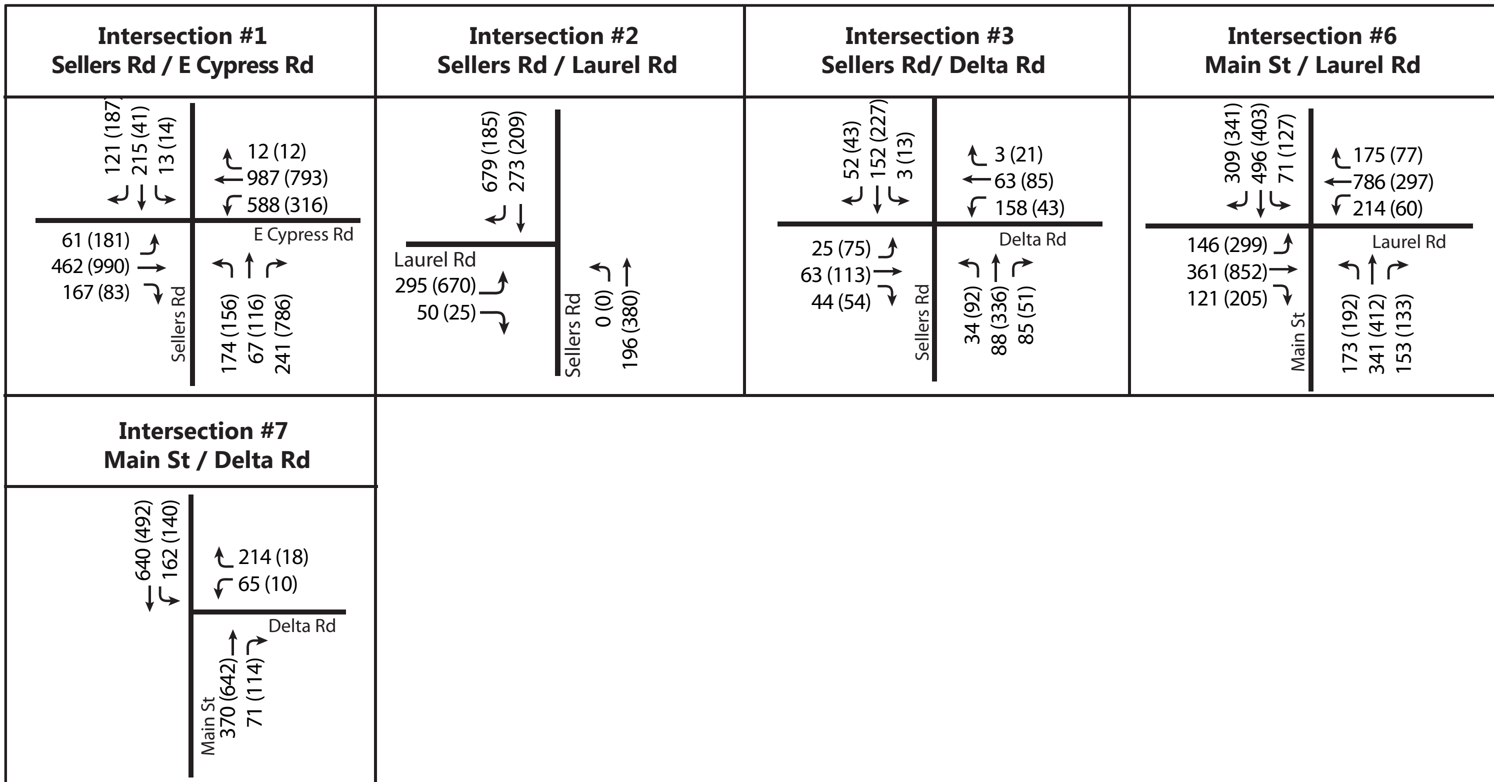
Notes: **Bold** text indicates unacceptable intersection operations.
*Indicates Routes of Regional Significance (East County Action Plan, CCTA, 2019).
**Analyzed under plus Project Scenarios, only.
***Analyzed under Background Scenarios, only.
[1]Indicates intersection is located in Priority Development Area and has standard of LOS E (Plan Bay Area 2050).
[2]AWSC – All-way stop control; TWSC – Two-way stop control.
[3]A.M. – Morning peak hour; P.M. – Evening peak hour.
[4]Delay: Average control delay in seconds per vehicle, reported values are overall for signalized and all-way-stop-control intersections; and critical minor approaches for one- and two-way stop-control intersections.
[5]LOS: Level of Service.

Figure 10: Redistribution of Existing Trips for Background Conditions



LEGEND

Figure 11: Background Conditions Peak Hour Traffic Volumes



LEGEND

XX AM Peak Hour Traffic Volume

(XX) PM Peak Hour Traffic Volume

TJKM

6.0 BACKGROUND PLUS PROJECT CONDITIONS

This scenario is identical to Background No-Project Conditions, but with the addition of projected traffic from the proposed project. Trip generation, distribution, and assignment for the proposed project are adjusted to account for traffic redistribution with the Laurel Road extension. **Figures 8a and 8b** show the trip distribution and assignment under Background plus Project Conditions.

6.1 Intersection Level of Service Analysis – Background plus Project Conditions

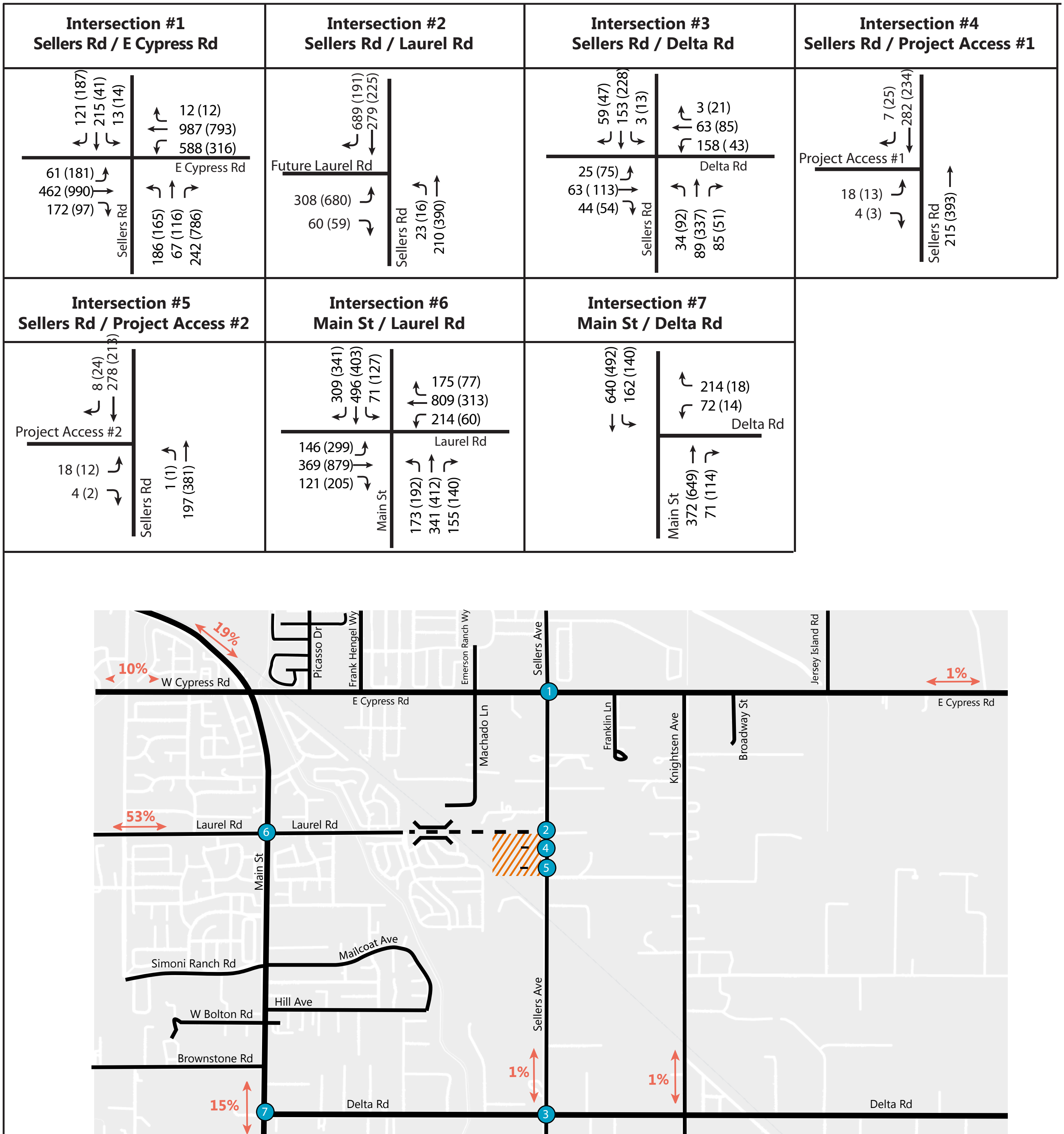
Figure 12 shows the forecasted volumes at each intersection under Background plus Project Conditions, based on the updated Oakley Citywide Traffic Model and the proposed project traffic. **Table 7** summarizes peak hour levels of service at the study intersections under Background plus Project Conditions, with Background Conditions results included for comparison purposes. Detailed LOS worksheets for Background plus Project Conditions are provided in **Appendix E**. As shown, all study intersections will continue to operate at acceptable LOS under Background plus Project conditions.

Table 7: Intersection Traffic Level of Service – Background plus Project Conditions

ID	Intersection	Control[2]	Peak Hour[3]	Background Conditions		Background plus Project Conditions		Substantial Impact? (Y/N)
				Average Delay[4]	LOS[5]	Average Delay[4]	LOS[5]	
1	Sellers Road / E. Cypress Road*	Signalized	A.M.	43.8	D	45.7	D	N
			P.M.	36.7	D	37.0	D	N
2	Sellers Road / Laurel Road***	Signalized	A.M.	48.7	D	49.2	D	N
			P.M.	50.5	D	50.7	D	N
3	Sellers Road / Delta Road	AWSC	A.M.	10.2	B	10.3	B	N
			P.M.	19.1	C	19.3	C	N
4	Sellers Road / Project Access 1**	One-Way Stop	A.M.	-	-	11.0	B	N
			P.M.	-	-	11.3	B	N
5	Seller Road / Project Access 2**	One-Way Stop	A.M.	-	-	10.9	B	N
			P.M.	-	-	11.2	B	N
6	Main Street / Laurel Road*[1]	Signalized	A.M.	52.6	D	53.0	D	N
			P.M.	52.0	D	52.0	D	N
7	Main Street / Delta Road*[1]	Signalized	A.M.	11.9	B	12.0	B	N
			P.M.	7.9	A	8.0	A	N

Notes: **Bold** text indicates unacceptable intersection operations.
*Indicates Routes of Regional Significance (East County Action Plan, CCTA, 2019).
**Analyzed under plus Project Scenarios, only.
***Analyzed under Background Scenarios, only.
[1]Indicates intersection is located in Priority Development Area and has standard of LOS E (Plan Bay Area 2050).
[2]AWSC – All-way stop control; TWSC – Two-way stop control.
[3]A.M. – Morning peak hour; P.M. – Evening peak hour.
[4]Delay: Average control delay in seconds per vehicle, reported values are overall for signalized and all-way-stop-control intersections; and critical minor approaches for one- and two-way stop-control intersections.
[5]LOS: Level of Service.

Figure 12: Background plus Project Conditions Peak Hour Traffic Volumes



LEGEND

XX AM Peak Hour Volume

(XX) PM Peak Hour Volume

TJKM

7.0 ADDITIONAL ANALYSIS

The following sections provide additional analyses of other transportation issues associated with the project site, including:

- Site access, circulation, and multimodal impacts
- Sight Distance Analysis
- Parking Analysis
- Queueing Analysis

The analyses in these sections are based on professional judgment in accordance with the standards and methods employed by traffic engineers. Although operational issues are not considered CEQA impacts, they do describe traffic conditions that are relevant to describing the project environment.

7.1 Site Access, Circulation, and Multimodal Impacts

Site Access and On-Site Circulation

The proposed project is located in the southwest quadrant of the future intersection of Sellers Road and Laurel Road (Intersection #2). The project proposes internal roadways, accessible from Sellers Road, which provide access to the single family homes, as shown in **Figure 2**. The roadway widths, including sidewalks on both sides, will range between 40 and 48 feet wide. The project proposes to provide sidewalks with landscaping on both sides of the internal roadways and on the west side of Sellers Road. Additionally, the project driveway will provide curb ramps at both driveways and at the southwest corner of the Sellers Road and Future Laurel Road intersection. The project driveways on Sellers Road will both be one-way stop controlled with vehicles entering and exiting the site anticipated to be travelling at 25 to 30 miles per hour (mph). Emergency vehicles will access the project site via the two proposed intersections on Sellers Road.

The site circulation works well for vehicular traffic with multiple routes providing access to the single-family homes. The internal roadways, which will provide access to the single-family residences, accommodates two-way travel. The proposed roadway also accommodates emergency and garbage truck circulation. Based on the current site plan, it is not clear if the internal roadways accommodate on-street parking. TJKM recommends the project accommodate on-street parking on both sides of the internal roadways.

Pedestrian Facilities Impacts

Pedestrian access would be provided via proposed sidewalks along the project frontage on the west side of Sellers Road and both sides of the future Laurel Road, and within the project site. All internal streets would have sidewalks to provide accessible paths of travel to each home. TJKM recommends the sidewalk widths are at least six feet wide, and curb ramps are provided at all internal crossings to provide adequate pedestrian facilities.

A significant impact occurs if the proposed project conflicts with applicable or adopted policies, plans or programs related to pedestrians facilities or otherwise decreases the performance or safety of pedestrian facilities. The proposed project will not result in any significant impacts to the nearby and future proposed pedestrian facilities.

Bicycle Facilities Impacts

Bicycle access to the project site would be provided by the nearest bicycle facilities, which are existing Class II bike lane facilities along both sides of E. Cypress Road and both sides of Laurel Road, west of Main Street. The project does not propose to provide new bicycle facilities. The Contra Costa County Transportation Authority Countywide Bicycle and Pedestrian Plan proposes Class II bike lanes Sellers Road, south of E. Cypress Road, which is along the project frontage.

An impact to bicyclists occurs if the proposed project disrupt existing bicycle facilities; or conflict or create inconsistencies with adopted bicycle system plans, guidelines, and policies. A significant impact occurs if the proposed project conflicts with applicable or adopted policies, plans or programs related to bicycle facilities or otherwise decrease the performance or safety of bicycle facilities. The proposed project will not result in any significant impacts to the nearby and future proposed bicycle facilities.

Transit Facilities Impacts

A proposed project is considered to have a significant impact on transit if it conflicts with existing or planned transit facilities, or is expected to generate additional transit trips and does not provide adequate facilities for pedestrians and bicyclists to access transit routes and stops.

The nearest transit facility is currently located at the intersection of Main Street and E. Cypress Road, and in the future, at the intersection of Main Street and Laurel Road, which will be accessible with the future planned extension of Laurel Road. The bus stops are not accessible via sidewalks and bike facilities, however, future planned facilities, and the extension of Laurel Road, will make the bus stops more accessible to and from the project site. The proposed project will likely not add a significant amount of volume to existing bus service capacity. Therefore, the proposed project is not expected to result in any significant impacts to the nearby transit network.

7.2 Sight Distance Analysis

Sellers Road is currently a two-lane bidirectional roadway and has a posted speed limit of 50 mph near the project site. The proposed project will pave new roadways within the project site, and provide two access points on the west side of Sellers Avenue. As per the proposed site plan **(Figure 2)**, oncoming traffic travelling northbound and southbound on Sellers Road have a clear line of sight to vehicles exiting the project site for at least 430 feet, north and south of both project entrances. No obstructions to sight distance are expected, however, TJKM recommends that on-street parking is prohibited on Sellers Road, along the project frontage.

7.3 Parking Analysis

Under the City of Oakley zoning regulations, the proposed project is classified as a single family residential use. For single family dwelling units, the City of Oakley Municipal Parking Code (Chapter 9.1.1402) requires two covered off-street parking spaces per unit. In order to satisfy City of Oakley Code requirements, TJKM recommends the project provide two covered parking spaces at each dwelling unit lot (170 total parking spaces). Assuming each residential unit provides a two-car garage, the proposed project meets the parking supply requirements for the City of Oakley. TJKM also recommends the project accommodates on-street parking along the proposed internal roadways to accommodate guest parking.

7.4 Queueing Analysis

TJKM conducted a vehicle queuing and storage analysis for all exclusive left-turn or right-turn pockets at the study intersections where project traffic is added under Existing and Existing plus Project scenarios. The 95th percentile (maximum) queues were analyzed using the HCM 6th Edition Queue methodology contained in Vistro software. Detailed calculations are included in the LOS appendices corresponding to each analysis scenario.

Table 8 summarizes the 95th percentile queue lengths at the study intersections under Existing and Existing plus Project scenarios. Under Existing plus Project scenarios, the proposed project increases queue length by a maximum of 20 feet, or less than one vehicle (one vehicle length=25 feet), at the intersection of Main Street/Laurel Road (Intersection #6). The addition of project traffic causes queue lengths to increase by approximately one vehicle at the eastbound left-turn at the intersection of Main Street and Laurel Road, and by less than one vehicle at the westbound left-turn at the intersection of Sellers Road/E. Cypress Road.

The intersection of Main Street and Laurel Road is significantly overloaded by projected development in the City of Oakley. Alternate access to the south is needed so traffic can reach an upgraded Laurel Road and Main Street intersection without having to use Main Street. This is included in the general plan. Under Existing and Existing plus Project Conditions, the westbound left-turning traffic exceeds queueing capacity by a maximum 85 feet, or four car lengths during the a.m. peak. However, this overflow is not due to traffic generated by the proposed traffic, as the maximum queue length does not change with the addition of project traffic.

It is noted that the queuing issues described above may be resolved by Oakley's planned improvements highlighted in the CIP.

Table 8: Queueing for Study Intersections, in Feet

#	Study Intersections	Lane Group	Storage Length	Existing		Existing plus Project		Change	
				AM	PM	AM	PM	AM	PM
1	Sellers Road / E. Cypress Road	EBL	185	15	5	15	5	0	0
		WBL	250	65	35	75	40	10	5
6	Main Street / Laurel Road	NBL	305	175	205	175	205	0	0
		SBL	215	100	145	100	145	0	0
		EBL	160	125	110	135	130	10	20
		WBL	300	**385**	90	**385**	90	0	0

Notes:
Storage length and 95th percentile queue is expressed in feet per lane.
Bold indicates overflow.

Table 9 summarizes the 95th percentile queue lengths at the study intersections under Background and Background plus Project scenarios. Under Background plus Project scenarios, the proposed project increases queue length by a maximum of 45 feet, or less than two vehicles (one vehicle length=25 feet), at the intersection of Sellers Road/Laurel Road (Intersection #2). The addition of project traffic causes queue lengths to increase by a maximum of one vehicle at the northbound left-turn at the intersection of Sellers Road and E. Cypress Road, two vehicles at the eastbound right-turn of Sellers Road and Laurel Road, and by less than one vehicle at the southbound right-turn at the intersection of Main Street/Laurel Road.

The intersections of Sellers Road/E. Cypress Road, Sellers Road/Laurel Road, and Main Street/Laurel Road are significantly overloaded by projected development in the City of Oakley. Under Background and Background plus Project Conditions, several turning lanes exceed queueing capacity during both peak periods. However, this overflow is not due to traffic generated by the proposed traffic, as the project adds a maximum of 25 feet, or one vehicle length, to the overflowing turning lanes.

It should also be noted that the Sellers Road/Laurel Road (Intersection #2) intersection is a future planned intersection, and thus, turn pockets and signal timing is assumed for this project. With the Laurel Road extension, improvements must be made to Main Street/Laurel Road (Intersection #6), as more traffic will be distributed through that intersection. These needed improvements are not reflected in this study.

Table 9: Queueing for Study Intersections, in Feet

#	Study Intersections	Lane Group	Storage Length	Background		Background plus Project		Change	
				AM	PM	AM	PM	AM	PM
1	Sellers Road / E. Cypress Road	NBL	150	**255**	145	**280**	**155**	25	10
		SBTL	110	**365**	80	**380**	80	15	0
		EBL	185	105	**205**	105	**210**	0	5
		WBL	250	**410**	175	**430**	175	20	0
2	Sellers Road / Laurel Road*	NBL	100	0	0	40	25	40	25
		SBR	100	**470**	**120**	**475**	**125**	5	5
		EBR	100	60	30	75	75	15	45
6	Main Street / Laurel Road	NBL	305	**380**	**320**	**380**	**320**	0	0
		SBL	215	145	**225**	145	**225**	0	0
		SBR	215	**530**	**400**	**550**	**410**	20	10
		EBL	160	**270**	**585**	**270**	**585**	0	0
		EBR	160	**170**	**260**	**165**	**255**	-5	-5
		WBL	240	**465**	115	**465**	115	0	0
		WBR	100	**285**	**125**	**280**	**125**	-5	0
7	Main Street / Delta Road	NBR	100	20	15	20	15	0	0
		SBL	95	70	45	70	45	0	0
		WBR	100	75	5	75	5	0	0

Notes:

Storage length and 95th percentile queue is expressed in feet per lane.

Bold indicates overflow.

*Indicates a future planned intersection, thus turn pocket lengths are assumed.

Appendix A

Existing Conditions LOS Reports

Intersection Level Of Service Report
Intersection 1: Sellers Rd/E Cypress Rd

Control Type:	Signalized	Delay (sec / veh):	18.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.535

Intersection Setup

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00	250.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			45.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Base Volume Input [veh/h]	96	5	47	1	2	8	11	289	177	95	501	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	5	47	1	2	8	11	289	177	95	501	1
Peak Hour Factor	0.7700	0.7700	0.7700	0.6900	0.6900	0.6900	0.8100	0.8100	0.8100	0.7000	0.7000	0.7000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	2	15	0	1	3	3	89	55	34	179	0
Total Analysis Volume [veh/h]	125	6	61	1	3	12	14	357	219	136	716	1
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	2	0	0	2	0	2	2	0	2	2	0
Maximum Green [s]	0	30	0	0	30	0	30	60	0	30	60	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	52	52	52	52	52	52
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	7	1	0	21	5	25
g / C, Green / Cycle	0.14	0.01	0.01	0.40	0.10	0.49
(v / s)_i Volume / Saturation Flow Rate	0.11	0.01	0.01	0.33	0.08	0.39
s, saturation flow rate [veh/h]	1690	1620	1752	1724	1752	1840
c, Capacity [veh/h]	242	16	15	688	177	903
d1, Uniform Delay [s]	21.47	25.66	25.69	14.07	22.73	11.01
k, delay calibration	0.04	0.04	0.04	0.15	0.04	0.15
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.23	57.49	49.22	3.94	2.67	2.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.98	0.93	0.84	0.77	0.79
d, Delay for Lane Group [s/veh]	23.71	83.16	74.91	18.02	25.41	13.32
Lane Group LOS	C	F	E	B	C	B
Critical Lane Group	Yes	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.00	0.43	0.36	5.15	1.48	4.73
50th-Percentile Queue Length [ft/ln]	49.94	10.75	8.92	128.72	36.97	118.20
95th-Percentile Queue Length [veh/ln]	3.60	0.77	0.64	8.87	2.66	8.29
95th-Percentile Queue Length [ft/ln]	89.89	19.35	16.06	221.75	66.54	207.36

Movement, Approach, & Intersection Results

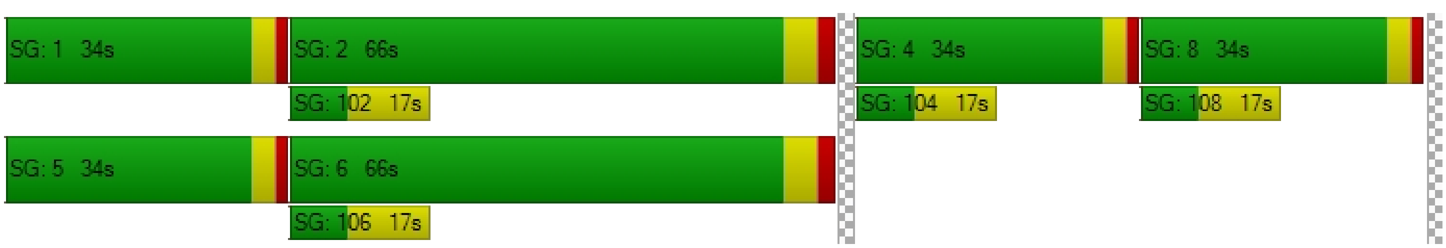
d_M, Delay for Movement [s/veh]	23.71	23.71	23.71	83.16	83.16	83.16	74.91	18.02	18.02	25.41	13.32	13.32
Movement LOS	C	C	C	F	F	F	E	B	B	C	B	B
d_A, Approach Delay [s/veh]	23.71			83.16			19.37			15.24		
Approach LOS	C			F			B			B		
d_I, Intersection Delay [s/veh]	18.36											
Intersection LOS	B											
Intersection V/C	0.535											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.161	1.744	2.643	2.629
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	1333	1333
d_b, Bicycle Delay [s]	20.00	20.00	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	1.876	1.586	2.533	2.967
Bicycle LOS	A	A	B	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sellers Rd/Delta Rd

Control Type:	All-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.249

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	33	86	36	3	142	15	13	63	41	38	63	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	86	36	3	142	15	13	63	41	38	63	3
Peak Hour Factor	0.8400	0.8400	0.8400	0.8700	0.8700	0.8700	0.7700	0.7700	0.7700	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	26	11	1	41	4	4	20	13	12	19	1
Total Analysis Volume [veh/h]	39	102	43	3	163	17	17	82	53	47	78	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	743	736	736	698
Degree of Utilization, x	0.25	0.25	0.21	0.18

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.97	0.98	0.77	0.67
95th-Percentile Queue Length [ft]	24.36	24.48	19.32	16.85
Approach Delay [s/veh]	9.44	9.50	9.16	9.32
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.37			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 6: Main St/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	40.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.585

Intersection Setup

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	2	0	0	1	0	0
Entry Pocket Length [ft]	305.00	100.00	100.00	215.00	100.00	215.00	160.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	480.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Base Volume Input [veh/h]	107	348	91	61	465	164	176	56	101	176	162	104
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	348	91	61	465	164	176	56	101	176	162	104
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.9000	0.6700	0.6700	0.6700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	109	28	19	145	51	49	16	28	66	60	39
Total Analysis Volume [veh/h]	134	435	114	76	581	205	196	62	112	263	242	155
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	2			0			2			0		
v_di, Inbound Pedestrian Volume crossing m	2			0			2			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	108.0
Offset Reference	Lagging Force-Off
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	10	0	6	10	0	6	6	0	6	6	0
Maximum Green [s]	20	40	0	16	40	0	16	20	0	16	20	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.4	0.0	3.0	4.1	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	38	0	15	38	0	18	40	0	22	44	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	24	0	0	26	0	0	30	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	2.0	3.4	0.0	2.0	3.1	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	4.00	5.40	5.40	4.00	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	3.50	2.00	3.50	3.50	2.00	3.40	3.40	2.00	3.10
g_i, Effective Green Time [s]	10	53	53	6	49	49	9	18	18	18	28
g / C, Green / Cycle	0.09	0.46	0.46	0.05	0.43	0.43	0.07	0.16	0.16	0.16	0.24
(v / s)_i Volume / Saturation Flow Rate	0.08	0.15	0.15	0.04	0.22	0.22	0.06	0.03	0.07	0.15	0.23
s, saturation flow rate [veh/h]	1767	1855	1724	1767	1855	1679	3431	1855	1565	1767	1735
c, Capacity [veh/h]	161	861	801	98	795	719	256	296	250	276	423
d1, Uniform Delay [s]	51.39	19.48	19.50	53.63	24.14	24.20	52.21	42.00	43.70	48.08	42.61
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.37	0.09
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.20	1.02	1.11	4.96	2.40	2.69	1.80	0.13	0.47	35.75	8.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.33	0.33	0.78	0.52	0.52	0.76	0.21	0.45	0.95	0.94
d, Delay for Lane Group [s/veh]	55.59	20.50	20.61	58.59	26.54	26.89	54.00	42.13	44.17	83.83	51.46
Lane Group LOS	E	C	C	E	C	C	D	D	D	F	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.91	4.86	4.57	2.27	8.41	7.75	2.79	1.52	2.87	10.11	11.86
50th-Percentile Queue Length [ft/ln]	97.87	121.47	114.19	56.67	210.19	193.73	69.74	37.94	71.63	252.73	296.56
95th-Percentile Queue Length [veh/ln]	7.05	8.47	8.07	4.08	13.16	12.31	5.02	2.73	5.16	15.32	17.51
95th-Percentile Queue Length [ft/ln]	176.16	211.84	201.82	102.01	329.07	307.87	125.54	68.29	128.93	383.09	437.78

Movement, Approach, & Intersection Results

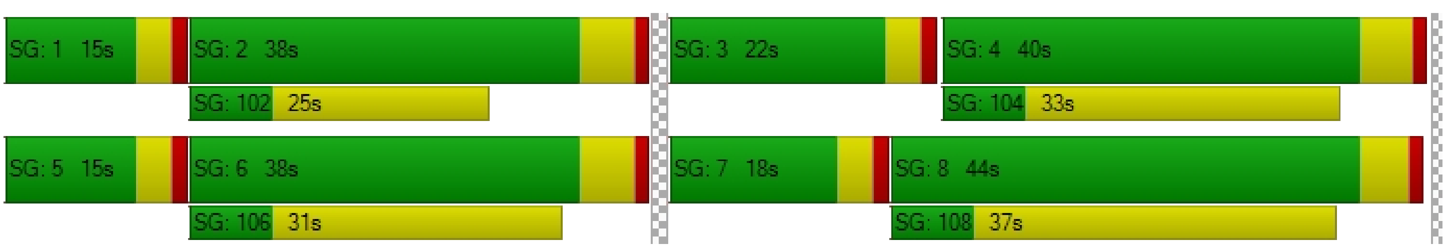
d_M, Delay for Movement [s/veh]	55.59	20.54	20.61	58.59	26.64	26.89	54.00	42.13	44.17	83.83	51.46	51.46
Movement LOS	E	C	C	E	C	C	D	D	D	F	D	D
d_A, Approach Delay [s/veh]	27.43			29.52			49.04			64.36		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	40.70											
Intersection LOS	D											
Intersection V/C	0.585											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	2019.95	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	47.03	47.03	47.03	47.03
I_p,int, Pedestrian LOS Score for Intersection	2.738	2.740	2.671	2.298
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	565	565	602	677
d_b, Bicycle Delay [s]	29.59	29.61	28.11	25.18
I_b,int, Bicycle LOS Score for Intersection	2.123	2.271	2.170	2.649
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Main St/Delta Rd

Control Type:	Two-way stop	Delay (sec / veh):	93.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.566

Intersection Setup

Name	Brentwood Blvd		Main S		Delta Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	95.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Brentwood Blvd		Main S		Delta Rd	
Base Volume Input [veh/h]	348	66	151	569	51	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	348	66	151	569	51	190
Peak Hour Factor	0.9000	0.9000	0.7800	0.7800	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	97	18	48	182	15	55
Total Analysis Volume [veh/h]	387	73	194	729	59	221
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.18	0.01	0.57	0.35
d_M, Delay for Movement [s/veh]	0.00	0.00	8.97	0.00	92.97	64.16
Movement LOS	A	A	A	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.64	0.00	8.78	8.78
95th-Percentile Queue Length [ft/ln]	0.00	0.00	15.98	0.00	219.46	219.46
d_A, Approach Delay [s/veh]	0.00		1.89		70.23	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	12.87					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 1: Sellers Rd/E Cypress Rd

Control Type:	Signalized	Delay (sec / veh):	17.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.487

Intersection Setup

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00	250.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			45.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Base Volume Input [veh/h]	86	2	106	3	0	10	1	379	96	68	283	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	2	106	3	0	10	1	379	96	68	283	0
Peak Hour Factor	0.8400	0.8400	0.8400	0.6500	0.6500	0.6500	0.9200	0.9200	0.9200	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	1	32	1	0	4	0	103	26	19	78	0
Total Analysis Volume [veh/h]	102	2	126	5	0	15	1	412	104	75	311	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	2	0	0	2	0	2	2	0	2	2	0
Maximum Green [s]	0	30	0	0	30	0	30	60	0	30	60	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	45	45	45	45	45	45
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	8	1	0	17	2	19
g / C, Green / Cycle	0.17	0.01	0.00	0.36	0.05	0.42
(v / s)_i Volume / Saturation Flow Rate	0.14	0.01	0.00	0.29	0.04	0.17
s, saturation flow rate [veh/h]	1645	1607	1752	1768	1752	1840
c, Capacity [veh/h]	288	21	1	642	95	767
d1, Uniform Delay [s]	18.05	22.51	22.80	13.07	21.31	9.33
k, delay calibration	0.04	0.04	0.04	0.15	0.04	0.15
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.95	48.22	249.16	3.40	5.30	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.97	0.99	0.80	0.79	0.41
d, Delay for Lane Group [s/veh]	20.00	70.73	271.96	16.47	26.61	9.82
Lane Group LOS	C	E	F	B	C	A
Critical Lane Group	Yes	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.93	0.45	0.08	3.88	0.78	1.45
50th-Percentile Queue Length [ft/ln]	48.27	11.32	1.98	96.91	19.49	36.14
95th-Percentile Queue Length [veh/ln]	3.48	0.82	0.14	6.98	1.40	2.60
95th-Percentile Queue Length [ft/ln]	86.88	20.38	3.56	174.43	35.08	65.05

Movement, Approach, & Intersection Results

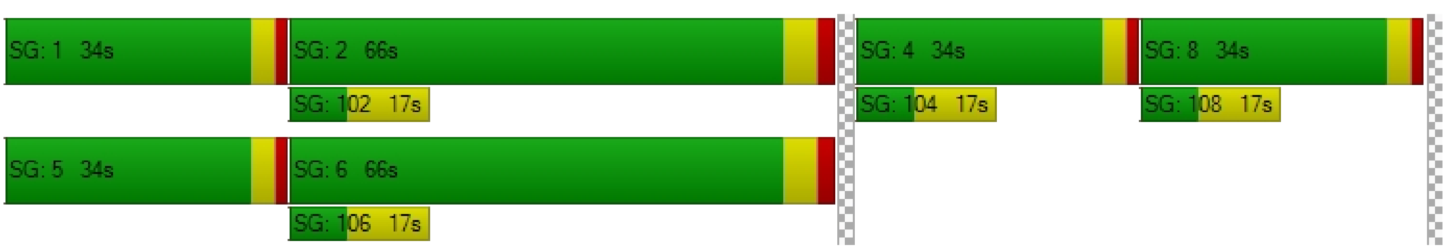
d_M, Delay for Movement [s/veh]	20.00	20.00	20.00	70.73	70.73	70.73	271.96	16.47	16.47	26.61	9.82	9.82
Movement LOS	C	C	C	E	E	E	F	B	B	C	A	A
d_A, Approach Delay [s/veh]	20.00			70.73			16.96			13.08		
Approach LOS	C			E			B			B		
d_I, Intersection Delay [s/veh]	17.20											
Intersection LOS	B											
Intersection V/C	0.487											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.047	1.733	2.400	2.443
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	1333	1333
d_b, Bicycle Delay [s]	20.00	20.00	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	1.939	1.593	2.413	2.197
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sellers Rd/Delta Rd

Control Type:	All-way stop	Delay (sec / veh):	13.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.575

Intersection Setup

Name	Sellers Rd			Sellers Rd			Delta Rd			Delta Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	┼			┼			┼			┼		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sellers Rd			Sellers Rd			Delta Rd			Delta Rd		
Base Volume Input [veh/h]	88	203	51	13	149	22	34	113	52	43	85	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	203	51	13	149	22	34	113	52	43	85	21
Peak Hour Factor	0.8900	0.8900	0.8900	0.9200	0.9200	0.9200	0.9800	0.9800	0.9800	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	57	14	4	40	6	9	29	13	13	25	6
Total Analysis Volume [veh/h]	99	228	57	14	162	24	35	115	53	51	100	25
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	668	634	620	605
Degree of Utilization, x	0.57	0.32	0.33	0.29

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.68	1.35	1.42	1.20
95th-Percentile Queue Length [ft]	91.94	33.71	35.50	30.08
Approach Delay [s/veh]	15.42	11.27	11.60	11.37
Approach LOS	C	B	B	B
Intersection Delay [s/veh]	13.01			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 6: Main St/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	32.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.386

Intersection Setup

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	2	0	0	1	0	0
Entry Pocket Length [ft]	305.00	100.00	100.00	215.00	100.00	215.00	160.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	480.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Base Volume Input [veh/h]	136	370	94	95	326	129	165	162	123	58	95	57
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	136	370	94	95	326	129	165	162	123	58	95	57
Peak Hour Factor	0.8900	0.8900	0.8900	0.8800	0.8800	0.8800	0.9600	0.9600	0.9600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	104	26	27	93	37	43	42	32	17	28	17
Total Analysis Volume [veh/h]	153	416	106	108	370	147	172	169	128	67	110	66
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	1			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			1			0		
v_co, Outbound Pedestrian Volume crossing	1			0			0			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			0			0			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	108.0
Offset Reference	Lagging Force-Off
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	10	0	6	10	0	6	6	0	6	6	0
Maximum Green [s]	20	40	0	16	40	0	16	20	0	16	20	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.4	0.0	3.0	4.1	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	38	0	15	38	0	18	40	0	22	44	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	24	0	0	26	0	0	30	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	2.0	3.4	0.0	2.0	3.1	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	4.00	5.40	5.40	4.00	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	3.50	2.00	3.50	3.50	2.00	3.40	3.40	2.00	3.10
g_i, Effective Green Time [s]	11	66	66	9	64	64	8	15	15	6	14
g / C, Green / Cycle	0.10	0.58	0.58	0.08	0.56	0.56	0.07	0.13	0.13	0.05	0.12
(v / s)_i Volume / Saturation Flow Rate	0.09	0.15	0.15	0.06	0.15	0.15	0.05	0.09	0.08	0.04	0.10
s, saturation flow rate [veh/h]	1767	1855	1726	1767	1855	1679	3431	1855	1573	1767	1730
c, Capacity [veh/h]	170	1069	995	134	1031	933	232	249	211	87	205
d1, Uniform Delay [s]	51.41	12.07	12.08	52.33	13.27	13.30	52.61	47.41	46.90	54.03	49.75
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.64	0.57	0.61	4.35	0.62	0.69	1.75	1.21	1.04	5.30	4.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.25	0.25	0.81	0.26	0.26	0.74	0.68	0.61	0.77	0.86
d, Delay for Lane Group [s/veh]	58.05	12.63	12.69	56.68	13.89	14.00	54.36	48.62	47.94	59.32	53.79
Lane Group LOS	E	B	B	E	B	B	D	D	D	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.59	3.38	3.18	3.17	3.60	3.32	2.45	4.61	3.45	2.03	5.14
50th-Percentile Queue Length [ft/ln]	114.80	84.41	79.50	79.37	89.92	82.99	61.28	115.13	86.22	50.68	128.47
95th-Percentile Queue Length [veh/ln]	8.11	6.08	5.72	5.71	6.47	5.98	4.41	8.12	6.21	3.65	8.86
95th-Percentile Queue Length [ft/ln]	202.66	151.94	143.10	142.87	161.86	149.39	110.30	203.12	155.19	91.22	221.41

Movement, Approach, & Intersection Results

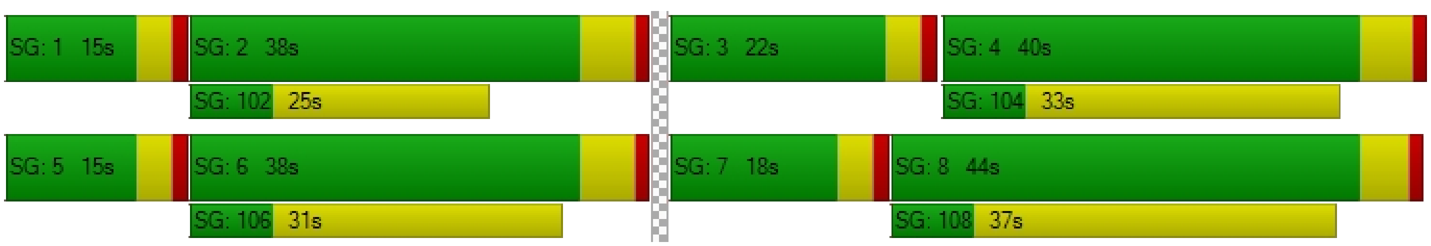
d_M, Delay for Movement [s/veh]	58.05	12.65	12.69	56.68	13.92	14.00	54.36	48.62	47.94	59.32	53.79	53.79
Movement LOS	E	B	B	E	B	B	D	D	D	E	D	D
d_A, Approach Delay [s/veh]	22.95			21.33			50.54			55.31		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	32.79											
Intersection LOS	C											
Intersection V/C	0.386											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	7881.94	0.00	0.00	3329.98
d_p, Pedestrian Delay [s]	47.03	47.03	47.03	47.03
I_p,int, Pedestrian LOS Score for Intersection	2.634	2.644	2.655	2.189
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	565	565	602	677
d_b, Bicycle Delay [s]	29.59	29.59	28.11	25.19
I_b,int, Bicycle LOS Score for Intersection	2.116	2.075	2.333	1.961
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Main St/Delta Rd

Control Type:	Two-way stop	Delay (sec / veh):	54.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.375

Intersection Setup

Name	Brentwood Blvd		Main S		Delta Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	95.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Brentwood Blvd		Main S		Delta Rd	
Base Volume Input [veh/h]	562	98	112	445	48	134
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	562	98	112	445	48	134
Peak Hour Factor	0.9400	0.9400	0.9100	0.9100	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	149	26	31	122	13	35
Total Analysis Volume [veh/h]	598	104	123	489	51	141
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.14	0.00	0.37	0.30
d_M, Delay for Movement [s/veh]	0.00	0.00	9.67	0.00	54.31	35.52
Movement LOS	A	A	A	A	F	E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.48	0.00	4.50	4.50
95th-Percentile Queue Length [ft/ln]	0.00	0.00	11.91	0.00	112.44	112.44
d_A, Approach Delay [s/veh]	0.00		1.94		40.51	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	5.95					
Intersection LOS	F					

Appendix B

Existing plus Project Conditions LOS Reports

Intersection Level Of Service Report
Intersection 1: Sellers Rd/E Cypress Rd

Control Type:	Signalized	Delay (sec / veh):	19.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.572

Intersection Setup

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00	250.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			45.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Base Volume Input [veh/h]	96	5	47	1	2	8	11	289	177	95	501	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	36	0	0	0	0	0	0	0	13	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	132	5	47	1	2	8	11	289	190	95	501	1
Peak Hour Factor	0.7700	0.7700	0.7700	0.6900	0.6900	0.6900	0.8100	0.8100	0.8100	0.7000	0.7000	0.7000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	43	2	15	0	1	3	3	89	59	34	179	0
Total Analysis Volume [veh/h]	171	6	61	1	3	12	14	357	235	136	716	1
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	2	0	0	2	0	2	2	0	2	2	0
Maximum Green [s]	0	30	0	0	30	0	30	60	0	30	60	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	57	57	57	57	57	57
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	10	1	0	23	6	28
g / C, Green / Cycle	0.17	0.01	0.01	0.40	0.10	0.50
(v / s)_i Volume / Saturation Flow Rate	0.14	0.01	0.01	0.34	0.08	0.39
s, saturation flow rate [veh/h]	1702	1620	1752	1720	1752	1840
c, Capacity [veh/h]	291	17	15	694	176	912
d1, Uniform Delay [s]	22.86	28.31	28.34	15.51	25.10	11.93
k, delay calibration	0.04	0.04	0.04	0.15	0.04	0.15
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.18	54.81	47.40	4.33	2.71	2.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.97	0.92	0.85	0.77	0.79
d, Delay for Lane Group [s/veh]	25.04	83.12	75.74	19.84	27.81	14.12
Lane Group LOS	C	F	E	B	C	B
Critical Lane Group	Yes	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.76	0.44	0.37	6.16	1.68	5.50
50th-Percentile Queue Length [ft/ln]	69.12	11.10	9.29	153.89	41.92	137.58
95th-Percentile Queue Length [veh/ln]	4.98	0.80	0.67	10.22	3.02	9.35
95th-Percentile Queue Length [ft/ln]	124.42	19.98	16.73	255.62	75.46	233.76

Movement, Approach, & Intersection Results

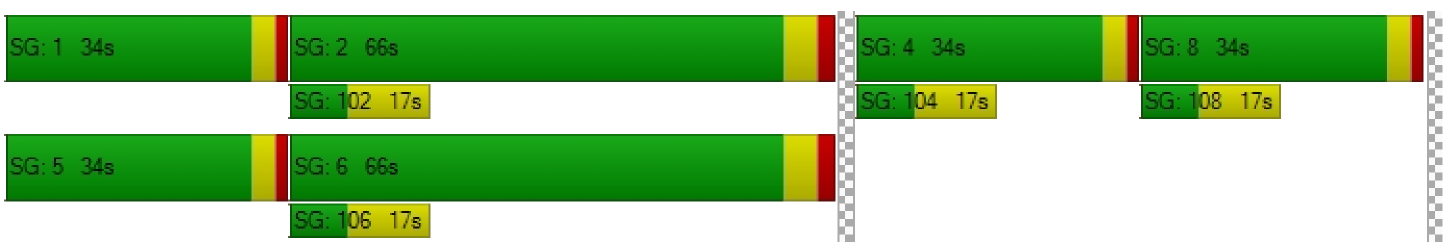
d_M, Delay for Movement [s/veh]	25.04	25.04	25.04	83.12	83.12	83.12	75.74	19.84	19.84	27.81	14.12	14.12
Movement LOS	C	C	C	F	F	F	E	B	B	C	B	B
d_A, Approach Delay [s/veh]	25.04			83.12			21.13			16.30		
Approach LOS	C			F			C			B		
d_I, Intersection Delay [s/veh]	19.85											
Intersection LOS	B											
Intersection V/C	0.572											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.212	1.744	2.673	2.629
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	1333	1333
d_b, Bicycle Delay [s]	20.00	20.00	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	1.952	1.586	2.560	2.967
Bicycle LOS	A	A	B	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sellers Rd/Delta Rd

Control Type:	All-way stop	Delay (sec / veh):	9.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.261

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	╋			╋			╋			╋		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	33	86	36	3	142	15	13	63	41	38	63	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	1	0	0	1	7	3	0	0	0	0	0
Total Hourly Volume [veh/h]	33	87	36	3	143	22	16	63	41	38	63	3
Peak Hour Factor	0.8400	0.8400	0.8400	0.8700	0.8700	0.8700	0.7700	0.7700	0.7700	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	26	11	1	41	6	5	20	13	12	19	1
Total Analysis Volume [veh/h]	39	104	43	3	164	25	21	82	53	47	78	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	738	736	730	693
Degree of Utilization, x	0.25	0.26	0.21	0.19

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.00	1.04	0.81	0.68
95th-Percentile Queue Length [ft]	24.90	26.06	20.16	17.00
Approach Delay [s/veh]	9.51	9.61	9.27	9.38
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.46			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Sellers Rd/Project Access 1

Control Type:	Two-way stop	Delay (sec / veh):	11.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.032

Intersection Setup

Name	Sellers Rd		Sellers Rd		Project Access 1	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Sellers Rd		Sellers Rd		Project Access 1	
Base Volume Input [veh/h]	0	148	274	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	2	18	7	6	18	4
Total Hourly Volume [veh/h]	2	166	281	6	18	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	42	70	2	5	1
Total Analysis Volume [veh/h]	2	166	281	6	18	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.03	0.01
d_M, Delay for Movement [s/veh]	7.83	0.00	0.00	0.00	11.63	10.00
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.12	0.12
95th-Percentile Queue Length [ft/ln]	0.12	0.12	0.00	0.00	2.90	2.90
d_A, Approach Delay [s/veh]	0.09		0.00		11.34	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.56					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Sellers Rd/Project Access 2

Control Type:	Two-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name	Sellers Rd		Sellers Rd		Project Access 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Sellers Rd		Sellers Rd		Project Access 2	
Base Volume Input [veh/h]	0	148	274	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	2	2	4	7	18	4
Total Hourly Volume [veh/h]	2	150	278	7	18	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	38	70	2	5	1
Total Analysis Volume [veh/h]	2	150	278	7	18	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.03	0.01
d_M, Delay for Movement [s/veh]	7.82	0.00	0.00	0.00	11.47	9.98
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.11	0.11
95th-Percentile Queue Length [ft/ln]	0.12	0.12	0.00	0.00	2.84	2.84
d_A, Approach Delay [s/veh]	0.10		0.00		11.20	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.57					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Main St/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	40.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	2	0	0	1	0	0
Entry Pocket Length [ft]	305.00	100.00	100.00	215.00	100.00	215.00	160.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	480.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Base Volume Input [veh/h]	107	348	91	61	465	164	176	56	101	176	162	104
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	28	10	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	348	91	61	465	192	186	56	101	176	162	104
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.9000	0.6700	0.6700	0.6700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	109	28	19	145	60	52	16	28	66	60	39
Total Analysis Volume [veh/h]	134	435	114	76	581	240	207	62	112	263	242	155
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	2			0			2			0		
v_di, Inbound Pedestrian Volume crossing m	2			0			2			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	108.0
Offset Reference	Lagging Force-Off
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	10	0	6	10	0	6	6	0	6	6	0
Maximum Green [s]	20	40	0	16	40	0	16	20	0	16	20	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.4	0.0	3.0	4.1	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	38	0	15	38	0	18	40	0	22	44	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	24	0	0	26	0	0	30	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	2.0	3.4	0.0	2.0	3.1	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	4.00	5.40	5.40	4.00	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	3.50	2.00	3.50	3.50	2.00	3.40	3.40	2.00	3.10
g_i, Effective Green Time [s]	10	53	53	6	49	49	9	19	19	18	28
g / C, Green / Cycle	0.09	0.46	0.46	0.05	0.43	0.43	0.08	0.16	0.16	0.16	0.24
(v / s)_i Volume / Saturation Flow Rate	0.08	0.15	0.15	0.04	0.23	0.23	0.06	0.03	0.07	0.15	0.23
s, saturation flow rate [veh/h]	1767	1855	1724	1767	1855	1659	3431	1855	1565	1767	1735
c, Capacity [veh/h]	161	855	795	98	789	705	267	302	255	276	423
d1, Uniform Delay [s]	51.39	19.71	19.74	53.63	24.76	24.83	52.03	41.68	43.37	48.08	42.61
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.37	0.10
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.20	1.04	1.13	4.96	2.72	3.10	1.82	0.12	0.44	35.75	9.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.33	0.33	0.78	0.55	0.55	0.77	0.21	0.44	0.95	0.94
d, Delay for Lane Group [s/veh]	55.59	20.75	20.87	58.59	27.48	27.92	53.84	41.81	43.81	83.83	51.78
Lane Group LOS	E	C	C	E	C	C	D	D	D	F	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.91	4.90	4.60	2.27	9.05	8.26	2.94	1.51	2.85	10.11	11.90
50th-Percentile Queue Length [ft/ln]	97.87	122.39	115.06	56.67	226.22	206.39	73.62	37.77	71.29	252.73	297.49
95th-Percentile Queue Length [veh/ln]	7.05	8.52	8.12	4.08	13.98	12.97	5.30	2.72	5.13	15.32	17.56
95th-Percentile Queue Length [ft/ln]	176.16	213.10	203.01	102.01	349.55	324.19	132.52	67.99	128.33	383.09	438.92

Movement, Approach, & Intersection Results

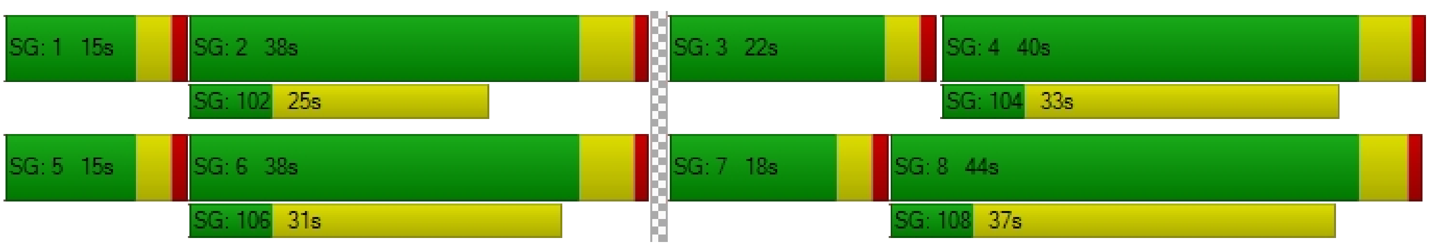
d_M, Delay for Movement [s/veh]	55.59	20.79	20.87	58.59	27.60	27.92	53.84	41.81	43.81	83.83	51.78	51.78
Movement LOS	E	C	C	E	C	C	D	D	D	F	D	D
d_A, Approach Delay [s/veh]	27.63			30.31			48.94			64.55		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	40.94											
Intersection LOS	D											
Intersection V/C	0.600											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	2019.95	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	47.03	47.03	47.03	47.03
I_p,int, Pedestrian LOS Score for Intersection	2.738	2.752	2.681	2.298
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	565	565	602	677
d_b, Bicycle Delay [s]	29.59	29.61	28.11	25.18
I_b,int, Bicycle LOS Score for Intersection	2.123	2.300	2.188	2.649
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Main St/Delta Rd

Control Type:	Two-way stop	Delay (sec / veh):	113.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.645

Intersection Setup

Name	Brentwood Blvd		Main S		Delta Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	95.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Brentwood Blvd		Main S		Delta Rd	
Base Volume Input [veh/h]	348	66	151	569	51	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	3	0	0	7	0
Total Hourly Volume [veh/h]	348	69	151	569	58	190
Peak Hour Factor	0.9000	0.9000	0.7800	0.7800	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	97	19	48	182	17	55
Total Analysis Volume [veh/h]	387	77	194	729	67	221
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.18	0.01	0.64	0.35
d_M, Delay for Movement [s/veh]	0.00	0.00	8.99	0.00	113.61	84.70
Movement LOS	A	A	A	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.64	0.00	10.33	10.33
95th-Percentile Queue Length [ft/ln]	0.00	0.00	16.04	0.00	258.26	258.26
d_A, Approach Delay [s/veh]	0.00		1.89		91.43	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	16.76					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 1: Sellers Rd/E Cypress Rd

Control Type:	Signalized	Delay (sec / veh):	18.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.535

Intersection Setup

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00	250.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			45.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Base Volume Input [veh/h]	86	2	106	3	0	10	1	379	96	68	283	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	25	0	1	0	0	0	0	0	42	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	2	107	3	0	10	1	379	138	68	283	0
Peak Hour Factor	0.8400	0.8400	0.8400	0.6500	0.6500	0.6500	0.9200	0.9200	0.9200	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	1	32	1	0	4	0	103	38	19	78	0
Total Analysis Volume [veh/h]	132	2	127	5	0	15	1	412	150	75	311	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	2	0	0	2	0	2	2	0	2	2	0
Maximum Green [s]	0	30	0	0	30	0	30	60	0	30	60	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	51	51	51	51	51	51
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	10	1	0	20	3	22
g / C, Green / Cycle	0.19	0.01	0.00	0.39	0.05	0.44
(v / s)_i Volume / Saturation Flow Rate	0.16	0.01	0.00	0.32	0.04	0.17
s, saturation flow rate [veh/h]	1656	1607	1752	1746	1752	1840
c, Capacity [veh/h]	318	21	1	677	96	813
d1, Uniform Delay [s]	19.77	25.18	25.51	14.12	23.83	9.58
k, delay calibration	0.04	0.04	0.04	0.15	0.04	0.15
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.01	46.31	254.71	3.83	5.15	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.96	1.00	0.83	0.78	0.38
d, Delay for Lane Group [s/veh]	21.79	71.49	280.22	17.95	28.98	10.00
Lane Group LOS	C	E	F	B	C	A
Critical Lane Group	Yes	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.54	0.47	0.08	4.95	0.89	1.63
50th-Percentile Queue Length [ft/ln]	63.61	11.85	2.03	123.71	22.19	40.86
95th-Percentile Queue Length [veh/ln]	4.58	0.85	0.15	8.60	1.60	2.94
95th-Percentile Queue Length [ft/ln]	114.50	21.34	3.66	214.92	39.95	73.55

Movement, Approach, & Intersection Results

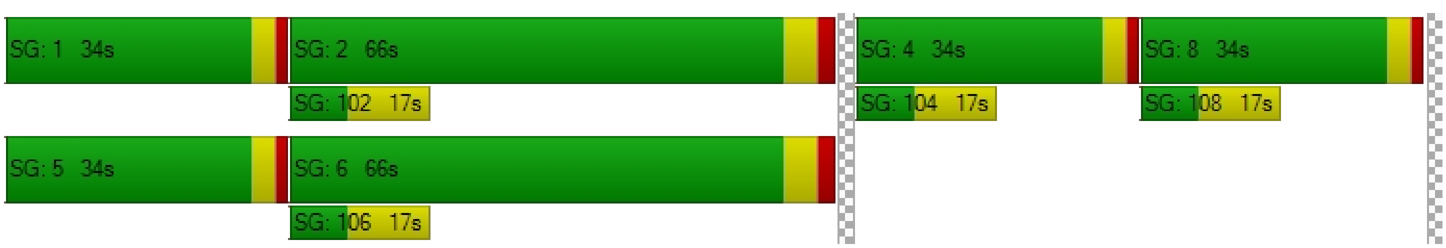
d_M, Delay for Movement [s/veh]	21.79	21.79	21.79	71.49	71.49	71.49	280.22	17.95	17.95	28.98	10.00	10.00
Movement LOS	C	C	C	E	E	E	F	B	B	C	A	A
d_A, Approach Delay [s/veh]	21.79			71.49			18.41			13.69		
Approach LOS	C			E			B			B		
d_I, Intersection Delay [s/veh]	18.51											
Intersection LOS	B											
Intersection V/C	0.535											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.109	1.733	2.437	2.443
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	1333	1333
d_b, Bicycle Delay [s]	20.00	20.00	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	1.990	1.593	2.489	2.197
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sellers Rd/Delta Rd

Control Type:	All-way stop	Delay (sec / veh):	13.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.579

Intersection Setup

Name	Sellers Rd			Sellers Rd			Delta Rd			Delta Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sellers Rd			Sellers Rd			Delta Rd			Delta Rd		
Base Volume Input [veh/h]	88	203	51	13	149	22	34	113	52	43	85	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	4	7	0	0	0	0	0
Total Hourly Volume [veh/h]	88	203	51	13	149	26	41	113	52	43	85	21
Peak Hour Factor	0.8900	0.8900	0.8900	0.9200	0.9200	0.9200	0.9800	0.9800	0.9800	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	57	14	4	40	7	10	29	13	13	25	6
Total Analysis Volume [veh/h]	99	228	57	14	162	28	42	115	53	51	100	25
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	663	631	617	601
Degree of Utilization, x	0.58	0.32	0.34	0.29

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.73	1.40	1.50	1.21
95th-Percentile Queue Length [ft]	93.21	34.90	37.61	30.36
Approach Delay [s/veh]	15.62	11.40	11.82	11.45
Approach LOS	C	B	B	B
Intersection Delay [s/veh]	13.16			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 4: Sellers Rd/Project Access 1

Control Type:	Two-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name	Sellers Rd		Sellers Rd		Project Access 1	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Sellers Rd		Sellers Rd		Project Access 1	
Base Volume Input [veh/h]	0	194	164	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	3	13	21	21	13	2
Total Hourly Volume [veh/h]	3	207	185	21	13	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	52	46	5	3	1
Total Analysis Volume [veh/h]	3	207	185	21	13	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	7.64	0.00	0.00	0.00	11.17	9.40
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.17	0.17	0.00	0.00	1.85	1.85
d_A, Approach Delay [s/veh]	0.11		0.00		10.93	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.43					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Sellers Rd/Project Access 2

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.021

Intersection Setup

Name	Sellers Rd		Sellers Rd		Project Access 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Sellers Rd		Sellers Rd		Project Access 2	
Base Volume Input [veh/h]	0	194	164	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	4	3	2	21	13	2
Total Hourly Volume [veh/h]	4	197	166	21	13	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	49	42	5	3	1
Total Analysis Volume [veh/h]	4	197	166	21	13	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	7.60	0.00	0.00	0.00	10.95	9.29
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.22	0.22	0.00	0.00	1.79	1.79
d_A, Approach Delay [s/veh]	0.15		0.00		10.73	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.47					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Main St/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.402

Intersection Setup

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	2	0	0	1	0	0
Entry Pocket Length [ft]	305.00	100.00	100.00	215.00	100.00	215.00	160.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	480.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Base Volume Input [veh/h]	136	370	94	95	326	129	165	162	123	58	95	57
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	19	32	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	136	370	94	95	326	148	197	162	123	58	95	57
Peak Hour Factor	0.8900	0.8900	0.8900	0.8800	0.8800	0.8800	0.9600	0.9600	0.9600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	104	26	27	93	42	51	42	32	17	28	17
Total Analysis Volume [veh/h]	153	416	106	108	370	168	205	169	128	67	110	66
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		1			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			1			0	
v_co, Outbound Pedestrian Volume crossing		1			0			0			1	
v_ci, Inbound Pedestrian Volume crossing mi		1			0			0			1	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			1	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	108.0
Offset Reference	Lagging Force-Off
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	10	0	6	10	0	6	6	0	6	6	0
Maximum Green [s]	20	40	0	16	40	0	16	20	0	16	20	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.4	0.0	3.0	4.1	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	38	0	15	38	0	18	40	0	22	44	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	24	0	0	26	0	0	30	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	2.0	3.4	0.0	2.0	3.1	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	4.00	5.40	5.40	4.00	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	3.50	2.00	3.50	3.50	2.00	3.40	3.40	2.00	3.10
g_i, Effective Green Time [s]	11	65	65	9	63	63	9	17	17	6	14
g / C, Green / Cycle	0.10	0.57	0.57	0.08	0.55	0.55	0.08	0.14	0.14	0.05	0.12
(v / s)_i Volume / Saturation Flow Rate	0.09	0.15	0.15	0.06	0.15	0.15	0.06	0.09	0.08	0.04	0.10
s, saturation flow rate [veh/h]	1767	1855	1726	1767	1855	1662	3431	1855	1573	1767	1730
c, Capacity [veh/h]	170	1052	978	134	1013	908	265	267	226	87	205
d1, Uniform Delay [s]	51.41	12.62	12.64	52.33	13.96	13.99	52.06	46.36	45.86	54.03	49.75
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.64	0.59	0.64	4.35	0.68	0.78	1.81	0.93	0.83	5.30	4.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.26	0.26	0.81	0.28	0.28	0.77	0.63	0.57	0.77	0.86
d, Delay for Lane Group [s/veh]	58.05	13.21	13.28	56.68	14.65	14.77	53.87	47.29	46.69	59.32	53.79
Lane Group LOS	E	B	B	E	B	B	D	D	D	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.59	3.48	3.28	3.17	3.90	3.56	2.92	4.53	3.40	2.03	5.14
50th-Percentile Queue Length [ft/ln]	114.80	86.95	81.88	79.37	97.50	89.12	72.92	113.32	84.91	50.68	128.47
95th-Percentile Queue Length [veh/ln]	8.11	6.26	5.90	5.71	7.02	6.42	5.25	8.02	6.11	3.65	8.86
95th-Percentile Queue Length [ft/ln]	202.66	156.50	147.39	142.87	175.50	160.41	131.25	200.60	152.83	91.22	221.41

Movement, Approach, & Intersection Results

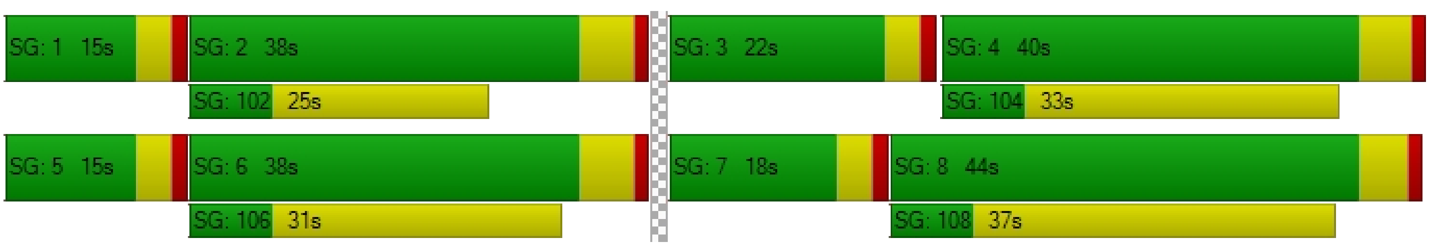
d_M, Delay for Movement [s/veh]	58.05	13.23	13.28	56.68	14.68	14.77	53.87	47.29	46.69	59.32	53.79	53.79
Movement LOS	E	B	B	E	B	B	D	D	D	E	D	D
d_A, Approach Delay [s/veh]	23.40			21.72			49.82			55.32		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	33.05											
Intersection LOS	C											
Intersection V/C	0.402											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	7881.94	0.00	0.00	3329.98
d_p, Pedestrian Delay [s]	47.03	47.03	47.03	47.03
I_p,int, Pedestrian LOS Score for Intersection	2.634	2.658	2.667	2.189
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	565	565	602	677
d_b, Bicycle Delay [s]	29.59	29.59	28.11	25.19
I_b,int, Bicycle LOS Score for Intersection	2.116	2.093	2.388	1.961
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Main St/Delta Rd

Control Type:	Two-way stop	Delay (sec / veh):	58.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.407

Intersection Setup

Name	Brentwood Blvd		Main S		Delta Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	95.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Brentwood Blvd		Main S		Delta Rd	
Base Volume Input [veh/h]	562	98	112	445	48	134
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	7	0	0	4	0
Total Hourly Volume [veh/h]	562	105	112	445	52	134
Peak Hour Factor	0.9400	0.9400	0.9100	0.9100	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	149	28	31	122	14	35
Total Analysis Volume [veh/h]	598	112	123	489	55	141
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.14	0.00	0.41	0.30
d_M, Delay for Movement [s/veh]	0.00	0.00	9.71	0.00	58.12	39.20
Movement LOS	A	A	A	A	F	E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.48	0.00	4.92	4.92
95th-Percentile Queue Length [ft/ln]	0.00	0.00	12.00	0.00	122.94	122.94
d_A, Approach Delay [s/veh]	0.00		1.95		44.51	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	6.53					
Intersection LOS	F					

Appendix C

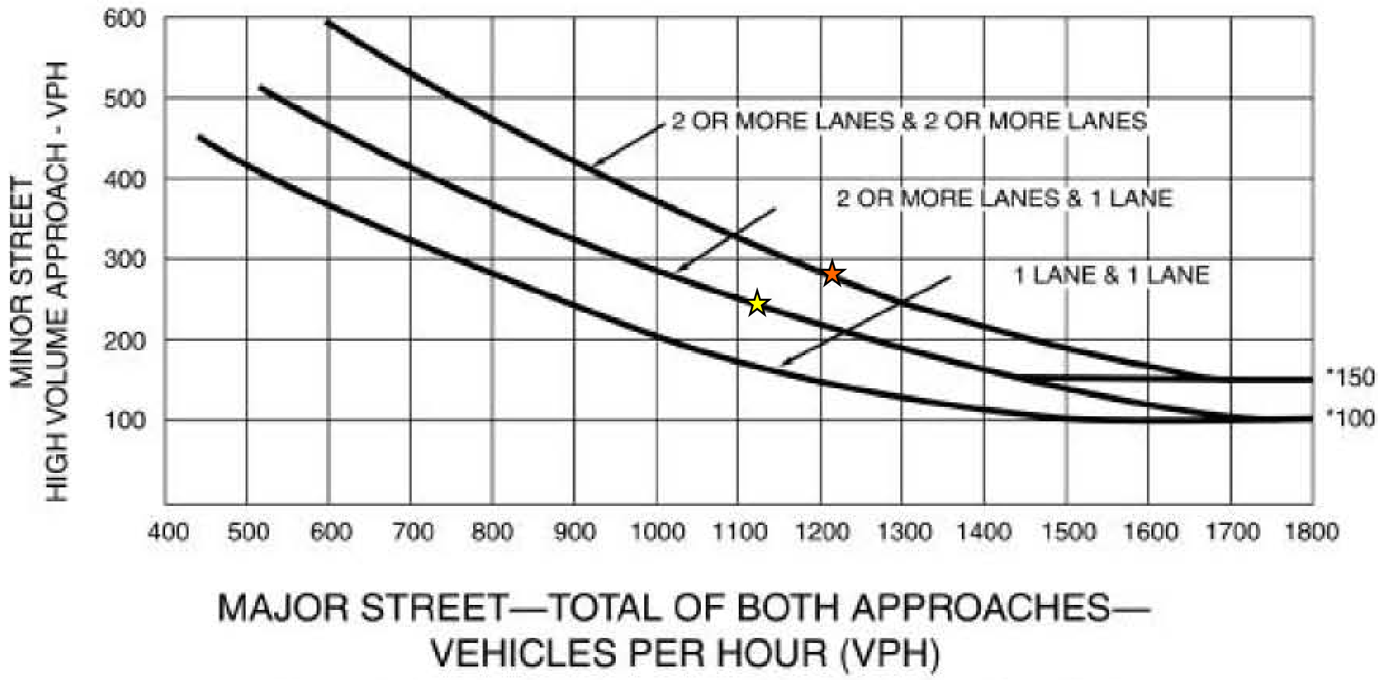
Existing plus Project Conditions Mitigated LOS Reports

Peak Hour Warrant (Urban Areas)

Intersection #7: Main St. & Delta Rd., Oakley, CA
Scenario: Existing Conditions

Figure 4C-3. Warrant 3, Peak Hour

Minor Street Volume = 241 (182) VPH



*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.

Major Street Volume = 1,134 (1,217) VPH

★ *AM Peak Hour*

☆ *PM Peak Hour*

A signal is WARRANTED in the a.m. Peak Hour
A signal is WARRANTED in the p.m. Peak Hour

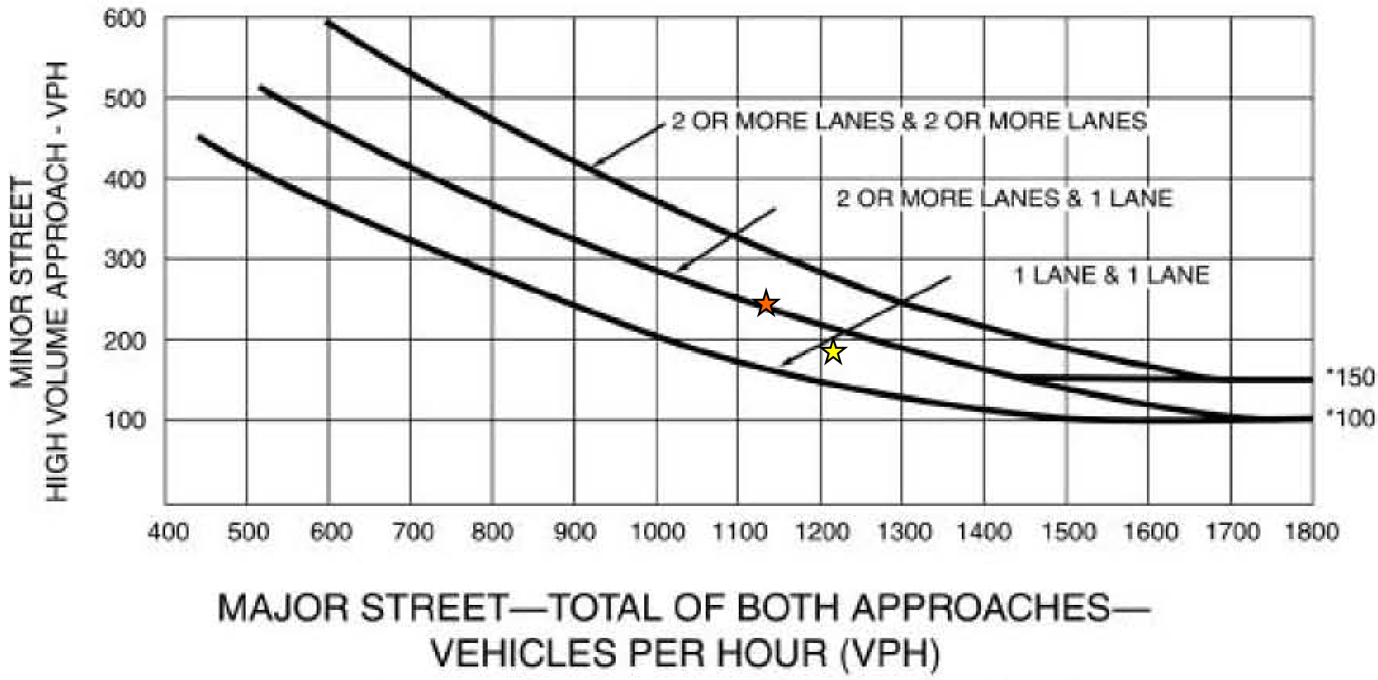
Source: CA MUTCD 2014, Chapter 4C – Traffic Control Signal Needs Studies, Part 4 - Highway Traffic Signals, Figure 4C-3

Peak Hour Warrant (Urban Areas)

Intersection #7: Main St. & Delta Rd., Oakley, CA
Scenario: Existing plus Project Conditions

Figure 4C-3. Warrant 3, Peak Hour

Minor Street Volume = 248 (186) VPH



*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.

Major Street Volume = 1.137 (1.224) VPH

★ ***AM Peak Hour***

★ ***PM Peak Hour***

A signal is WARRANTED in the a.m. Peak Hour
A signal is WARRANTED in the p.m. Peak Hour

Source: CA MUTCD 2014, Chapter 4C – Traffic Control Signal Needs Studies, Part 4 - Highway Traffic Signals, Figure 4C-3

Intersection Level Of Service Report
Intersection 7: Main St/Delta Rd

Control Type:	Signalized	Delay (sec / veh):	17.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.631

Intersection Setup

Name	Brentwood Blvd		Main S		Delta Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	95.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Brentwood Blvd		Main S		Delta Rd	
Base Volume Input [veh/h]	348	66	151	569	51	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	3	0	0	7	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	348	69	151	569	58	190
Peak Hour Factor	0.9000	0.9000	0.7800	0.7800	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	97	19	48	182	17	55
Total Analysis Volume [veh/h]	387	77	194	729	67	221
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	60	30	0
Amber [s]	4.4	0.0	3.0	4.4	4.4	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.4	0.0	2.0	3.4	3.4	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C
C, Cycle Length [s]	52	52	52	52
L, Total Lost Time per Cycle [s]	5.40	4.00	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	2.00	3.40	3.40
g_i, Effective Green Time [s]	17	8	29	12
g / C, Green / Cycle	0.33	0.15	0.56	0.24
(v / s)_i Volume / Saturation Flow Rate	0.28	0.12	0.43	0.20
s, saturation flow rate [veh/h]	1631	1599	1679	1464
c, Capacity [veh/h]	533	246	935	346
d1, Uniform Delay [s]	16.57	21.29	9.06	18.98
k, delay calibration	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.58	5.54	1.45	5.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.79	0.78	0.83
d, Delay for Lane Group [s/veh]	21.15	26.83	10.51	24.20
Lane Group LOS	C	C	B	C
Critical Lane Group	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	4.84	2.35	4.35	3.27
50th-Percentile Queue Length [ft/ln]	121.06	58.71	108.72	81.84
95th-Percentile Queue Length [veh/ln]	8.45	4.23	7.77	5.89
95th-Percentile Queue Length [ft/ln]	211.28	105.69	194.22	147.30

Movement, Approach, & Intersection Results

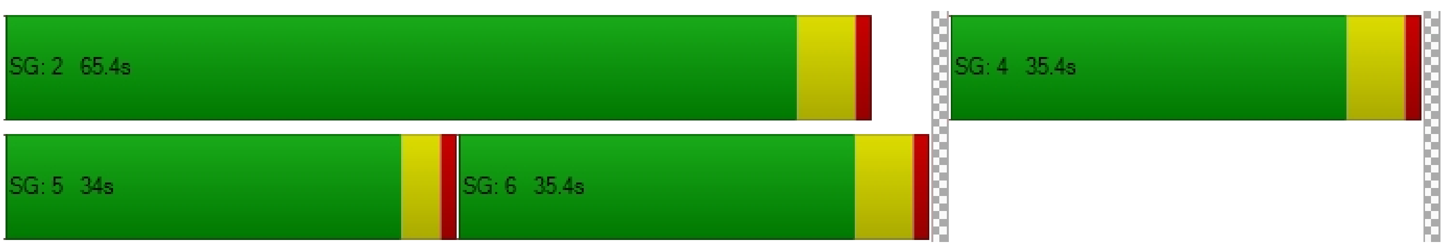
d_M, Delay for Movement [s/veh]	21.15	21.15	26.83	10.51	24.20	24.20
Movement LOS	C	C	C	B	C	C
d_A, Approach Delay [s/veh]	21.15		13.94		24.20	
Approach LOS	C		B		C	
d_I, Intersection Delay [s/veh]	17.70					
Intersection LOS	B					
Intersection V/C	0.631					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	1333	667
d_b, Bicycle Delay [s]	20.00	5.00	20.00
I_b,int, Bicycle LOS Score for Intersection	2.325	3.083	2.035
Bicycle LOS	B	C	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 7: Main St/Delta Rd

Control Type:	Signalized	Delay (sec / veh):	20.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.645

Intersection Setup

Name	Brentwood Blvd		Main S		Delta Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	95.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Brentwood Blvd		Main S		Delta Rd	
Base Volume Input [veh/h]	562	98	112	445	48	134
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	7	0	0	4	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	562	105	112	445	52	134
Peak Hour Factor	0.9400	0.9400	0.9100	0.9100	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	149	28	31	122	14	35
Total Analysis Volume [veh/h]	598	112	123	489	55	141
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	60	30	0
Amber [s]	4.4	0.0	3.0	4.4	4.4	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.4	0.0	2.0	3.4	3.4	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C
C, Cycle Length [s]	55	55	55	55
L, Total Lost Time per Cycle [s]	5.40	4.00	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	2.00	3.40	3.40
g_i, Effective Green Time [s]	26	5	35	9
g / C, Green / Cycle	0.47	0.10	0.64	0.17
(v / s)_i Volume / Saturation Flow Rate	0.43	0.08	0.29	0.13
s, saturation flow rate [veh/h]	1633	1599	1679	1471
c, Capacity [veh/h]	764	158	1073	243
d1, Uniform Delay [s]	13.83	24.30	5.07	22.20
k, delay calibration	0.28	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.40	7.98	0.30	6.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.78	0.46	0.81
d, Delay for Lane Group [s/veh]	26.23	32.28	5.37	28.41
Lane Group LOS	C	C	A	C
Critical Lane Group	Yes	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	8.67	1.74	1.60	2.55
50th-Percentile Queue Length [ft/ln]	216.84	43.60	40.01	63.87
95th-Percentile Queue Length [veh/ln]	13.50	3.14	2.88	4.60
95th-Percentile Queue Length [ft/ln]	337.58	78.49	72.01	114.96

Movement, Approach, & Intersection Results

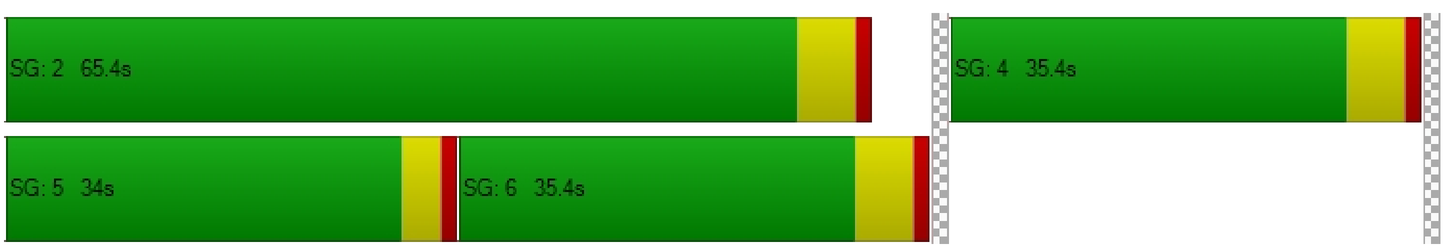
d_M, Delay for Movement [s/veh]	26.23	26.23	32.28	5.37	28.41	28.41
Movement LOS	C	C	C	A	C	C
d_A, Approach Delay [s/veh]	26.23		10.78		28.41	
Approach LOS	C		B		C	
d_I, Intersection Delay [s/veh]	20.28					
Intersection LOS	C					
Intersection V/C	0.645					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	1333	667
d_b, Bicycle Delay [s]	20.00	5.00	20.00
I_b,int, Bicycle LOS Score for Intersection	2.731	2.569	1.883
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix D

Background Conditions LOS Reports

Intersection Level Of Service Report
Intersection 1: Sellers Rd/E Cypress Rd

Control Type:	Signalized	Delay (sec / veh):	43.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.742

Intersection Setup

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pock	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	150.00	100.00	150.00	110.00	100.00	100.00	185.00	100.00	185.00	250.00	100.00	100.00
No. of Lanes in Exit Pocke	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			45.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Base Volume Input [veh/h	96	5	47	1	2	8	11	289	127	295	301	1
Base Volume Adjustment	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percenta	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh	69	52	167	7	205	85	21	152	32	214	640	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment	9	10	27	5	8	28	29	21	8	79	46	6
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volum	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/	174	67	241	13	215	121	61	462	167	588	987	12
Peak Hour Factor	0.7700	0.7700	0.7700	0.6900	0.6900	0.6900	0.8100	0.8100	0.8100	0.7000	0.7000	0.7000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [	56	22	78	5	78	44	19	143	52	210	353	4
Total Analysis Volume [ve	226	87	313	19	312	175	75	570	206	840	1410	17
Presence of On-Street Pa	No		No	No		No	No		No	No		No
On-Street Parking Maneu	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestri		0			0			0			0	
v_di, Inbound Pedestrian		0			0			0			0	
v_co, Outbound Pedestria		0			0			0			0	
v_ci, Inbound Pedestrian		0			0			0			0	
v_ab, Corner Pedestrian		0			0			0			0	
Bicycle Volume [bicycles/		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	60	0	30	60	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	21	0	0	21	0	11	24	0	14	27	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	R	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	17	17	17	22	22	6	23	23	29	46	46
g / C, Green / Cycle	0.16	0.16	0.16	0.20	0.20	0.06	0.21	0.21	0.26	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.13	0.09	0.09	0.18	0.06	0.04	0.15	0.15	0.25	0.39	0.39
s, saturation flow rate [veh/h]	1752	1711	2768	1835	2768	1752	3503	1604	3403	1840	1832
c, Capacity [veh/h]	273	267	432	371	560	97	746	342	901	777	774
d1, Uniform Delay [s]	44.95	42.98	43.00	42.67	37.33	51.23	40.10	40.26	39.45	29.98	30.06
k, delay calibration	0.11	0.11	0.11	0.20	0.11	0.11	0.11	0.11	0.11	0.24	0.24
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.26	1.91	1.20	12.74	0.31	11.98	1.25	2.92	5.08	9.81	10.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.57	0.57	0.89	0.31	0.77	0.71	0.72	0.93	0.92	0.92
d, Delay for Lane Group [s/veh]	51.21	44.89	44.21	55.41	37.65	63.20	41.35	43.18	44.53	39.79	40.33
Lane Group LOS	D	D	D	E	D	E	D	D	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.17	3.81	3.06	9.60	1.94	2.30	6.49	6.26	11.02	18.23	18.36
50th-Percentile Queue Length [ft/ln]	154.21	95.15	76.46	240.11	48.55	57.53	162.23	156.46	275.53	455.81	459.12
95th-Percentile Queue Length [veh/ln]	10.24	6.85	5.51	14.69	3.50	4.14	10.67	10.36	16.47	25.24	25.39
95th-Percentile Queue Length [ft/ln]	256.04	171.26	137.63	367.18	87.39	103.55	266.67	259.03	411.64	630.88	634.82

Movement, Approach, & Intersection Results

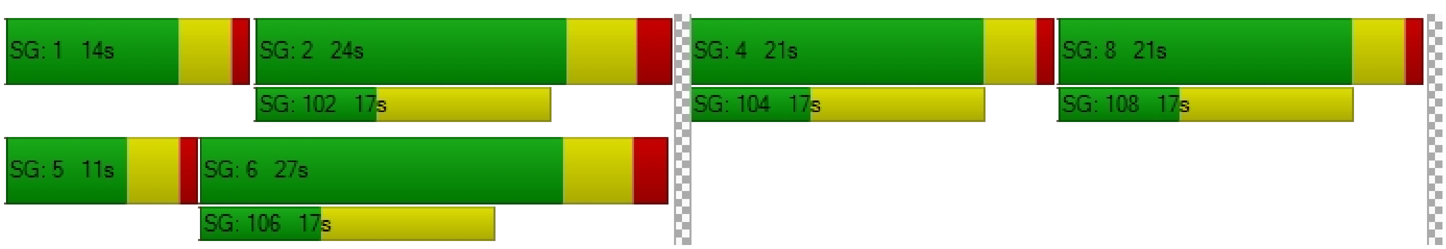
d_M, Delay for Movement [s/veh]	51.21	44.89	44.33	55.41	55.41	37.65	63.20	41.49	43.18	44.53	40.06	40.33
Movement LOS	D	D	D	E	E	D	E	D	D	D	D	D
d_A, Approach Delay [s/veh]		46.90			49.27			43.81			41.72	
Approach LOS		D			D			D			D	
d_I, Intersection Delay [s/veh]	43.80											
Intersection LOS	D											
Intersection V/C	0.742											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
I_p,int, Pedestrian LOS Score for Intersection	2.984	2.516	3.095	3.323
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	425	425	450	525
d_b, Bicycle Delay [s]	24.81	24.81	24.03	21.76
I_b,int, Bicycle LOS Score for Intersection	2.593	2.395	2.028	3.430
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Sellers Ave/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	48.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.363

Intersection Setup

Name	Sellers Ave		Sellers Ave		Laurel Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pock	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocke	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Sellers Ave		Sellers Ave		Laurel Rd	
Base Volume Input [veh/h	0	148	224	200	50	50
Base Volume Adjustment	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percenta	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h	0	0	0	0	0	0
Site-Generated Trips [veh	0	48	48	401	218	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment	0	0	1	78	27	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volum	0	0	0	0	0	0
Total Hourly Volume [veh/	0	196	273	679	295	50
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [	0	49	68	170	74	13
Total Analysis Volume [ve	0	196	273	679	295	50
Presence of On-Street Pa	No	No	No	No	No	No
On-Street Parking Maneu	0	0	0	0	0	0
Local Bus Stopping Rate [	0	0	0	0	0	0
v_do, Outbound Pedestri	0		0		0	
v_di, Inbound Pedestrian	0		0		0	
v_co, Outbound Pedestria	0		0		0	
v_ci, Inbound Pedestrian	0		0		0	
v_ab, Corner Pedestrian	0		0		0	
Bicycle Volume [bicycles/	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	5	5	0	5	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	3.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	35	31	65	0	69	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	169	169	169	169	169	169
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	27	61	61	65	65
g / C, Green / Cycle	0.18	0.16	0.36	0.36	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.00	0.06	0.16	0.27	0.09	0.03
s, saturation flow rate [veh/h]	1603	3204	1683	2532	3113	1431
c, Capacity [veh/h]	294	512	607	914	1197	550
d1, Uniform Delay [s]	0.00	63.54	41.19	47.15	35.35	33.16
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.16	2.40	5.44	0.49	0.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.38	0.45	0.74	0.25	0.09
d, Delay for Lane Group [s/veh]	0.00	65.71	43.59	52.59	35.84	33.49
Lane Group LOS	A	E	D	D	D	C
Critical Lane Group	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	3.88	8.94	12.85	4.28	1.39
50th-Percentile Queue Length [ft/ln]	0.00	96.88	223.60	321.19	107.05	34.64
95th-Percentile Queue Length [veh/ln]	0.00	6.98	13.85	18.73	7.68	2.49
95th-Percentile Queue Length [ft/ln]	0.00	174.39	346.22	468.15	191.89	62.35

Movement, Approach, & Intersection Results

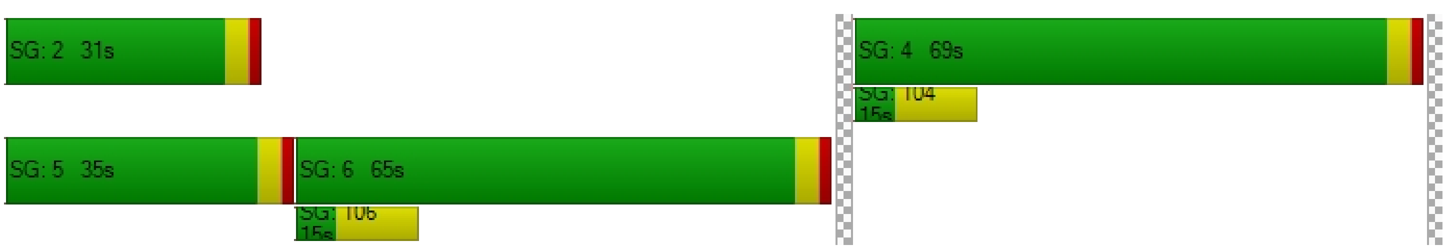
d_M, Delay for Movement [s/veh]	0.00	65.71	43.59	52.59	35.84	33.49
Movement LOS	A	E	D	D	D	C
d_A, Approach Delay [s/veh]	65.71		50.01		35.50	
Approach LOS	E		D		D	
d_I, Intersection Delay [s/veh]	48.72					
Intersection LOS	D					
Intersection V/C	0.363					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41
I_p,int, Pedestrian LOS Score for Intersection	2.349	2.775	2.539
Crosswalk LOS	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	540	1220	1300
d_b, Bicycle Delay [s]	26.65	7.61	6.13
I_b,int, Bicycle LOS Score for Intersection	1.721	3.130	1.560
Bicycle LOS	A	C	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sellers Rd/Delta Rd

Control Type:	All-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.333

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pock	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocke	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h	33	86	36	3	142	15	13	63	41	38	63	3
Base Volume Adjustment	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percenta	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh	1	1	49	0	8	37	12	0	3	120	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment	0	1	0	0	2	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/	34	88	85	3	152	52	25	63	44	158	63	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [	9	22	21	1	38	13	6	16	11	40	16	1
Total Analysis Volume [ve	34	88	85	3	152	52	25	63	44	158	63	3
Pedestrian Volume [ped/h	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	718	710	689	673
Degree of Utilization, x	0.29	0.29	0.19	0.33

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.19	1.21	0.70	1.46
95th-Percentile Queue Length [ft]	29.83	30.33	17.58	36.52
Approach Delay [s/veh]	10.03	10.16	9.45	11.01
Approach LOS	B	B	A	B
Intersection Delay [s/veh]	10.25			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 6: Main St/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	52.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.794

Intersection Setup

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pock	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	305.00	100.00	1150.00	215.00	100.00	215.00	160.00	100.00	160.00	240.00	100.00	100.00
No. of Lanes in Exit Pocke	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Base Volume Input [veh/h	107	298	141	61	465	14	126	106	101	176	362	104
Base Volume Adjustment	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percenta	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh	30	39	6	9	29	295	18	222	20	21	360	64
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment	36	4	6	1	2	0	2	33	0	17	64	7
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volum	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/	173	341	153	71	496	309	146	361	121	214	786	175
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.9000	0.6700	0.6700	0.6700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [	54	107	48	22	155	97	41	100	34	80	293	65
Total Analysis Volume [ve	216	426	191	89	620	386	162	401	134	319	1173	261
Presence of On-Street Pa	No		No	No		No	No		No	No		No
On-Street Parking Maneu	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestri		2			0			2			0	
v_di, Inbound Pedestrian		2			0			2			0	
v_co, Outbound Pedestria		0			0			0			0	
v_ci, Inbound Pedestrian		0			0			0			0	
v_ab, Corner Pedestrian		0			0			0			0	
Bicycle Volume [bicycles/		0			1			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	108.0
Offset Reference	Lagging Force-Off
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	10	0	6	10	0	6	6	0	6	6	0
Maximum Green [s]	11	33	0	11	33	0	14	35	0	18	39	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.4	0.0	3.0	4.1	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	40	0	22	40	0	22	39	0	39	56	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	24	0	0	26	0	0	30	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	2.0	3.4	0.0	2.0	3.1	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	4.00	5.40	5.40	4.00	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	3.50	2.00	3.50	3.50	2.00	3.40	3.40	2.00	3.10	3.10
g_i, Effective Green Time [s]	18	49	49	9	40	40	15	36	36	27	49	49
g / C, Green / Cycle	0.13	0.35	0.35	0.06	0.29	0.29	0.10	0.26	0.26	0.19	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.12	0.18	0.18	0.05	0.18	0.25	0.09	0.11	0.09	0.18	0.33	0.17
s, saturation flow rate [veh/h]	1767	1855	1663	1767	3532	1557	1767	3532	1569	1767	3532	1577
c, Capacity [veh/h]	227	654	586	110	1011	446	185	908	404	341	1229	548
d1, Uniform Delay [s]	60.56	35.55	35.57	64.79	43.21	47.17	61.76	43.54	42.18	55.60	44.55	35.65
k, delay calibration	0.37	0.50	0.50	0.04	0.50	0.50	0.17	0.04	0.04	0.21	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	40.47	2.69	3.01	5.30	2.77	19.67	17.93	0.13	0.18	19.21	2.24	0.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.50	0.50	0.81	0.61	0.87	0.88	0.44	0.33	0.94	0.95	0.48
d, Delay for Lane Group [s/veh]	101.03	38.24	38.57	70.10	45.98	66.84	79.69	43.66	42.36	74.81	46.78	35.89
Lane Group LOS	F	D	D	E	D	E	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	10.07	9.10	8.23	3.27	9.57	14.92	6.53	5.79	3.76	12.82	19.91	6.99
50th-Percentile Queue Length [ft/ln]	251.63	227.41	205.68	81.64	239.30	372.94	163.31	144.80	94.00	320.43	497.68	174.77
95th-Percentile Queue Length [veh/ln]	15.27	14.04	12.93	5.88	14.65	21.25	10.72	9.74	6.77	18.69	27.22	11.33
95th-Percentile Queue Length [ft/ln]	381.71	351.07	323.27	146.96	366.15	531.30	268.10	243.48	169.20	467.21	680.61	283.18

Movement, Approach, & Intersection Results

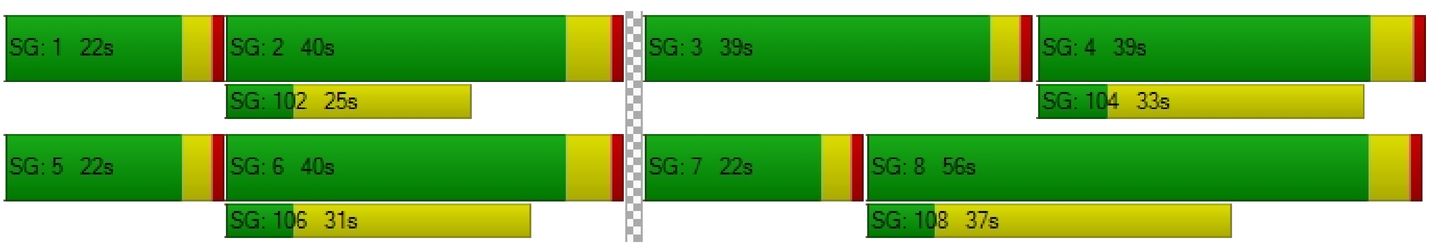
d_M, Delay for Movement [s/veh]	101.03	38.32	38.57	70.10	45.98	66.84	79.69	43.66	42.36	74.81	46.78	35.89
Movement LOS	F	D	D	E	D	E	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	54.64			55.30			51.79			50.26		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	52.60											
Intersection LOS	D											
Intersection V/C	0.794											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	1527.60	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	59.43	59.43	59.43	59.43
I_p,int, Pedestrian LOS Score for Intersection	2.817	2.895	3.010	2.935
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	493	493	480	727
d_b, Bicycle Delay [s]	39.75	39.77	40.43	28.35
I_b,int, Bicycle LOS Score for Intersection	2.247	2.463	2.135	3.006
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Main St/Delta Rd

Control Type:	Signalized	Delay (sec / veh):	11.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.433

Intersection Setup

Name	Brentwood Blvd		Main S		Delta Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	↑↑↱		↰↑↑		↰↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pock	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	95.00	100.00	100.00	100.00
No. of Lanes in Exit Pocke	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Brentwood Blvd		Main S		Delta Rd	
Base Volume Input [veh/h	348	66	151	569	51	190
Base Volume Adjustment	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percenta	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h	0	0	0	0	0	0
Site-Generated Trips [veh	14	5	11	47	14	24
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment	8	0	0	24	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volum	0	0	0	0	0	0
Total Hourly Volume [veh/	370	71	162	640	65	214
Peak Hour Factor	0.9000	0.9000	0.7800	0.7800	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [	103	20	52	205	19	62
Total Analysis Volume [ve	411	79	208	821	76	249
Presence of On-Street Pa	No	No	No	No	No	No
On-Street Parking Maneu	0	0	0	0	0	0
Local Bus Stopping Rate [	0	0	0	0	0	0
v_do, Outbound Pedestri	0		0		0	
v_di, Inbound Pedestrian	0		0		0	
v_co, Outbound Pedestria	0		0		0	
v_ci, Inbound Pedestrian	0		0		0	
v_ab, Corner Pedestrian	0		0		0	
Bicycle Volume [bicycles/	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	60	30	0
Amber [s]	4.4	0.0	3.0	4.4	4.4	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.4	0.0	2.0	3.4	3.4	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	37	37	37	37	37	37
L, Total Lost Time per Cycle [s]	5.40	5.40	4.00	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	2.00	3.40	3.40	3.40
g_i, Effective Green Time [s]	7	7	6	18	9	9
g / C, Green / Cycle	0.20	0.20	0.17	0.48	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.13	0.06	0.13	0.26	0.05	0.17
s, saturation flow rate [veh/h]	3197	1427	1599	3197	1599	1427
c, Capacity [veh/h]	641	286	271	1527	371	331
d1, Uniform Delay [s]	13.64	12.58	14.74	6.83	11.52	13.29
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.08	0.52	4.51	0.30	0.27	3.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.28	0.77	0.54	0.20	0.75
d, Delay for Lane Group [s/veh]	14.72	13.10	19.24	7.12	11.79	16.76
Lane Group LOS	B	B	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.25	0.45	1.59	1.19	0.39	1.70
50th-Percentile Queue Length [ft/ln]	31.28	11.27	39.69	29.81	9.83	42.48
95th-Percentile Queue Length [veh/ln]	2.25	0.81	2.86	2.15	0.71	3.06
95th-Percentile Queue Length [ft/ln]	56.30	20.29	71.43	53.66	17.69	76.46

Movement, Approach, & Intersection Results

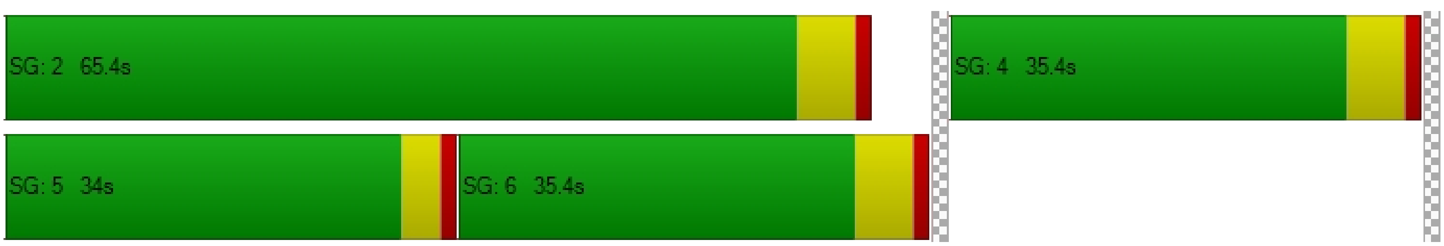
d_M, Delay for Movement [s/veh]	14.72	13.10	19.24	7.12	11.79	16.76
Movement LOS	B	B	B	A	B	B
d_A, Approach Delay [s/veh]	14.46		9.57		15.59	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	11.93					
Intersection LOS	B					
Intersection V/C	0.433					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	1333	667
d_b, Bicycle Delay [s]	20.00	5.00	20.00
I_b,int, Bicycle LOS Score for Intersection	1.964	2.409	1.560
Bicycle LOS	A	B	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Sellers Rd/E Cypress Rd

Control Type:	Signalized	Delay (sec / veh):	36.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.676

Intersection Setup

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pock	1	0	2	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	150.00	100.00	150.00	110.00	100.00	100.00	185.00	100.00	185.00	250.00	100.00	100.00
No. of Lanes in Exit Pocke	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			45.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Base Volume Input [veh/h	86	2	106	3	0	10	1	379	7	218	133	0
Base Volume Adjustment	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percenta	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh	54	98	679	1	25	125	127	463	61	97	566	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment	16	16	1	10	16	52	53	148	15	1	94	11
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volum	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/	156	116	786	14	41	187	181	990	83	316	793	12
Peak Hour Factor	0.8400	0.8400	0.8400	0.6500	0.6500	0.6500	0.9200	0.9200	0.9200	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [	46	35	234	5	16	72	49	269	23	87	218	3
Total Analysis Volume [ve	186	138	936	22	63	288	197	1076	90	347	871	13
Presence of On-Street Pa	No		No	No		No	No		No	No		No
On-Street Parking Maneu	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestri	0			0			0			0		
v_di, Inbound Pedestrian	0			0			0			0		
v_co, Outbound Pedestria	0			0			0			0		
v_ci, Inbound Pedestrian	0			0			0			0		
v_ab, Corner Pedestrian	0			0			0			0		
Bicycle Volume [bicycles/	0			0			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	60	0	30	60	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	43	0	0	21	0	12	32	0	24	44	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	R	L	C	C	L	C	C
C, Cycle Length [s]	94	94	94	94	94	94	94	94	94	94	94
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	27	27	27	12	12	13	25	25	12	25	25
g / C, Green / Cycle	0.28	0.28	0.28	0.13	0.13	0.13	0.27	0.27	0.13	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.11	0.23	0.25	0.05	0.10	0.11	0.22	0.22	0.10	0.17	0.17
s, saturation flow rate [veh/h]	1752	1652	2768	1816	2768	1752	3503	1762	3403	3503	1826
c, Capacity [veh/h]	494	466	781	240	365	237	930	468	444	913	476
d1, Uniform Delay [s]	27.28	31.86	32.42	37.40	39.79	39.87	32.77	32.81	39.83	30.99	30.99
k, delay calibration	0.11	0.26	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.47	8.90	3.40	0.89	3.83	7.42	2.04	4.03	3.05	0.74	1.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.83	0.88	0.35	0.79	0.83	0.83	0.84	0.78	0.64	0.64
d, Delay for Lane Group [s/veh]	27.75	40.76	35.82	38.29	43.62	47.29	34.81	36.83	42.88	31.73	32.41
Lane Group LOS	C	D	D	D	D	D	C	D	D	C	C
Critical Lane Group	No	No	Yes	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.19	8.76	7.22	1.75	3.24	4.73	8.07	8.41	3.86	5.52	5.85
50th-Percentile Queue Length [ft/ln]	79.76	219.02	180.54	43.74	81.02	118.17	201.66	210.24	96.43	138.01	146.15
95th-Percentile Queue Length [veh/ln]	5.74	13.62	11.63	3.15	5.83	8.29	12.72	13.17	6.94	9.37	9.81
95th-Percentile Queue Length [ft/ln]	143.56	340.38	290.72	78.73	145.83	207.31	318.10	329.13	173.57	234.35	245.28

Movement, Approach, & Intersection Results

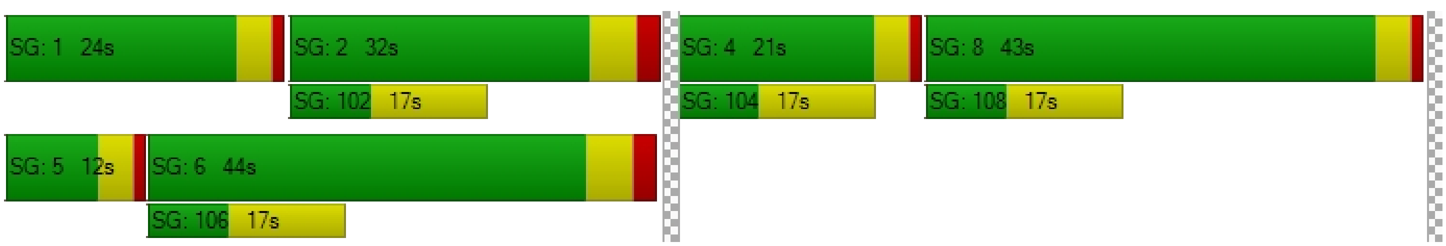
d_M, Delay for Movement [s/veh]	27.75	40.76	37.09	38.29	38.29	43.62	47.29	35.38	36.83	42.88	31.96	32.41
Movement LOS	C	D	D	D	D	D	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	36.15			42.41			37.19			35.04		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	36.72											
Intersection LOS	D											
Intersection V/C	0.676											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	2.943	2.548	3.173	3.402
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	283	433	633
d_b, Bicycle Delay [s]	27.34	44.20	36.84	28.02
I_b,int, Bicycle LOS Score for Intersection	3.639	2.175	2.309	2.237
Bicycle LOS	D	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Sellers Ave/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	50.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.339

Intersection Setup

Name	Sellers Ave		Sellers Ave		Laurel Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pock	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocke	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Sellers Ave		Sellers Ave		Laurel Rd	
Base Volume Input [veh/h	0	194	75	150	25	25
Base Volume Adjustment	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percenta	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h	0	0	0	0	0	0
Site-Generated Trips [veh	0	186	134	35	645	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volum	0	0	0	0	0	0
Total Hourly Volume [veh/	0	380	209	185	670	25
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [	0	95	52	46	168	6
Total Analysis Volume [ve	0	380	209	185	670	25
Presence of On-Street Pa	No	No	No	No	No	No
On-Street Parking Maneu	0	0	0	0	0	0
Local Bus Stopping Rate [	0	0	0	0	0	0
v_do, Outbound Pedestri	0		0		0	
v_di, Inbound Pedestrian	0		0		0	
v_co, Outbound Pedestria	0		0		0	
v_ci, Inbound Pedestrian	0		0		0	
v_ab, Corner Pedestrian	0		0		0	
Bicycle Volume [bicycles/	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	5	5	0	5	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	3.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	35	31	65	0	69	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	169	169	169	169	169	169
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	27	61	61	65	65
g / C, Green / Cycle	0.18	0.16	0.36	0.36	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.00	0.12	0.12	0.07	0.22	0.02
s, saturation flow rate [veh/h]	1603	3204	1683	2532	3113	1431
c, Capacity [veh/h]	294	512	607	914	1197	550
d1, Uniform Delay [s]	0.00	67.68	39.40	37.23	40.78	32.57
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	9.37	1.55	0.50	1.89	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.74	0.34	0.20	0.56	0.05
d, Delay for Lane Group [s/veh]	0.00	77.05	40.95	37.73	42.67	32.72
Lane Group LOS	A	E	D	D	D	C
Critical Lane Group	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	8.35	6.51	2.68	11.32	0.68
50th-Percentile Queue Length [ft/ln]	0.00	208.78	162.87	66.97	282.98	16.99
95th-Percentile Queue Length [veh/ln]	0.00	13.09	10.70	4.82	16.84	1.22
95th-Percentile Queue Length [ft/ln]	0.00	327.27	267.52	120.54	420.92	30.59

Movement, Approach, & Intersection Results

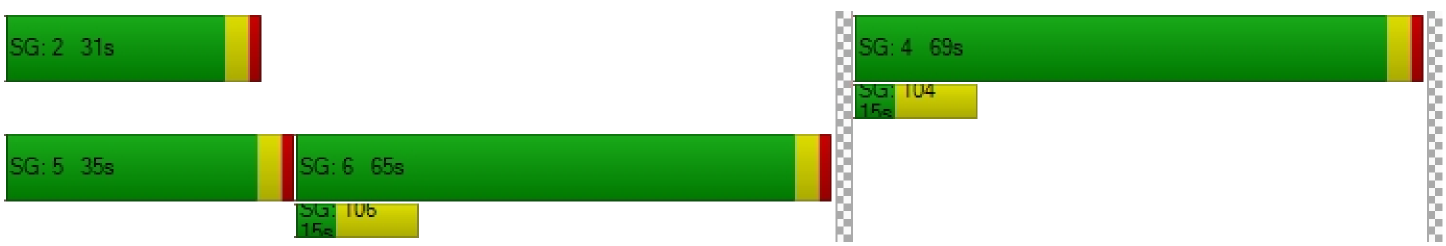
d_M, Delay for Movement [s/veh]	0.00	77.05	40.95	37.73	42.67	32.72
Movement LOS	A	E	D	D	D	C
d_A, Approach Delay [s/veh]	77.05		39.44		42.31	
Approach LOS	E		D		D	
d_I, Intersection Delay [s/veh]	50.53					
Intersection LOS	D					
Intersection V/C	0.339					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.396	2.784	2.515
Crosswalk LOS	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	1017	1083
d_b, Bicycle Delay [s]	36.04	14.50	12.60
I_b,int, Bicycle LOS Score for Intersection	1.873	2.210	1.560
Bicycle LOS	A	B	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sellers Rd/Delta Rd

Control Type:	All-way stop	Delay (sec / veh):	19.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.775

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pock	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocke	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h	88	203	51	13	149	22	34	113	52	43	85	21
Base Volume Adjustment	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percenta	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh	4	132	0	0	77	21	41	0	2	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment	0	1	0	0	1	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/	92	336	51	13	227	43	75	113	54	43	85	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [	23	84	13	3	57	11	19	28	14	11	21	5
Total Analysis Volume [ve	92	336	51	13	227	43	75	113	54	43	85	21
Pedestrian Volume [ped/h	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	618	587	552	526
Degree of Utilization, x	0.77	0.48	0.44	0.28

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	7.27	2.61	2.22	1.16
95th-Percentile Queue Length [ft]	181.85	65.33	55.44	28.92
Approach Delay [s/veh]	25.94	14.71	14.53	12.52
Approach LOS	D	B	B	B
Intersection Delay [s/veh]	19.06			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 6: Main St/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	52.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.658

Intersection Setup

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pock	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	305.00	100.00	1150.00	215.00	100.00	215.00	160.00	100.00	160.00	240.00	100.00	100.00
No. of Lanes in Exit Pocke	0	0	1	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	40.00			40.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Base Volume Input [veh/h	136	345	119	95	326	29	140	187	123	58	245	57
Base Volume Adjustment	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percenta	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh	32	45	14	28	59	265	76	659	42	2	50	16
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment	24	22	0	4	18	47	83	6	40	0	2	4
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volum	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/	192	412	133	127	403	341	299	852	205	60	297	77
Peak Hour Factor	0.8900	0.8900	0.8900	0.8800	0.8800	0.8800	0.9600	0.9600	0.9600	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [	54	116	37	36	114	97	78	222	53	17	84	22
Total Analysis Volume [ve	216	463	149	144	458	388	311	888	214	68	338	88
Presence of On-Street Pa	No		No	No		No	No		No	No		No
On-Street Parking Maneu	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestri	1			0			0			0		
v_di, Inbound Pedestrian	0			0			1			0		
v_co, Outbound Pedestria	1			0			0			1		
v_ci, Inbound Pedestrian	1			0			0			1		
v_ab, Corner Pedestrian	0			0			0			0		
Bicycle Volume [bicycles/	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	108.0
Offset Reference	Lagging Force-Off
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	10	0	6	10	0	6	6	0	6	6	0
Maximum Green [s]	11	33	0	11	33	0	14	35	0	18	39	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.4	0.0	3.0	4.1	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	33	33	0	37	37	0	27	59	0	11	43	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	24	0	0	26	0	0	30	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	2.0	3.4	0.0	2.0	3.1	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	4.00	5.40	5.40	4.00	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	3.50	2.00	3.50	3.50	2.00	3.40	3.40	2.00	3.10	3.10
g_i, Effective Green Time [s]	19	64	64	13	58	58	23	37	37	7	22	22
g / C, Green / Cycle	0.14	0.45	0.45	0.09	0.41	0.41	0.16	0.27	0.27	0.05	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.12	0.17	0.17	0.08	0.13	0.25	0.18	0.25	0.14	0.04	0.10	0.06
s, saturation flow rate [veh/h]	1767	1855	1701	1767	3532	1577	1767	3532	1575	1767	3532	1556
c, Capacity [veh/h]	238	843	773	167	1464	653	288	943	420	86	546	241
d1, Uniform Delay [s]	59.65	25.12	25.13	62.41	27.54	31.80	58.49	50.18	43.46	65.77	55.23	52.90
k, delay calibration	0.09	0.50	0.50	0.04	0.50	0.50	0.49	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.48	1.29	1.41	5.03	0.56	3.94	74.67	2.28	0.36	5.85	0.43	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.38	0.38	0.86	0.31	0.59	1.08	0.94	0.51	0.79	0.62	0.37
d, Delay for Lane Group [s/veh]	70.12	26.41	26.55	67.44	28.10	35.74	133.16	52.46	43.82	71.62	55.66	53.25
Lane Group LOS	E	C	C	E	C	D	F	D	D	E	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.14	7.19	6.64	5.23	5.23	10.73	16.03	15.21	6.26	2.53	5.59	2.80
50th-Percentile Queue Length [ft/ln]	203.54	179.68	165.91	130.64	130.78	268.13	400.81	380.15	156.62	63.37	139.80	69.89
95th-Percentile Queue Length [veh/ln]	12.82	11.58	10.86	8.97	8.98	16.10	23.46	21.60	10.37	4.56	9.47	5.03
95th-Percentile Queue Length [ft/ln]	320.53	289.60	271.54	224.36	224.56	402.41	586.60	540.02	259.24	114.07	236.75	125.80

Movement, Approach, & Intersection Results

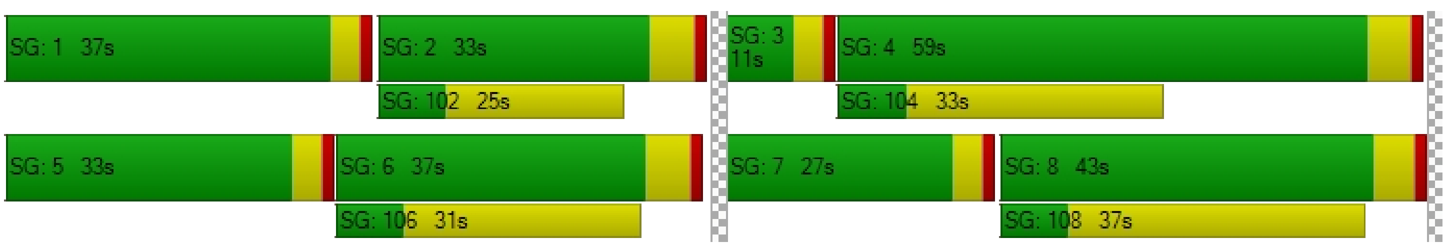
d_M, Delay for Movement [s/veh]	70.12	26.45	26.55	67.44	28.10	35.74	133.16	52.46	43.82	71.62	55.66	53.25
Movement LOS	E	C	C	E	C	D	F	D	D	E	E	D
d_A, Approach Delay [s/veh]		37.86			36.82			68.92			57.43	
Approach LOS		D			D			E			E	
d_I, Intersection Delay [s/veh]						51.96						
Intersection LOS						D						
Intersection V/C						0.658						

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	5111.22	0.00	0.00	2680.42
d_p, Pedestrian Delay [s]	59.43	59.43	59.43	59.43
I_p,int, Pedestrian LOS Score for Intersection	2.729	2.875	2.984	2.792
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	393	450	766	541
d_b, Bicycle Delay [s]	45.20	42.04	26.66	37.25
I_b,int, Bicycle LOS Score for Intersection	2.243	2.376	2.725	1.967
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Main St/Delta Rd

Control Type:	Signalized	Delay (sec / veh):	7.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.323

Intersection Setup

Name	Brentwood Blvd		Main S		Delta Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pock	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	95.00	100.00	100.00	100.00
No. of Lanes in Exit Pocke	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Brentwood Blvd		Main S		Delta Rd	
Base Volume Input [veh/h	562	98	112	445	1	2
Base Volume Adjustment	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percenta	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h	0	0	0	0	0	0
Site-Generated Trips [veh	54	16	28	31	9	16
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment	26	0	0	16	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volum	0	0	0	0	0	0
Total Hourly Volume [veh/	642	114	140	492	10	18
Peak Hour Factor	0.9400	0.9400	0.9100	0.9100	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [	171	30	38	135	3	5
Total Analysis Volume [ve	683	121	154	541	11	19
Presence of On-Street Pa	No	No	No	No	No	No
On-Street Parking Maneu	0	0	0	0	0	0
Local Bus Stopping Rate [	0	0	0	0	0	0
v_do, Outbound Pedestri	0		0		0	
v_di, Inbound Pedestrian	0		0		0	
v_co, Outbound Pedestria	0		0		0	
v_ci, Inbound Pedestrian	0		0		0	
v_ab, Corner Pedestrian	0		0		0	
Bicycle Volume [bicycles/	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	60	30	0
Amber [s]	4.4	0.0	3.0	4.4	4.4	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.4	0.0	2.0	3.4	3.4	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	29	29	29	29	29	29
L, Total Lost Time per Cycle [s]	5.40	5.40	4.00	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	2.00	3.40	3.40	3.40
g_i, Effective Green Time [s]	9	9	4	17	1	1
g / C, Green / Cycle	0.32	0.32	0.12	0.59	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.21	0.08	0.10	0.17	0.01	0.01
s, saturation flow rate [veh/h]	3197	1427	1599	3197	1599	1427
c, Capacity [veh/h]	1035	462	200	1879	60	54
d1, Uniform Delay [s]	8.39	7.20	12.21	2.95	13.44	13.53
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.73	0.30	6.11	0.08	1.43	3.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.26	0.77	0.29	0.18	0.35
d, Delay for Lane Group [s/veh]	9.11	7.50	18.32	3.03	14.87	17.40
Lane Group LOS	A	A	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.00	0.31	0.96	0.02	0.07	0.14
50th-Percentile Queue Length [ft/ln]	25.05	7.79	24.07	0.55	1.80	3.54
95th-Percentile Queue Length [veh/ln]	1.80	0.56	1.73	0.04	0.13	0.26
95th-Percentile Queue Length [ft/ln]	45.09	14.02	43.32	0.98	3.25	6.38

Movement, Approach, & Intersection Results

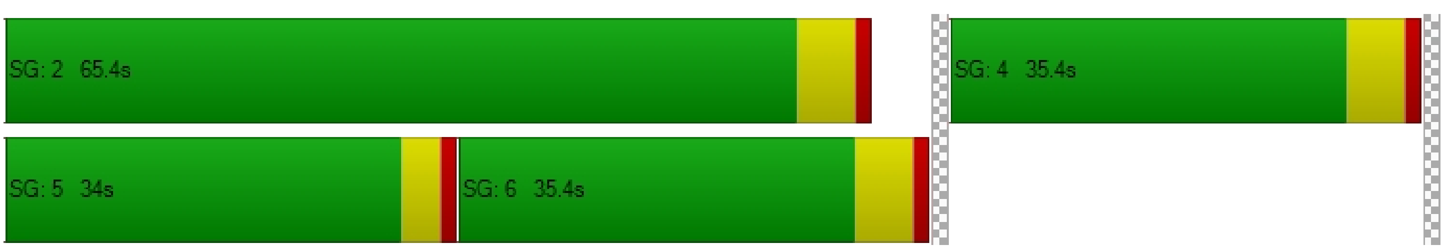
d_M, Delay for Movement [s/veh]	9.11	7.50	18.32	3.03	14.87	17.40
Movement LOS	A	A	B	A	B	B
d_A, Approach Delay [s/veh]	8.87		6.42		16.47	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	7.91					
Intersection LOS	A					
Intersection V/C	0.323					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	1333	667
d_b, Bicycle Delay [s]	20.00	5.00	20.00
I_b,int, Bicycle LOS Score for Intersection	2.223	2.133	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix E

Background plus Project Conditions LOS Reports

Intersection Level Of Service Report
Intersection 1: Sellers Rd/E Cypress Rd

Control Type:	Signalized	Delay (sec / veh):	45.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.751

Intersection Setup

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	150.00	100.00	150.00	110.00	100.00	100.00	185.00	100.00	185.00	250.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			45.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Base Volume Input [veh/h]	96	5	47	1	2	8	11	289	127	295	301	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	69	52	167	7	205	85	21	152	32	214	640	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	9	10	27	5	8	28	29	21	8	79	46	6
Other Volume [veh/h]	12	0	1	0	0	0	0	0	5	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	67	242	13	215	121	61	462	172	588	987	12
Peak Hour Factor	0.7700	0.7700	0.7700	0.6900	0.6900	0.6900	0.8100	0.8100	0.8100	0.7000	0.7000	0.7000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	60	22	79	5	78	44	19	143	53	210	353	4
Total Analysis Volume [veh/h]	242	87	314	19	312	175	75	570	212	840	1410	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	60	0	30	60	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	21	0	0	21	0	11	24	0	14	27	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	R	L	C	C	L	C	C
C, Cycle Length [s]	113	113	113	113	113	113	113	113	113	113	113
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	19	19	19	23	23	6	24	24	30	48	48
g / C, Green / Cycle	0.16	0.16	0.16	0.20	0.20	0.06	0.21	0.21	0.26	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.14	0.09	0.09	0.18	0.06	0.04	0.15	0.16	0.25	0.39	0.39
s, saturation flow rate [veh/h]	1752	1710	2768	1835	2768	1752	3503	1600	3403	1840	1832
c, Capacity [veh/h]	287	281	454	370	558	97	751	343	891	774	771
d1, Uniform Delay [s]	46.08	43.60	43.63	44.22	38.69	52.97	41.39	41.56	41.11	31.15	31.24
k, delay calibration	0.11	0.11	0.11	0.22	0.11	0.11	0.11	0.11	0.11	0.26	0.26
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.59	1.63	1.03	14.05	0.32	12.10	1.26	2.94	5.83	10.75	11.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.54	0.55	0.90	0.31	0.77	0.71	0.73	0.94	0.92	0.93
d, Delay for Lane Group [s/veh]	52.67	45.23	44.66	58.27	39.01	65.07	42.64	44.50	46.94	41.90	42.48
Lane Group LOS	D	D	D	E	D	E	D	D	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.86	3.90	3.15	10.08	2.02	2.38	6.80	6.53	11.58	19.18	19.32
50th-Percentile Queue Length [ft/ln]	171.50	97.51	78.66	251.95	50.55	59.51	169.97	163.32	289.50	479.40	482.92
95th-Percentile Queue Length [veh/ln]	11.16	7.02	5.66	15.28	3.64	4.28	11.07	10.72	17.16	26.36	26.52
95th-Percentile Queue Length [ft/ln]	278.89	175.52	141.59	382.10	90.98	107.11	276.87	268.12	429.03	658.94	663.12

Movement, Approach, & Intersection Results

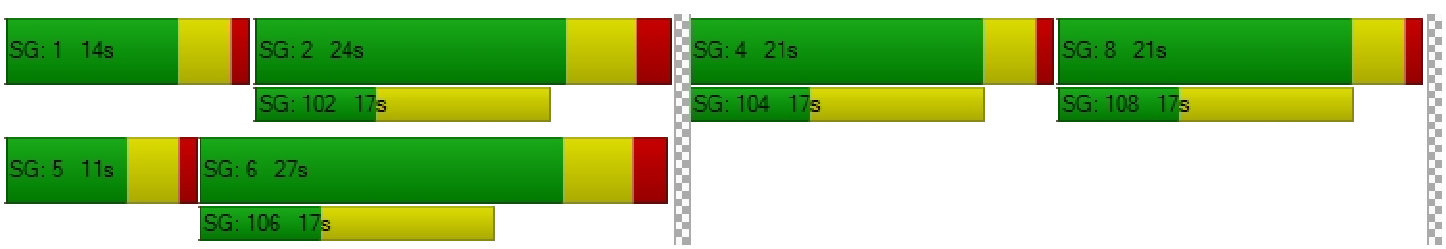
d_M, Delay for Movement [s/veh]	52.67	45.23	44.76	58.27	58.27	39.01	65.07	42.76	44.50	46.94	42.18	42.48
Movement LOS	D	D	D	E	E	D	E	D	D	D	D	D
d_A, Approach Delay [s/veh]		47.81			51.61			45.14			43.95	
Approach LOS		D			D			D			D	
d_I, Intersection Delay [s/veh]	45.68											
Intersection LOS	D											
Intersection V/C	0.751											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
I_p,int, Pedestrian LOS Score for Intersection	2.990	2.516	3.100	3.323
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	425	425	450	525
d_b, Bicycle Delay [s]	24.81	24.81	24.03	21.76
I_b,int, Bicycle LOS Score for Intersection	2.621	2.395	2.031	3.430
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Sellers Ave/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	49.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.385

Intersection Setup

Name	Sellers Rd		Sellers Ave		Laurel Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Sellers Rd		Sellers Ave		Laurel Rd	
Base Volume Input [veh/h]	0	148	224	200	50	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	48	401	218	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	2	88	40	0
Other Volume [veh/h]	23	13	5	0	0	10
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	210	279	689	308	60
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	53	70	172	77	15
Total Analysis Volume [veh/h]	23	210	279	689	308	60
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	5	5	0	5	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	3.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	35	31	65	0	69	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	169	169	169	169	169	169
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	27	61	61	65	65
g / C, Green / Cycle	0.18	0.16	0.36	0.36	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.01	0.07	0.17	0.27	0.10	0.04
s, saturation flow rate [veh/h]	1603	3204	1683	2532	3113	1431
c, Capacity [veh/h]	294	512	607	914	1197	550
d1, Uniform Delay [s]	57.16	63.84	41.37	47.41	35.51	33.40
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	2.42	2.49	5.74	0.52	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.41	0.46	0.75	0.26	0.11
d, Delay for Lane Group [s/veh]	57.68	66.26	43.86	53.15	36.03	33.80
Lane Group LOS	E	E	D	D	D	C
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.85	4.18	9.19	13.13	4.49	1.68
50th-Percentile Queue Length [ft/ln]	21.21	104.46	229.63	328.29	112.31	41.89
95th-Percentile Queue Length [veh/ln]	1.53	7.52	14.16	19.07	7.97	3.02
95th-Percentile Queue Length [ft/ln]	38.18	188.02	353.89	476.86	199.21	75.40

Movement, Approach, & Intersection Results

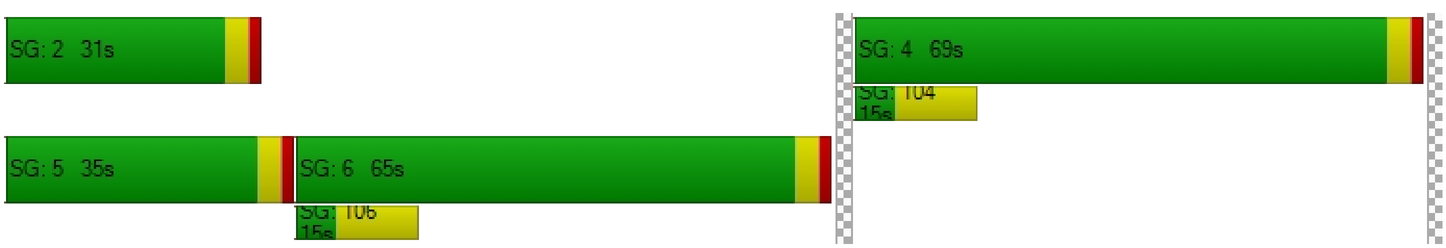
d_M, Delay for Movement [s/veh]	57.68	66.26	43.86	53.15	36.03	33.80
Movement LOS	E	E	D	D	D	C
d_A, Approach Delay [s/veh]	65.42		50.47		35.67	
Approach LOS	E		D		D	
d_I, Intersection Delay [s/veh]	49.22					
Intersection LOS	D					
Intersection V/C	0.385					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41
I_p,int, Pedestrian LOS Score for Intersection	2.370	2.789	2.552
Crosswalk LOS	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	540	1220	1300
d_b, Bicycle Delay [s]	26.65	7.61	6.13
I_b,int, Bicycle LOS Score for Intersection	1.752	3.157	1.560
Bicycle LOS	A	C	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sellers Rd/Delta Rd

Control Type:	All-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.335

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	✛			✛			✛			✛		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	33	86	36	3	142	15	13	63	41	38	63	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	1	49	0	8	37	12	0	3	120	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	0	0	2	0	0	0	0	0	0	0
Other Volume [veh/h]	0	1	0	0	1	7	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	89	85	3	153	59	25	63	44	158	63	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	22	21	1	38	15	6	16	11	40	16	1
Total Analysis Volume [veh/h]	34	89	85	3	153	59	25	63	44	158	63	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	715	710	686	669
Degree of Utilization, x	0.29	0.30	0.19	0.33

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.21	1.28	0.71	1.47
95th-Percentile Queue Length [ft]	30.17	31.91	17.69	36.77
Approach Delay [s/veh]	10.08	10.26	9.50	11.06
Approach LOS	B	B	A	B
Intersection Delay [s/veh]	10.31			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 4: Sellers Rd/Project Access 1

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name	Sellers Rd		Sellers Rd		Project Access 1	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Sellers Rd		Sellers Rd		Project Access 1	
Base Volume Input [veh/h]	0	148	224	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	48	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	2	0	0	0
Other Volume [veh/h]	0	18	8	7	18	4
Total Hourly Volume [veh/h]	0	215	282	7	18	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	54	71	2	5	1
Total Analysis Volume [veh/h]	0	215	282	7	18	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	7.84	0.00	0.00	0.00	11.38	9.32
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.11	0.11
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	2.75	2.75
d_A, Approach Delay [s/veh]	0.00		0.00		11.00	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.46					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Sellers Rd/Project Access 2

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	Sellers Rd		Sellers Rd		Project Access 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Sellers Rd		Sellers Rd		Project Access 2	
Base Volume Input [veh/h]	0	148	224	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	48	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	2	0	0	0
Other Volume [veh/h]	1	0	4	8	18	4
Total Hourly Volume [veh/h]	1	197	278	8	18	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	49	70	2	5	1
Total Analysis Volume [veh/h]	1	197	278	8	18	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	7.83	0.00	0.00	0.00	11.29	9.30
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.11	0.11
95th-Percentile Queue Length [ft/ln]	0.06	0.03	0.00	0.00	2.71	2.71
d_A, Approach Delay [s/veh]	0.04		0.00		10.93	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.49					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Main St/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	53.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.804

Intersection Setup

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	305.00	100.00	1150.00	215.00	100.00	215.00	160.00	100.00	160.00	240.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Base Volume Input [veh/h]	107	298	141	61	465	14	126	106	101	176	362	104
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	39	6	9	29	295	18	222	20	21	360	64
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	36	4	6	1	2	0	2	33	0	17	64	7
Other Volume [veh/h]	0	0	2	0	0	0	0	8	0	0	23	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	173	341	155	71	496	309	146	369	121	214	809	175
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.9000	0.6700	0.6700	0.6700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	107	48	22	155	97	41	103	34	80	302	65
Total Analysis Volume [veh/h]	216	426	194	89	620	386	162	410	134	319	1207	261
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	2			0			2			0		
v_di, Inbound Pedestrian Volume crossing m	2			0			2			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	108.0
Offset Reference	Lagging Force-Off
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	10	0	6	10	0	6	6	0	6	6	0
Maximum Green [s]	11	33	0	11	33	0	14	35	0	18	39	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.4	0.0	3.0	4.1	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	40	0	22	40	0	22	39	0	39	56	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	24	0	0	26	0	0	30	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	2.0	3.4	0.0	2.0	3.1	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	4.00	5.40	5.40	4.00	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	3.50	2.00	3.50	3.50	2.00	3.40	3.40	2.00	3.10	3.10
g_i, Effective Green Time [s]	18	48	48	9	39	39	15	37	37	27	50	50
g / C, Green / Cycle	0.13	0.34	0.34	0.06	0.28	0.28	0.10	0.27	0.27	0.19	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.12	0.18	0.18	0.05	0.18	0.25	0.09	0.12	0.09	0.18	0.34	0.17
s, saturation flow rate [veh/h]	1767	1855	1661	1767	3532	1557	1767	3532	1570	1767	3532	1577
c, Capacity [veh/h]	227	637	571	110	979	432	185	941	418	341	1261	563
d1, Uniform Delay [s]	60.56	36.60	36.61	64.79	44.32	48.38	61.76	42.60	41.16	55.60	43.95	34.67
k, delay calibration	0.37	0.50	0.50	0.04	0.50	0.50	0.17	0.04	0.04	0.21	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	40.47	2.94	3.29	5.30	3.11	23.59	17.93	0.12	0.16	19.21	2.30	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.51	0.51	0.81	0.63	0.89	0.88	0.44	0.32	0.94	0.96	0.46
d, Delay for Lane Group [s/veh]	101.03	39.53	39.90	70.10	47.43	71.97	79.69	42.72	41.32	74.81	46.25	34.89
Lane Group LOS	F	D	D	E	D	E	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	10.07	9.32	8.43	3.27	9.74	15.49	6.53	5.86	3.71	12.82	20.47	6.88
50th-Percentile Queue Length [ft/ln]	251.63	233.11	210.63	81.64	243.45	387.25	163.31	146.42	92.68	320.43	511.64	171.97
95th-Percentile Queue Length [veh/ln]	15.27	14.33	13.19	5.88	14.86	21.94	10.72	9.83	6.67	18.69	27.88	11.18
95th-Percentile Queue Length [ft/ln]	381.71	358.31	329.63	146.96	371.40	548.62	268.10	245.64	166.83	467.21	697.12	279.51

Movement, Approach, & Intersection Results

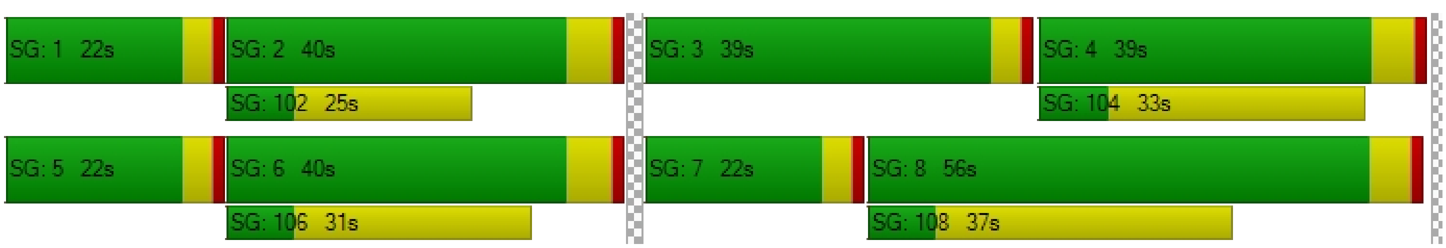
d_M, Delay for Movement [s/veh]	101.03	39.62	39.90	70.10	47.43	71.97	79.69	42.72	41.32	74.81	46.25	34.89
Movement LOS	F	D	D	E	D	E	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	55.55			57.92			50.94			49.69		
Approach LOS	E			E			D			D		
d_I, Intersection Delay [s/veh]	53.03											
Intersection LOS	D											
Intersection V/C	0.804											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	1527.60	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	59.43	59.43	59.43	59.43
I_p,int, Pedestrian LOS Score for Intersection	2.817	2.895	3.019	2.944
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	493	493	480	727
d_b, Bicycle Delay [s]	39.75	39.77	40.43	28.35
I_b,int, Bicycle LOS Score for Intersection	2.249	2.463	2.142	3.034
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Main St/Delta Rd

Control Type:	Signalized	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.434

Intersection Setup

Name	Brentwood Blvd		Main S		Delta Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	95.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Brentwood Blvd		Main S		Delta Rd	
Base Volume Input [veh/h]	348	66	151	569	51	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	5	11	47	14	24
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	8	0	0	24	0	0
Other Volume [veh/h]	2	0	0	0	7	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	372	71	162	640	72	214
Peak Hour Factor	0.9000	0.9000	0.7800	0.7800	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	103	20	52	205	21	62
Total Analysis Volume [veh/h]	413	79	208	821	84	249
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	60	30	0
Amber [s]	4.4	0.0	3.0	4.4	4.4	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.4	0.0	2.0	3.4	3.4	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	37	37	37	37	37	37
L, Total Lost Time per Cycle [s]	5.40	5.40	4.00	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	2.00	3.40	3.40	3.40
g_i, Effective Green Time [s]	7	7	6	18	9	9
g / C, Green / Cycle	0.20	0.20	0.17	0.48	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.13	0.06	0.13	0.26	0.05	0.17
s, saturation flow rate [veh/h]	3197	1427	1599	3197	1599	1427
c, Capacity [veh/h]	642	287	271	1528	372	332
d1, Uniform Delay [s]	13.68	12.61	14.78	6.84	11.59	13.30
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.08	0.51	4.51	0.30	0.30	3.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.28	0.77	0.54	0.23	0.75
d, Delay for Lane Group [s/veh]	14.76	13.12	19.30	7.14	11.90	16.71
Lane Group LOS	B	B	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.26	0.45	1.59	1.20	0.44	1.70
50th-Percentile Queue Length [ft/ln]	31.58	11.31	39.86	30.03	10.97	42.50
95th-Percentile Queue Length [veh/ln]	2.27	0.81	2.87	2.16	0.79	3.06
95th-Percentile Queue Length [ft/ln]	56.85	20.36	71.75	54.05	19.75	76.51

Movement, Approach, & Intersection Results

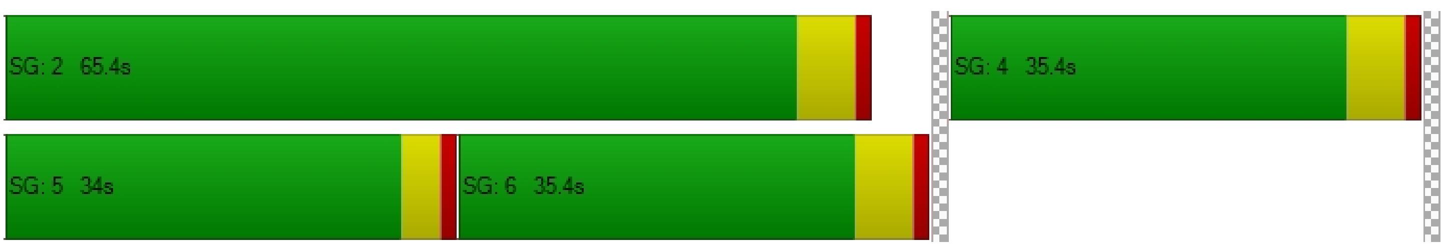
d_M, Delay for Movement [s/veh]	14.76	13.12	19.30	7.14	11.90	16.71
Movement LOS	B	B	B	A	B	B
d_A, Approach Delay [s/veh]	14.50		9.60		15.50	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	11.96					
Intersection LOS	B					
Intersection V/C	0.434					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	1333	667
d_b, Bicycle Delay [s]	20.00	5.00	20.00
I_b,int, Bicycle LOS Score for Intersection	1.966	2.409	1.560
Bicycle LOS	A	B	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Sellers Rd/E Cypress Rd

Control Type:	Signalized	Delay (sec / veh):	37.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.679

Intersection Setup

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	2	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	150.00	100.00	150.00	110.00	100.00	100.00	185.00	100.00	185.00	250.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			45.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Base Volume Input [veh/h]	86	2	106	3	0	10	1	379	7	218	133	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	54	98	679	1	25	125	127	463	61	97	566	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	16	16	1	10	16	52	53	148	15	1	94	11
Other Volume [veh/h]	9	0	0	0	0	0	0	0	14	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	165	116	786	14	41	187	181	990	97	316	793	12
Peak Hour Factor	0.8400	0.8400	0.8400	0.6500	0.6500	0.6500	0.9200	0.9200	0.9200	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	35	234	5	16	72	49	269	26	87	218	3
Total Analysis Volume [veh/h]	196	138	936	22	63	288	197	1076	105	347	871	13
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	60	0	30	60	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	43	0	0	21	0	12	32	0	24	44	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	R	L	C	C	L	C	C
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	27	27	27	13	13	13	26	26	12	25	25
g / C, Green / Cycle	0.28	0.28	0.28	0.13	0.13	0.13	0.27	0.27	0.13	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.11	0.23	0.25	0.05	0.10	0.11	0.22	0.23	0.10	0.17	0.17
s, saturation flow rate [veh/h]	1752	1652	2768	1816	2768	1752	3503	1751	3403	3503	1826
c, Capacity [veh/h]	493	465	779	239	364	236	942	471	443	925	482
d1, Uniform Delay [s]	27.80	32.26	32.82	37.81	40.23	40.30	32.95	32.99	40.27	31.03	31.03
k, delay calibration	0.11	0.27	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	9.22	3.49	0.90	3.88	7.50	2.04	4.07	3.09	0.71	1.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.83	0.88	0.36	0.79	0.83	0.84	0.84	0.78	0.63	0.63
d, Delay for Lane Group [s/veh]	28.32	41.48	36.31	38.71	44.11	47.80	34.99	37.05	43.36	31.74	32.39
Lane Group LOS	C	D	D	D	D	D	C	D	D	C	C
Critical Lane Group	No	No	Yes	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.43	8.91	7.33	1.77	3.28	4.78	8.28	8.58	3.91	5.56	5.88
50th-Percentile Queue Length [ft/ln]	85.83	222.72	183.20	44.29	82.05	119.62	206.90	214.45	97.66	138.93	147.03
95th-Percentile Queue Length [veh/ln]	6.18	13.80	11.77	3.19	5.91	8.37	12.99	13.38	7.03	9.42	9.86
95th-Percentile Queue Length [ft/ln]	154.50	345.10	294.18	79.72	147.69	209.30	324.85	334.53	175.80	235.58	246.46

Movement, Approach, & Intersection Results

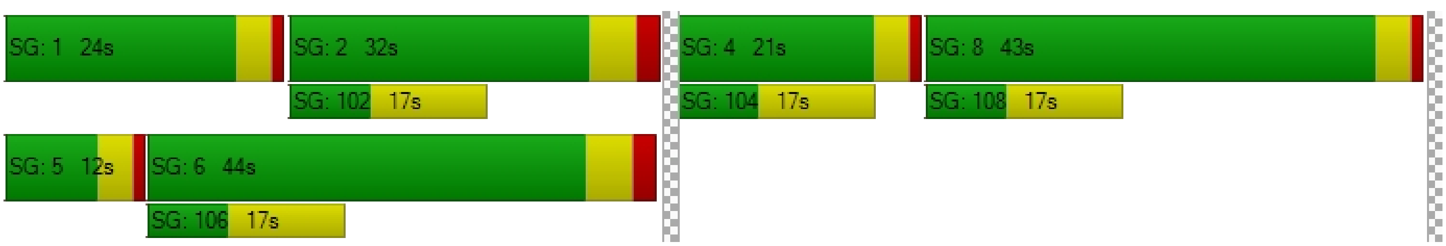
d_M, Delay for Movement [s/veh]	28.32	41.48	37.64	38.71	38.71	44.11	47.80	35.54	37.05	43.36	31.96	32.39
Movement LOS	C	D	D	D	D	D	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	36.66			42.88			37.41			35.17		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	37.02											
Intersection LOS	D											
Intersection V/C	0.679											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	2.950	2.548	3.179	3.402
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	283	433	633
d_b, Bicycle Delay [s]	27.34	44.20	36.84	28.02
I_b,int, Bicycle LOS Score for Intersection	3.655	2.175	2.318	2.237
Bicycle LOS	D	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Sellers Ave/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	50.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.362

Intersection Setup

Name	Sellers Rd		Sellers Ave		Laurel Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Sellers Rd		Sellers Ave		Laurel Rd	
Base Volume Input [veh/h]	0	194	75	150	25	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	186	134	35	645	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	1	6	10	0
Other Volume [veh/h]	16	9	15	0	0	34
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	390	225	191	680	59
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	98	56	48	170	15
Total Analysis Volume [veh/h]	16	390	225	191	680	59
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	5	5	0	5	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	3.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	35	31	65	0	69	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	169	169	169	169	169	169
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	27	61	61	65	65
g / C, Green / Cycle	0.18	0.16	0.36	0.36	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.01	0.12	0.13	0.08	0.22	0.04
s, saturation flow rate [veh/h]	1603	3204	1683	2532	3113	1431
c, Capacity [veh/h]	294	512	607	914	1197	550
d1, Uniform Delay [s]	56.91	67.92	39.83	37.32	40.94	33.38
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.35	10.26	1.73	0.52	1.96	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.76	0.37	0.21	0.57	0.11
d, Delay for Lane Group [s/veh]	57.26	78.19	41.57	37.84	42.90	33.77
Lane Group LOS	E	E	D	D	D	C
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.59	8.65	7.10	2.77	11.54	1.65
50th-Percentile Queue Length [ft/ln]	14.67	216.13	177.47	69.32	288.50	41.16
95th-Percentile Queue Length [veh/ln]	1.06	13.47	11.47	4.99	17.11	2.96
95th-Percentile Queue Length [ft/ln]	26.41	336.68	286.71	124.78	427.78	74.09

Movement, Approach, & Intersection Results

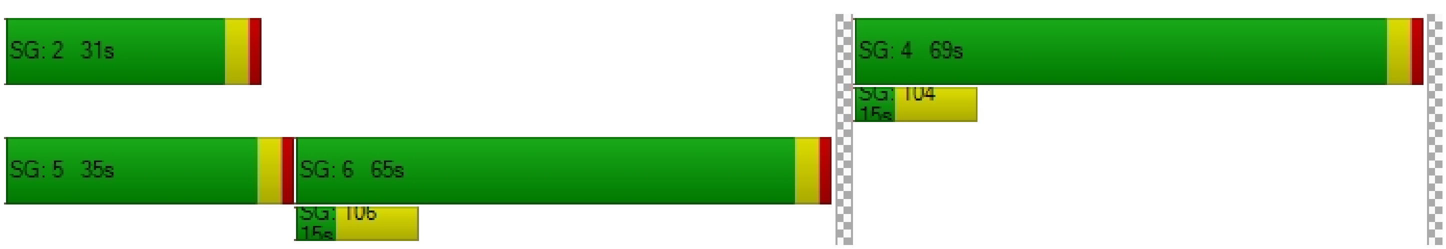
d_M, Delay for Movement [s/veh]	57.26	78.19	41.57	37.84	42.90	33.77
Movement LOS	E	E	D	D	D	C
d_A, Approach Delay [s/veh]	77.36		39.86		42.17	
Approach LOS	E		D		D	
d_I, Intersection Delay [s/veh]	50.71					
Intersection LOS	D					
Intersection V/C	0.362					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.427	2.798	2.530
Crosswalk LOS	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	1017	1083
d_b, Bicycle Delay [s]	36.04	14.50	12.60
I_b,int, Bicycle LOS Score for Intersection	1.895	2.246	1.560
Bicycle LOS	A	B	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sellers Rd/Delta Rd

Control Type:	All-way stop	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.778

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	88	203	51	13	149	22	34	113	52	43	85	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	132	0	0	77	21	41	0	2	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	0	0	1	0	0	0	0	0	0	0
Other Volume [veh/h]	0	1	0	0	1	4	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	337	51	13	228	47	75	113	54	43	85	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	84	13	3	57	12	19	28	14	11	21	5
Total Analysis Volume [veh/h]	92	337	51	13	228	47	75	113	54	43	85	21
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	616	586	549	524
Degree of Utilization, x	0.78	0.49	0.44	0.28

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	7.36	2.70	2.23	1.16
95th-Percentile Queue Length [ft]	184.10	67.46	55.77	29.07
Approach Delay [s/veh]	26.29	14.91	14.60	12.58
Approach LOS	D	B	B	B
Intersection Delay [s/veh]	19.26			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 4: Sellers Rd/Project Access 1

Control Type:	Two-way stop	Delay (sec / veh):	11.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.024

Intersection Setup

Name	Sellers Rd		Sellers Rd		Project Access 1	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Sellers Rd		Sellers Rd		Project Access 1	
Base Volume Input [veh/h]	0	194	75	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	186	134	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	1	0	0	0
Other Volume [veh/h]	0	12	24	25	13	3
Total Hourly Volume [veh/h]	0	393	234	25	13	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	98	59	6	3	1
Total Analysis Volume [veh/h]	0	393	234	25	13	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	7.76	0.00	0.00	0.00	11.80	9.19
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	2.10	2.10
d_A, Approach Delay [s/veh]	0.00		0.00		11.31	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.27					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Sellers Rd/Project Access 2

Control Type:	Two-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.021

Intersection Setup

Name	Sellers Rd		Sellers Rd			
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Sellers Rd		Sellers Rd			
Base Volume Input [veh/h]	0	194	75	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	186	134	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	1	0	0	0
Other Volume [veh/h]	1	0	3	24	12	2
Total Hourly Volume [veh/h]	1	381	213	24	12	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	95	53	6	3	1
Total Analysis Volume [veh/h]	1	381	213	24	12	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	7.71	0.00	0.00	0.00	11.54	9.10
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.06	0.03	0.00	0.00	1.80	1.80
d_A, Approach Delay [s/veh]	0.02		0.00		11.19	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.26					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Main St/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	52.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.666

Intersection Setup

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	305.00	100.00	1150.00	215.00	100.00	215.00	160.00	100.00	160.00	240.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	40.00			40.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Base Volume Input [veh/h]	136	345	119	95	326	29	140	187	123	58	245	57
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	32	45	14	28	59	265	76	659	42	2	50	16
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	24	22	0	4	18	47	83	6	40	0	2	4
Other Volume [veh/h]	0	0	7	0	0	0	0	27	0	0	16	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	192	412	140	127	403	341	299	879	205	60	313	77
Peak Hour Factor	0.8900	0.8900	0.8900	0.8800	0.8800	0.8800	0.9600	0.9600	0.9600	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	116	39	36	114	97	78	229	53	17	89	22
Total Analysis Volume [veh/h]	216	463	157	144	458	388	311	916	214	68	356	88
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	1			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			1			0		
v_co, Outbound Pedestrian Volume crossing	1			0			0			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			0			0			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	108.0
Offset Reference	Lagging Force-Off
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	10	0	6	10	0	6	6	0	6	6	0
Maximum Green [s]	11	33	0	11	33	0	14	35	0	18	39	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.4	0.0	3.0	4.1	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	33	33	0	37	37	0	27	59	0	11	43	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	24	0	0	26	0	0	30	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	2.0	3.4	0.0	2.0	3.1	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	4.00	5.40	5.40	4.00	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	3.50	2.00	3.50	3.50	2.00	3.40	3.40	2.00	3.10	3.10
g_i, Effective Green Time [s]	19	62	62	13	57	57	23	39	39	7	23	23
g / C, Green / Cycle	0.14	0.45	0.45	0.09	0.41	0.41	0.16	0.28	0.28	0.05	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.12	0.17	0.17	0.08	0.13	0.25	0.18	0.26	0.14	0.04	0.10	0.06
s, saturation flow rate [veh/h]	1767	1855	1695	1767	3532	1577	1767	3532	1575	1767	3532	1556
c, Capacity [veh/h]	238	828	757	167	1436	641	288	971	433	86	575	253
d1, Uniform Delay [s]	59.65	25.94	25.95	62.41	28.30	32.66	58.49	49.62	42.53	65.77	54.51	51.91
k, delay calibration	0.09	0.50	0.50	0.04	0.50	0.50	0.49	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.48	1.39	1.52	5.03	0.59	4.21	74.67	2.28	0.33	5.85	0.41	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.39	0.39	0.86	0.32	0.61	1.08	0.94	0.49	0.79	0.62	0.35
d, Delay for Lane Group [s/veh]	70.12	27.32	27.47	67.44	28.88	36.87	133.16	51.90	42.85	71.62	54.92	52.21
Lane Group LOS	E	C	C	E	C	D	F	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.14	7.45	6.85	5.23	5.32	10.92	16.03	15.66	6.19	2.53	5.86	2.77
50th-Percentile Queue Length [ft/ln]	203.54	186.20	171.35	130.64	132.90	272.95	400.81	391.45	154.65	63.37	146.50	69.13
95th-Percentile Queue Length [veh/ln]	12.82	11.92	11.15	8.97	9.10	16.34	23.46	22.15	10.26	4.56	9.83	4.98
95th-Percentile Queue Length [ft/ln]	320.53	298.09	278.69	224.36	227.43	408.43	586.60	553.69	256.62	114.07	245.75	124.43

Movement, Approach, & Intersection Results

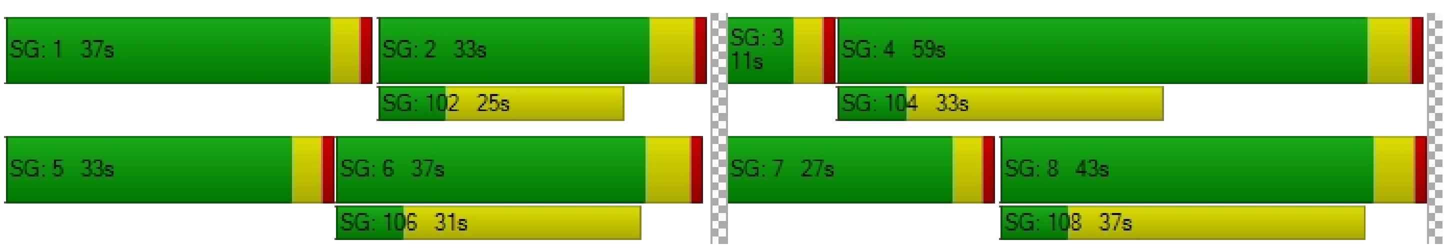
d_M, Delay for Movement [s/veh]	70.12	27.37	27.47	67.44	28.88	36.87	133.16	51.90	42.85	71.62	54.92	52.21
Movement LOS	E	C	C	E	C	D	F	D	D	E	D	D
d_A, Approach Delay [s/veh]	38.43			37.62			68.10			56.67		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	52.00											
Intersection LOS	D											
Intersection V/C	0.666											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	5111.22	0.00	0.00	2620.88
d_p, Pedestrian Delay [s]	59.43	59.43	59.43	59.43
I_p,int, Pedestrian LOS Score for Intersection	2.731	2.875	2.994	2.802
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	393	450	766	541
d_b, Bicycle Delay [s]	45.20	42.04	26.66	37.25
I_b,int, Bicycle LOS Score for Intersection	2.249	2.376	2.748	1.982
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Main St/Delta Rd

Control Type:	Signalized	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.325

Intersection Setup

Name	Brentwood Blvd		Main S		Delta Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	95.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Brentwood Blvd		Main S		Delta Rd	
Base Volume Input [veh/h]	562	98	112	445	1	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	54	16	28	31	9	16
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	26	0	0	16	0	0
Other Volume [veh/h]	7	0	0	0	4	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	649	114	140	492	14	18
Peak Hour Factor	0.9400	0.9400	0.9100	0.9100	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	173	30	38	135	4	5
Total Analysis Volume [veh/h]	690	121	154	541	15	19
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	60	30	0
Amber [s]	4.4	0.0	3.0	4.4	4.4	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.4	0.0	2.0	3.4	3.4	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	29	29	29	29	29	29
L, Total Lost Time per Cycle [s]	5.40	5.40	4.00	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	2.00	3.40	3.40	3.40
g_i, Effective Green Time [s]	9	9	4	17	1	1
g / C, Green / Cycle	0.32	0.32	0.12	0.59	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.22	0.08	0.10	0.17	0.01	0.01
s, saturation flow rate [veh/h]	3197	1427	1599	3197	1599	1427
c, Capacity [veh/h]	1040	464	200	1878	67	60
d1, Uniform Delay [s]	8.47	7.26	12.35	2.99	13.51	13.56
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.73	0.30	6.09	0.08	1.65	2.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.26	0.77	0.29	0.22	0.32
d, Delay for Lane Group [s/veh]	9.20	7.55	18.44	3.07	15.16	16.53
Lane Group LOS	A	A	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.04	0.32	0.98	0.02	0.10	0.13
50th-Percentile Queue Length [ft/ln]	25.94	7.95	24.38	0.55	2.44	3.36
95th-Percentile Queue Length [veh/ln]	1.87	0.57	1.76	0.04	0.18	0.24
95th-Percentile Queue Length [ft/ln]	46.69	14.31	43.89	0.98	4.39	6.04

Movement, Approach, & Intersection Results

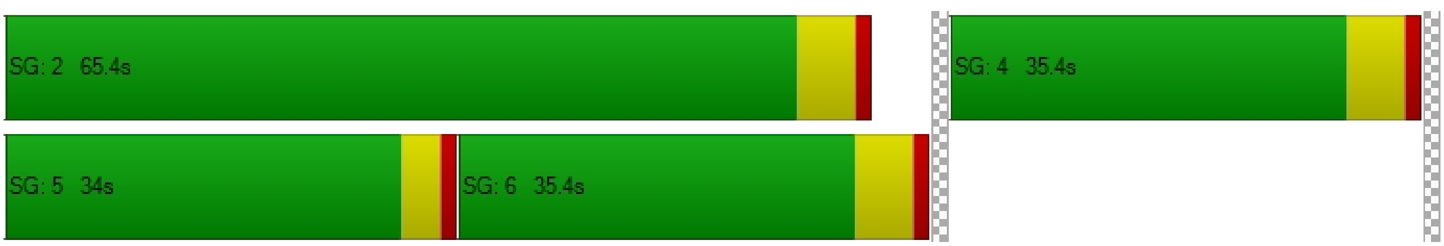
d_M, Delay for Movement [s/veh]	9.20	7.55	18.44	3.07	15.16	16.53
Movement LOS	A	A	B	A	B	B
d_A, Approach Delay [s/veh]	8.96		6.47		15.92	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	7.99					
Intersection LOS	A					
Intersection V/C	0.325					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	1333	667
d_b, Bicycle Delay [s]	20.00	5.00	20.00
I_b,int, Bicycle LOS Score for Intersection	2.229	2.133	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix F

Background plus Project Conditions Mitigated LOS Reports

Intersection Level Of Service Report
Intersection 1: Sellers Rd/E Cypress Rd

Control Type:	Signalized	Delay (sec / veh):	45.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.751

Intersection Setup

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	150.00	100.00	150.00	110.00	100.00	100.00	185.00	100.00	185.00	250.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			45.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Base Volume Input [veh/h]	96	5	47	1	2	8	11	289	127	295	301	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	69	52	167	7	205	85	21	152	32	214	640	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	9	10	27	5	8	28	29	21	8	79	46	6
Other Volume [veh/h]	12	0	1	0	0	0	0	0	5	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	67	242	13	215	121	61	462	172	588	987	12
Peak Hour Factor	0.7700	0.7700	0.7700	0.6900	0.6900	0.6900	0.8100	0.8100	0.8100	0.7000	0.7000	0.7000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	60	22	79	5	78	44	19	143	53	210	353	4
Total Analysis Volume [veh/h]	242	87	314	19	312	175	75	570	212	840	1410	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	60	0	30	60	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	21	0	0	21	0	11	24	0	14	27	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	R	L	C	C	L	C	C
C, Cycle Length [s]	113	113	113	113	113	113	113	113	113	113	113
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	19	19	19	23	23	6	24	24	30	48	48
g / C, Green / Cycle	0.16	0.16	0.16	0.20	0.20	0.06	0.21	0.21	0.26	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.14	0.09	0.09	0.18	0.06	0.04	0.15	0.16	0.25	0.39	0.39
s, saturation flow rate [veh/h]	1752	1710	2768	1835	2768	1752	3503	1600	3403	1840	1832
c, Capacity [veh/h]	287	281	454	370	558	97	751	343	891	774	771
d1, Uniform Delay [s]	46.08	43.60	43.63	44.22	38.69	52.97	41.39	41.56	41.11	31.15	31.24
k, delay calibration	0.11	0.11	0.11	0.22	0.11	0.11	0.11	0.11	0.11	0.26	0.26
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.59	1.63	1.03	14.05	0.32	12.10	1.26	2.94	5.83	10.75	11.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.54	0.55	0.90	0.31	0.77	0.71	0.73	0.94	0.92	0.93
d, Delay for Lane Group [s/veh]	52.67	45.23	44.66	58.27	39.01	65.07	42.64	44.50	46.94	41.90	42.48
Lane Group LOS	D	D	D	E	D	E	D	D	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.86	3.90	3.15	10.08	2.02	2.38	6.80	6.53	11.58	19.18	19.32
50th-Percentile Queue Length [ft/ln]	171.50	97.51	78.66	251.95	50.55	59.51	169.97	163.32	289.50	479.40	482.92
95th-Percentile Queue Length [veh/ln]	11.16	7.02	5.66	15.28	3.64	4.28	11.07	10.72	17.16	26.36	26.52
95th-Percentile Queue Length [ft/ln]	278.89	175.52	141.59	382.10	90.98	107.11	276.87	268.12	429.03	658.94	663.12

Movement, Approach, & Intersection Results

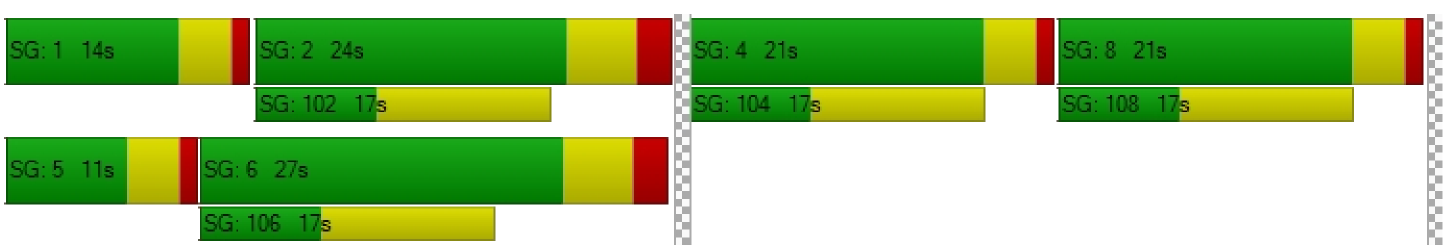
d_M, Delay for Movement [s/veh]	52.67	45.23	44.76	58.27	58.27	39.01	65.07	42.76	44.50	46.94	42.18	42.48
Movement LOS	D	D	D	E	E	D	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	47.81			51.61			45.14			43.95		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	45.68											
Intersection LOS	D											
Intersection V/C	0.751											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
I_p,int, Pedestrian LOS Score for Intersection	2.990	2.516	3.100	3.323
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	425	425	450	525
d_b, Bicycle Delay [s]	24.81	24.81	24.03	21.76
I_b,int, Bicycle LOS Score for Intersection	2.621	2.395	2.031	3.430
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Sellers Ave/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	49.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.385

Intersection Setup

Name	Sellers Rd		Sellers Ave		Laurel Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Sellers Rd		Sellers Ave		Laurel Rd	
Base Volume Input [veh/h]	0	148	224	200	50	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	48	401	218	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	2	88	40	0
Other Volume [veh/h]	23	13	5	0	0	10
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	210	279	689	308	60
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	53	70	172	77	15
Total Analysis Volume [veh/h]	23	210	279	689	308	60
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	5	5	0	5	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	3.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	35	31	65	0	69	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	169	169	169	169	169	169
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	27	61	61	65	65
g / C, Green / Cycle	0.18	0.16	0.36	0.36	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.01	0.07	0.17	0.27	0.10	0.04
s, saturation flow rate [veh/h]	1603	3204	1683	2532	3113	1431
c, Capacity [veh/h]	294	512	607	914	1197	550
d1, Uniform Delay [s]	57.16	63.84	41.37	47.41	35.51	33.40
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	2.42	2.49	5.74	0.52	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.41	0.46	0.75	0.26	0.11
d, Delay for Lane Group [s/veh]	57.68	66.26	43.86	53.15	36.03	33.80
Lane Group LOS	E	E	D	D	D	C
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.85	4.18	9.19	13.13	4.49	1.68
50th-Percentile Queue Length [ft/ln]	21.21	104.46	229.63	328.29	112.31	41.89
95th-Percentile Queue Length [veh/ln]	1.53	7.52	14.16	19.07	7.97	3.02
95th-Percentile Queue Length [ft/ln]	38.18	188.02	353.89	476.86	199.21	75.40

Movement, Approach, & Intersection Results

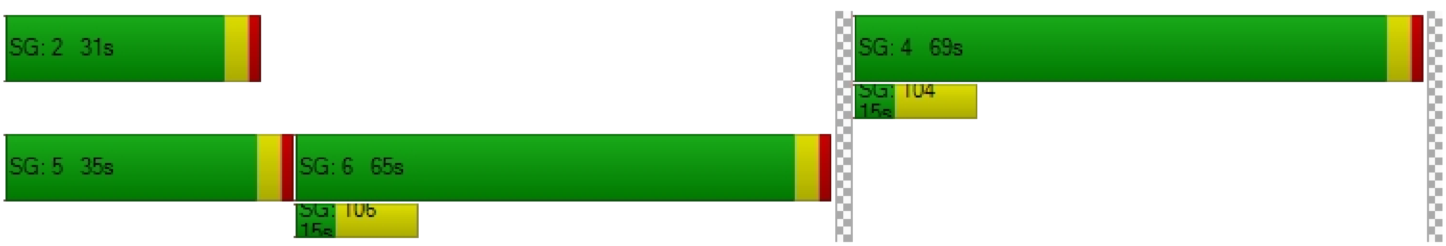
d_M, Delay for Movement [s/veh]	57.68	66.26	43.86	53.15	36.03	33.80
Movement LOS	E	E	D	D	D	C
d_A, Approach Delay [s/veh]	65.42		50.47		35.67	
Approach LOS	E		D		D	
d_I, Intersection Delay [s/veh]	49.22					
Intersection LOS	D					
Intersection V/C	0.385					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41
I_p,int, Pedestrian LOS Score for Intersection	2.370	2.789	2.552
Crosswalk LOS	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	540	1220	1300
d_b, Bicycle Delay [s]	26.65	7.61	6.13
I_b,int, Bicycle LOS Score for Intersection	1.752	3.157	1.560
Bicycle LOS	A	C	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sellers Rd/Delta Rd

Control Type:	All-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.335

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	╋			╋			╋			╋		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	33	86	36	3	142	15	13	63	41	38	63	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	1	49	0	8	37	12	0	3	120	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	0	0	2	0	0	0	0	0	0	0
Other Volume [veh/h]	0	1	0	0	1	7	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	89	85	3	153	59	25	63	44	158	63	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	22	21	1	38	15	6	16	11	40	16	1
Total Analysis Volume [veh/h]	34	89	85	3	153	59	25	63	44	158	63	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	715	710	686	669
Degree of Utilization, x	0.29	0.30	0.19	0.33

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.21	1.28	0.71	1.47
95th-Percentile Queue Length [ft]	30.17	31.91	17.69	36.77
Approach Delay [s/veh]	10.08	10.26	9.50	11.06
Approach LOS	B	B	A	B
Intersection Delay [s/veh]	10.31			
Intersection LOS	B			

Intersection Level Of Service Report

Intersection 4: Sellers Rd/Project Access 1

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name	Sellers Rd		Sellers Rd		Project Access 1	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Sellers Rd		Sellers Rd		Project Access 1	
Base Volume Input [veh/h]	0	148	224	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	48	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	2	0	0	0
Other Volume [veh/h]	0	18	8	7	18	4
Total Hourly Volume [veh/h]	0	215	282	7	18	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	54	71	2	5	1
Total Analysis Volume [veh/h]	0	215	282	7	18	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	7.84	0.00	0.00	0.00	11.38	9.32
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.11	0.11
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	2.75	2.75
d_A, Approach Delay [s/veh]	0.00		0.00		11.00	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.46					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Sellers Rd/Project Access 2

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	Sellers Rd		Sellers Rd		Project Access 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Sellers Rd		Sellers Rd		Project Access 2	
Base Volume Input [veh/h]	0	148	224	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	48	48	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	2	0	0	0
Other Volume [veh/h]	1	0	4	8	18	4
Total Hourly Volume [veh/h]	1	197	278	8	18	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	49	70	2	5	1
Total Analysis Volume [veh/h]	1	197	278	8	18	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	7.83	0.00	0.00	0.00	11.29	9.30
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.11	0.11
95th-Percentile Queue Length [ft/ln]	0.06	0.03	0.00	0.00	2.71	2.71
d_A, Approach Delay [s/veh]	0.04		0.00		10.93	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.49					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Main St/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	53.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.804

Intersection Setup

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	305.00	100.00	1150.00	215.00	100.00	215.00	160.00	100.00	160.00	240.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Base Volume Input [veh/h]	107	298	141	61	465	14	126	106	101	176	362	104
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	39	6	9	29	295	18	222	20	21	360	64
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	36	4	6	1	2	0	2	33	0	17	64	7
Other Volume [veh/h]	0	0	2	0	0	0	0	8	0	0	23	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	173	341	155	71	496	309	146	369	121	214	809	175
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.9000	0.9000	0.9000	0.6700	0.6700	0.6700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	107	48	22	155	97	41	103	34	80	302	65
Total Analysis Volume [veh/h]	216	426	194	89	620	386	162	410	134	319	1207	261
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	2			0			2			0		
v_di, Inbound Pedestrian Volume crossing m	2			0			2			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	108.0
Offset Reference	Lagging Force-Off
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	10	0	6	10	0	6	6	0	6	6	0
Maximum Green [s]	11	33	0	11	33	0	14	35	0	18	39	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.4	0.0	3.0	4.1	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	40	0	22	40	0	22	39	0	39	56	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	24	0	0	26	0	0	30	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	2.0	3.4	0.0	2.0	3.1	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	4.00	5.40	5.40	4.00	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	3.50	2.00	3.50	3.50	2.00	3.40	3.40	2.00	3.10	3.10
g_i, Effective Green Time [s]	18	48	48	9	39	39	15	37	37	27	50	50
g / C, Green / Cycle	0.13	0.34	0.34	0.06	0.28	0.28	0.10	0.27	0.27	0.19	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.12	0.18	0.18	0.05	0.18	0.25	0.09	0.12	0.09	0.18	0.34	0.17
s, saturation flow rate [veh/h]	1767	1855	1661	1767	3532	1557	1767	3532	1570	1767	3532	1577
c, Capacity [veh/h]	227	637	571	110	979	432	185	941	418	341	1261	563
d1, Uniform Delay [s]	60.56	36.60	36.61	64.79	44.32	48.38	61.76	42.60	41.16	55.60	43.95	34.67
k, delay calibration	0.37	0.50	0.50	0.04	0.50	0.50	0.17	0.04	0.04	0.21	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	40.47	2.94	3.29	5.30	3.11	23.59	17.93	0.12	0.16	19.21	2.30	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.51	0.51	0.81	0.63	0.89	0.88	0.44	0.32	0.94	0.96	0.46
d, Delay for Lane Group [s/veh]	101.03	39.53	39.90	70.10	47.43	71.97	79.69	42.72	41.32	74.81	46.25	34.89
Lane Group LOS	F	D	D	E	D	E	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	10.07	9.32	8.43	3.27	9.74	15.49	6.53	5.86	3.71	12.82	20.47	6.88
50th-Percentile Queue Length [ft/ln]	251.63	233.11	210.63	81.64	243.45	387.25	163.31	146.42	92.68	320.43	511.64	171.97
95th-Percentile Queue Length [veh/ln]	15.27	14.33	13.19	5.88	14.86	21.94	10.72	9.83	6.67	18.69	27.88	11.18
95th-Percentile Queue Length [ft/ln]	381.71	358.31	329.63	146.96	371.40	548.62	268.10	245.64	166.83	467.21	697.12	279.51

Movement, Approach, & Intersection Results

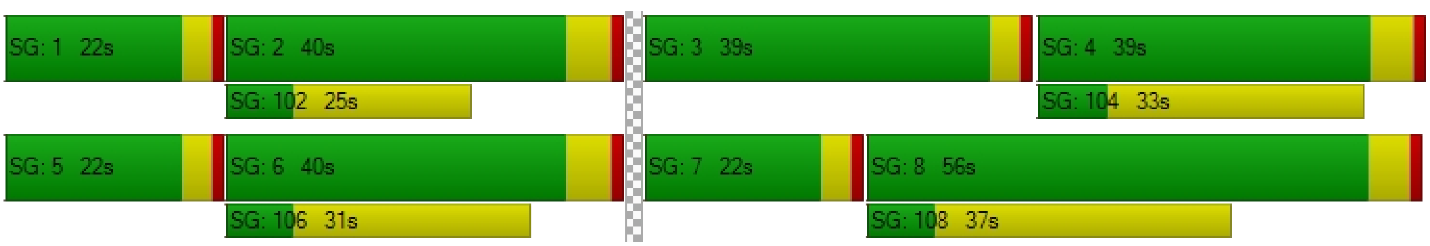
d_M, Delay for Movement [s/veh]	101.03	39.62	39.90	70.10	47.43	71.97	79.69	42.72	41.32	74.81	46.25	34.89
Movement LOS	F	D	D	E	D	E	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	55.55			57.92			50.94			49.69		
Approach LOS	E			E			D			D		
d_I, Intersection Delay [s/veh]	53.03											
Intersection LOS	D											
Intersection V/C	0.804											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	1527.60	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	59.43	59.43	59.43	59.43
I_p,int, Pedestrian LOS Score for Intersection	2.817	2.895	3.019	2.944
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	493	493	480	727
d_b, Bicycle Delay [s]	39.75	39.77	40.43	28.35
I_b,int, Bicycle LOS Score for Intersection	2.249	2.463	2.142	3.034
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Main St/Delta Rd

Control Type:	Signalized	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.434

Intersection Setup

Name	Brentwood Blvd		Main S		Delta Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	95.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Brentwood Blvd		Main S		Delta Rd	
Base Volume Input [veh/h]	348	66	151	569	51	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	5	11	47	14	24
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	8	0	0	24	0	0
Other Volume [veh/h]	2	0	0	0	7	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	372	71	162	640	72	214
Peak Hour Factor	0.9000	0.9000	0.7800	0.7800	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	103	20	52	205	21	62
Total Analysis Volume [veh/h]	413	79	208	821	84	249
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	60	30	0
Amber [s]	4.4	0.0	3.0	4.4	4.4	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.4	0.0	2.0	3.4	3.4	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	37	37	37	37	37	37
L, Total Lost Time per Cycle [s]	5.40	5.40	4.00	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	2.00	3.40	3.40	3.40
g_i, Effective Green Time [s]	7	7	6	18	9	9
g / C, Green / Cycle	0.20	0.20	0.17	0.48	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.13	0.06	0.13	0.26	0.05	0.17
s, saturation flow rate [veh/h]	3197	1427	1599	3197	1599	1427
c, Capacity [veh/h]	642	287	271	1528	372	332
d1, Uniform Delay [s]	13.68	12.61	14.78	6.84	11.59	13.30
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.08	0.51	4.51	0.30	0.30	3.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.28	0.77	0.54	0.23	0.75
d, Delay for Lane Group [s/veh]	14.76	13.12	19.30	7.14	11.90	16.71
Lane Group LOS	B	B	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.26	0.45	1.59	1.20	0.44	1.70
50th-Percentile Queue Length [ft/ln]	31.58	11.31	39.86	30.03	10.97	42.50
95th-Percentile Queue Length [veh/ln]	2.27	0.81	2.87	2.16	0.79	3.06
95th-Percentile Queue Length [ft/ln]	56.85	20.36	71.75	54.05	19.75	76.51

Movement, Approach, & Intersection Results

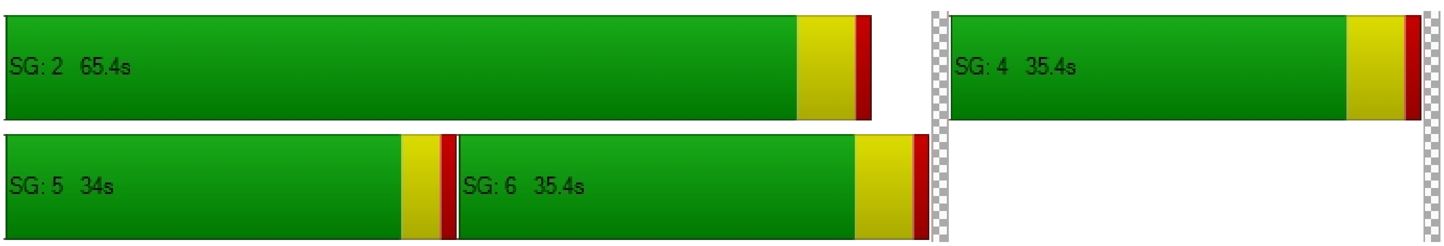
d_M, Delay for Movement [s/veh]	14.76	13.12	19.30	7.14	11.90	16.71
Movement LOS	B	B	B	A	B	B
d_A, Approach Delay [s/veh]	14.50		9.60		15.50	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	11.96					
Intersection LOS	B					
Intersection V/C	0.434					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	1333	667
d_b, Bicycle Delay [s]	20.00	5.00	20.00
I_b,int, Bicycle LOS Score for Intersection	1.966	2.409	1.560
Bicycle LOS	A	B	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Sellers Rd/E Cypress Rd

Control Type:	Signalized	Delay (sec / veh):	37.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.679

Intersection Setup

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	2	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	150.00	100.00	150.00	110.00	100.00	100.00	185.00	100.00	185.00	250.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			45.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Sellers Rd			Sellers Rd			E Cypress Rd			E Cypress Rd		
Base Volume Input [veh/h]	86	2	106	3	0	10	1	379	7	218	133	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	54	98	679	1	25	125	127	463	61	97	566	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	16	16	1	10	16	52	53	148	15	1	94	11
Other Volume [veh/h]	9	0	0	0	0	0	0	0	14	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	165	116	786	14	41	187	181	990	97	316	793	12
Peak Hour Factor	0.8400	0.8400	0.8400	0.6500	0.6500	0.6500	0.9200	0.9200	0.9200	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	35	234	5	16	72	49	269	26	87	218	3
Total Analysis Volume [veh/h]	196	138	936	22	63	288	197	1076	105	347	871	13
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	30	60	0	30	60	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	43	0	0	21	0	12	32	0	24	44	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	C	R	L	C	C	L	C	C
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	27	27	27	13	13	13	26	26	12	25	25
g / C, Green / Cycle	0.28	0.28	0.28	0.13	0.13	0.13	0.27	0.27	0.13	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.11	0.23	0.25	0.05	0.10	0.11	0.22	0.23	0.10	0.17	0.17
s, saturation flow rate [veh/h]	1752	1652	2768	1816	2768	1752	3503	1751	3403	3503	1826
c, Capacity [veh/h]	493	465	779	239	364	236	942	471	443	925	482
d1, Uniform Delay [s]	27.80	32.26	32.82	37.81	40.23	40.30	32.95	32.99	40.27	31.03	31.03
k, delay calibration	0.11	0.27	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	9.22	3.49	0.90	3.88	7.50	2.04	4.07	3.09	0.71	1.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.83	0.88	0.36	0.79	0.83	0.84	0.84	0.78	0.63	0.63
d, Delay for Lane Group [s/veh]	28.32	41.48	36.31	38.71	44.11	47.80	34.99	37.05	43.36	31.74	32.39
Lane Group LOS	C	D	D	D	D	D	C	D	D	C	C
Critical Lane Group	No	No	Yes	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.43	8.91	7.33	1.77	3.28	4.78	8.28	8.58	3.91	5.56	5.88
50th-Percentile Queue Length [ft/ln]	85.83	222.72	183.20	44.29	82.05	119.62	206.90	214.45	97.66	138.93	147.03
95th-Percentile Queue Length [veh/ln]	6.18	13.80	11.77	3.19	5.91	8.37	12.99	13.38	7.03	9.42	9.86
95th-Percentile Queue Length [ft/ln]	154.50	345.10	294.18	79.72	147.69	209.30	324.85	334.53	175.80	235.58	246.46

Movement, Approach, & Intersection Results

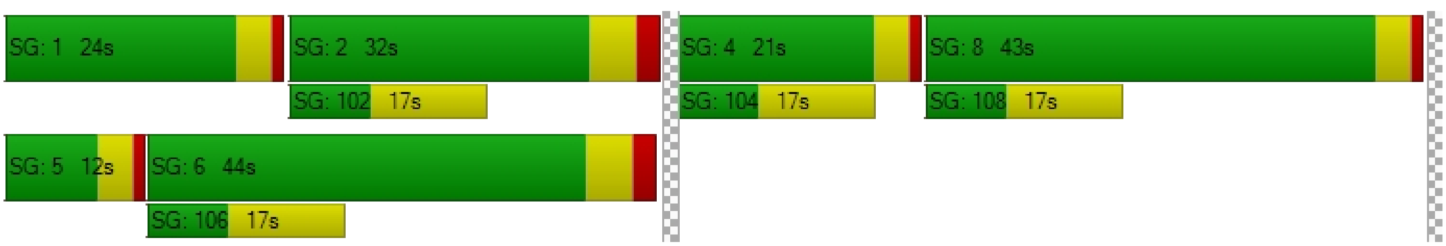
d_M, Delay for Movement [s/veh]	28.32	41.48	37.64	38.71	38.71	44.11	47.80	35.54	37.05	43.36	31.96	32.39
Movement LOS	C	D	D	D	D	D	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	36.66			42.88			37.41			35.17		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	37.02											
Intersection LOS	D											
Intersection V/C	0.679											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	2.950	2.548	3.179	3.402
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	283	433	633
d_b, Bicycle Delay [s]	27.34	44.20	36.84	28.02
I_b,int, Bicycle LOS Score for Intersection	3.655	2.175	2.318	2.237
Bicycle LOS	D	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Sellers Ave/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	50.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.362

Intersection Setup

Name	Sellers Rd		Sellers Ave		Laurel Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Sellers Rd		Sellers Ave		Laurel Rd	
Base Volume Input [veh/h]	0	194	75	150	25	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	186	134	35	645	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	1	6	10	0
Other Volume [veh/h]	16	9	15	0	0	34
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	390	225	191	680	59
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	98	56	48	170	15
Total Analysis Volume [veh/h]	16	390	225	191	680	59
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	5	5	0	5	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	3.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	35	31	65	0	69	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	169	169	169	169	169	169
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	27	61	61	65	65
g / C, Green / Cycle	0.18	0.16	0.36	0.36	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.01	0.12	0.13	0.08	0.22	0.04
s, saturation flow rate [veh/h]	1603	3204	1683	2532	3113	1431
c, Capacity [veh/h]	294	512	607	914	1197	550
d1, Uniform Delay [s]	56.91	67.92	39.83	37.32	40.94	33.38
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.35	10.26	1.73	0.52	1.96	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.76	0.37	0.21	0.57	0.11
d, Delay for Lane Group [s/veh]	57.26	78.19	41.57	37.84	42.90	33.77
Lane Group LOS	E	E	D	D	D	C
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.59	8.65	7.10	2.77	11.54	1.65
50th-Percentile Queue Length [ft/ln]	14.67	216.13	177.47	69.32	288.50	41.16
95th-Percentile Queue Length [veh/ln]	1.06	13.47	11.47	4.99	17.11	2.96
95th-Percentile Queue Length [ft/ln]	26.41	336.68	286.71	124.78	427.78	74.09

Movement, Approach, & Intersection Results

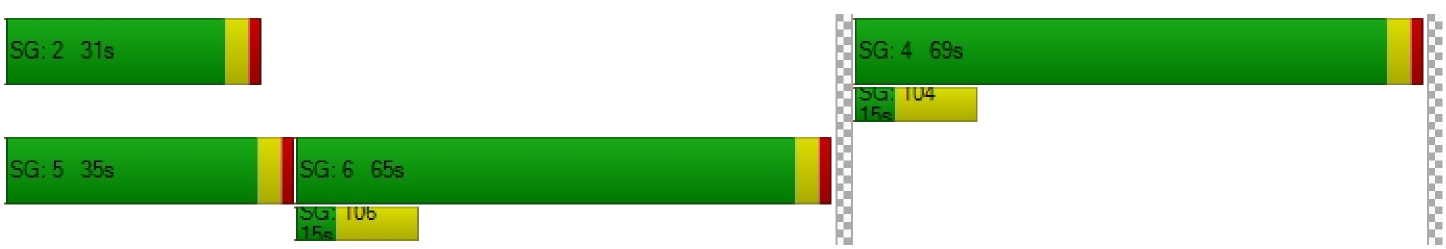
d_M, Delay for Movement [s/veh]	57.26	78.19	41.57	37.84	42.90	33.77
Movement LOS	E	E	D	D	D	C
d_A, Approach Delay [s/veh]	77.36		39.86		42.17	
Approach LOS	E		D		D	
d_I, Intersection Delay [s/veh]	50.71					
Intersection LOS	D					
Intersection V/C	0.362					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	2.427	2.798	2.530
Crosswalk LOS	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	1017	1083
d_b, Bicycle Delay [s]	36.04	14.50	12.60
I_b,int, Bicycle LOS Score for Intersection	1.895	2.246	1.560
Bicycle LOS	A	B	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Sellers Rd/Delta Rd

Control Type:	All-way stop	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.778

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00			50.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	88	203	51	13	149	22	34	113	52	43	85	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	132	0	0	77	21	41	0	2	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	0	0	1	0	0	0	0	0	0	0
Other Volume [veh/h]	0	1	0	0	1	4	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	337	51	13	228	47	75	113	54	43	85	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	84	13	3	57	12	19	28	14	11	21	5
Total Analysis Volume [veh/h]	92	337	51	13	228	47	75	113	54	43	85	21
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	616	586	549	524
Degree of Utilization, x	0.78	0.49	0.44	0.28

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	7.36	2.70	2.23	1.16
95th-Percentile Queue Length [ft]	184.10	67.46	55.77	29.07
Approach Delay [s/veh]	26.29	14.91	14.60	12.58
Approach LOS	D	B	B	B
Intersection Delay [s/veh]	19.26			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 4: Sellers Rd/Project Access 1

Control Type:	Two-way stop	Delay (sec / veh):	11.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.024

Intersection Setup

Name	Sellers Rd		Sellers Rd		Project Access 1	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Sellers Rd		Sellers Rd		Project Access 1	
Base Volume Input [veh/h]	0	194	75	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	186	134	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	1	0	0	0
Other Volume [veh/h]	0	12	24	25	13	3
Total Hourly Volume [veh/h]	0	393	234	25	13	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	98	59	6	3	1
Total Analysis Volume [veh/h]	0	393	234	25	13	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	7.76	0.00	0.00	0.00	11.80	9.19
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	2.10	2.10
d_A, Approach Delay [s/veh]	0.00		0.00		11.31	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.27					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Sellers Rd/Project Access 2

Control Type:	Two-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.021

Intersection Setup

Name	Sellers Rd		Sellers Rd			
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	50.00		50.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Sellers Rd		Sellers Rd			
Base Volume Input [veh/h]	0	194	75	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	186	134	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	1	1	0	0	0
Other Volume [veh/h]	1	0	3	24	12	2
Total Hourly Volume [veh/h]	1	381	213	24	12	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	95	53	6	3	1
Total Analysis Volume [veh/h]	1	381	213	24	12	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	7.71	0.00	0.00	0.00	11.54	9.10
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.06	0.03	0.00	0.00	1.80	1.80
d_A, Approach Delay [s/veh]	0.02		0.00		11.19	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.26					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Main St/Laurel Rd

Control Type:	Signalized	Delay (sec / veh):	52.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.666

Intersection Setup

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	305.00	100.00	1150.00	215.00	100.00	215.00	160.00	100.00	160.00	240.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	40.00			40.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Laurel Rd			Laurel Rd		
Base Volume Input [veh/h]	136	345	119	95	326	29	140	187	123	58	245	57
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	32	45	14	28	59	265	76	659	42	2	50	16
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	24	22	0	4	18	47	83	6	40	0	2	4
Other Volume [veh/h]	0	0	7	0	0	0	0	27	0	0	16	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	192	412	140	127	403	341	299	879	205	60	313	77
Peak Hour Factor	0.8900	0.8900	0.8900	0.8800	0.8800	0.8800	0.9600	0.9600	0.9600	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	116	39	36	114	97	78	229	53	17	89	22
Total Analysis Volume [veh/h]	216	463	157	144	458	388	311	916	214	68	356	88
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	1			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			1			0		
v_co, Outbound Pedestrian Volume crossing	1			0			0			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			0			0			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	108.0
Offset Reference	Lagging Force-Off
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	10	0	6	10	0	6	6	0	6	6	0
Maximum Green [s]	11	33	0	11	33	0	14	35	0	18	39	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.4	0.0	3.0	4.1	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	33	33	0	37	37	0	27	59	0	11	43	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	24	0	0	26	0	0	30	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	0.0	2.0	3.4	0.0	2.0	3.1	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	4.00	5.50	5.50	4.00	5.40	5.40	4.00	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	3.50	2.00	3.50	3.50	2.00	3.40	3.40	2.00	3.10	3.10
g_i, Effective Green Time [s]	19	62	62	13	57	57	23	39	39	7	23	23
g / C, Green / Cycle	0.14	0.45	0.45	0.09	0.41	0.41	0.16	0.28	0.28	0.05	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.12	0.17	0.17	0.08	0.13	0.25	0.18	0.26	0.14	0.04	0.10	0.06
s, saturation flow rate [veh/h]	1767	1855	1695	1767	3532	1577	1767	3532	1575	1767	3532	1556
c, Capacity [veh/h]	238	828	757	167	1436	641	288	971	433	86	575	253
d1, Uniform Delay [s]	59.65	25.94	25.95	62.41	28.30	32.66	58.49	49.62	42.53	65.77	54.51	51.91
k, delay calibration	0.09	0.50	0.50	0.04	0.50	0.50	0.49	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.48	1.39	1.52	5.03	0.59	4.21	74.67	2.28	0.33	5.85	0.41	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.39	0.39	0.86	0.32	0.61	1.08	0.94	0.49	0.79	0.62	0.35
d, Delay for Lane Group [s/veh]	70.12	27.32	27.47	67.44	28.88	36.87	133.16	51.90	42.85	71.62	54.92	52.21
Lane Group LOS	E	C	C	E	C	D	F	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.14	7.45	6.85	5.23	5.32	10.92	16.03	15.66	6.19	2.53	5.86	2.77
50th-Percentile Queue Length [ft/ln]	203.54	186.20	171.35	130.64	132.90	272.95	400.81	391.45	154.65	63.37	146.50	69.13
95th-Percentile Queue Length [veh/ln]	12.82	11.92	11.15	8.97	9.10	16.34	23.46	22.15	10.26	4.56	9.83	4.98
95th-Percentile Queue Length [ft/ln]	320.53	298.09	278.69	224.36	227.43	408.43	586.60	553.69	256.62	114.07	245.75	124.43

Movement, Approach, & Intersection Results

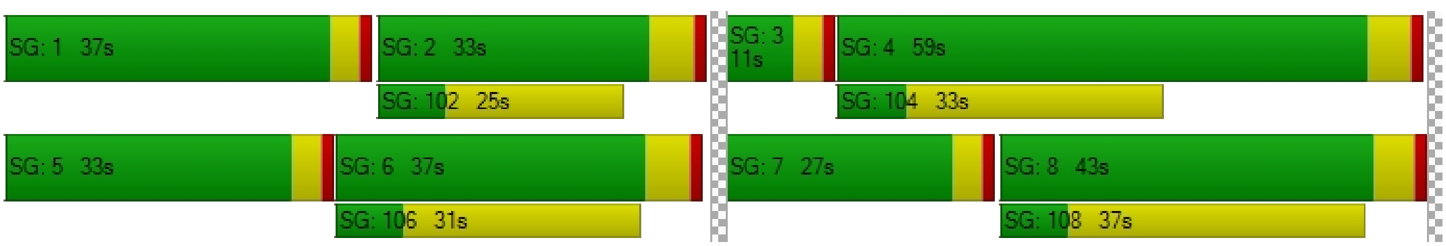
d_M, Delay for Movement [s/veh]	70.12	27.37	27.47	67.44	28.88	36.87	133.16	51.90	42.85	71.62	54.92	52.21
Movement LOS	E	C	C	E	C	D	F	D	D	E	D	D
d_A, Approach Delay [s/veh]	38.43			37.62			68.10			56.67		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	52.00											
Intersection LOS	D											
Intersection V/C	0.666											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	5111.22	0.00	0.00	2620.88
d_p, Pedestrian Delay [s]	59.43	59.43	59.43	59.43
I_p,int, Pedestrian LOS Score for Intersection	2.731	2.875	2.994	2.802
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	393	450	766	541
d_b, Bicycle Delay [s]	45.20	42.04	26.66	37.25
I_b,int, Bicycle LOS Score for Intersection	2.249	2.376	2.748	1.982
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Main St/Delta Rd

Control Type:	Signalized	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.325

Intersection Setup

Name	Brentwood Blvd		Main S		Delta Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	95.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Brentwood Blvd		Main S		Delta Rd	
Base Volume Input [veh/h]	562	98	112	445	1	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	54	16	28	31	9	16
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	26	0	0	16	0	0
Other Volume [veh/h]	7	0	0	0	4	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	649	114	140	492	14	18
Peak Hour Factor	0.9400	0.9400	0.9100	0.9100	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	173	30	38	135	4	5
Total Analysis Volume [veh/h]	690	121	154	541	15	19
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	5	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	60	30	0
Amber [s]	4.4	0.0	3.0	4.4	4.4	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.4	0.0	2.0	3.4	3.4	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	29	29	29	29	29	29
L, Total Lost Time per Cycle [s]	5.40	5.40	4.00	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	2.00	3.40	3.40	3.40
g_i, Effective Green Time [s]	9	9	4	17	1	1
g / C, Green / Cycle	0.32	0.32	0.12	0.59	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.22	0.08	0.10	0.17	0.01	0.01
s, saturation flow rate [veh/h]	3197	1427	1599	3197	1599	1427
c, Capacity [veh/h]	1040	464	200	1878	67	60
d1, Uniform Delay [s]	8.47	7.26	12.35	2.99	13.51	13.56
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.73	0.30	6.09	0.08	1.65	2.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.26	0.77	0.29	0.22	0.32
d, Delay for Lane Group [s/veh]	9.20	7.55	18.44	3.07	15.16	16.53
Lane Group LOS	A	A	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.04	0.32	0.98	0.02	0.10	0.13
50th-Percentile Queue Length [ft/ln]	25.94	7.95	24.38	0.55	2.44	3.36
95th-Percentile Queue Length [veh/ln]	1.87	0.57	1.76	0.04	0.18	0.24
95th-Percentile Queue Length [ft/ln]	46.69	14.31	43.89	0.98	4.39	6.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.20	7.55	18.44	3.07	15.16	16.53
Movement LOS	A	A	B	A	B	B
d_A, Approach Delay [s/veh]	8.96		6.47		15.92	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	7.99					
Intersection LOS	A					
Intersection V/C	0.325					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	1333	667
d_b, Bicycle Delay [s]	20.00	5.00	20.00
I_b,int, Bicycle LOS Score for Intersection	2.229	2.133	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-