Emerson Property

Draft
Environmental Impact Report
SCH# 2007052073

Prepared For
the City of Oakley

November 2008

RANEY
PLANNING & MANAGEMENT, INC.
1501 Sports Drive, Sacramento, CA 95834

DRAFT
ENVIRONMENTAL IMPACT REPORT
EMERSON PROPERTY PROJECT

State Clearinghouse # 2007052073

Lead Agency:

City of Oakley
3231 Main Street
Oakley, CA 94561

Contact:
Ken Strelo
Senior Planner
Phone: (925) 625-7000
Fax: (925) 625-9194

Prepared By:

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

Contact:
Cindy Gnos, AICP
Vice President

Rod Stinson
Assistant Division Manager

November 2008

TABLE OF CONTENTS

TABLE OF CONTENTS

APPENDICES

Appendix A Notice of Preparation
Appendix B Comments on the Notice of Preparation
Appendix C Initial Study

APPENDICES BOUND SEPARATELY

(Available at the City of Oakley, 3231 Main Street)

Appendix D Emerson Traffic Study
Appendix E Air Quality Impact Analysis for the Proposed Emerson Ranch Project
Appendix F Emerson Property Project Environmental Noise Assessment
Appendix G Phase I Environmental Site Assessment, Emerson and Burroughs Properties
Appendix H Phase I Environmental Site Assessment Emerson Update
Appendix I Clarification Regarding Environmental Site Assessment Update Findings
Appendix J Biological Resources Section
Appendix K Tree Survey Report for the Emerson Property and Off-Site Areas
Appendix L Geotechnical Investigation, Exploration Report: Southern 140 Acres, Emerson Property
Appendix M Geology Report for the Dutch Slough Properties Draft EIR
Appendix N Archaeological Resources Assessment for the Emerson Property
Appendix O Groundwater Study for Emerson and Burroughs Property
Appendix P Preliminary Stormwater Management Plan for the Emerson Property
Appendix Q SB 610 Water Supply Assessment for the Emerson Property Project

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

1. INTRODUCTION

Introduction

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

Project Description

The proposed project site is bounded by the Cypress Grove residential subdivision and Delta Vista Middle School to the west, the Gilbert property to the east, Cypress Road to the south, and the Contra Costa Water District Canal (CCWD/USBR Canal) to the north. A 55-acre portion of land immediately to the north of the CCWD/USBR canal and the project site at the end of Sellers Avenue is held in escrow, pursuant to a Memorandum of Understanding and Development Agreement, for future conveyance to the City of Oakley as a community park.

The proposed 140-acre Emerson Property project includes the development of up to 578 residential units and 23.74 acres of commercial uses, and would include trails, a park, levees, a stormwater detention pond, and the infrastructure improvements necessary to accommodate the new development located in the City of Oakley, Contra Costa County, California (Please refer to Chapter 3 of this Draft EIR for a detailed project description).

Purpose of the EIR

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

CEQA requires the preparation of an EIR prior to approving any project that may have a significant effect on the environment. For the purposes of CEQA, the term *project* refers to the whole of an action, which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section

15378[a]). With respect to the Emerson Property project, the City has determined that the proposed development is a *project* within the definition of CEQA, which has the potential for resulting in significant environmental effects.

The EIR is an informational document that apprises decision makers and the general public of the potential significant environmental effects of a proposed project. An EIR must describe a reasonable range of feasible alternatives to the project and identify possible means to minimize the significant effects. The lead agency, which is the City of Oakley for this project, is required to consider the information in the EIR along with any other available information in deciding whether to approve the application. The basic requirements for an EIR include discussions of the environmental setting, environmental impacts, mitigation measures, alternatives, growth-inducing impacts, and cumulative impacts.

TYPE OF DOCUMENT

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

EIR PROCESS

The EIR process begins with the decision by the lead agency to prepare an EIR, either during a preliminary review of a project or at the conclusion of an Initial Study. Once the decision is made to prepare an EIR, the lead agency sends a Notice of Preparation (NOP) to appropriate government agencies, and when required, to the State Clearinghouse (SCH) in the Office of Planning and Research (OPR), which will ensure that responsible State agencies reply within the required time. The SCH assigns an identification number to the project, which then becomes the identification number for all subsequent environmental documents on the project. Applicable agencies have 30 days to respond to the NOP, indicating, at a minimum, reasonable alternatives and mitigation measures they wish to have explored in the Draft EIR and if they will be responsible agencies or trustee agencies for the project. An NOP was prepared for the proposed project and was circulated from May 23, 2007 to June 22, 2007. A public scoping meeting was held on June 6, 2007.

As soon as the Draft EIR is completed, a Notice of Completion (NOC) is filed with the OPR and public notice is published to inform interested parties that a Draft EIR is available for agency and/or public review, and to provide information regarding location of drafts and any public meetings or hearings that are scheduled. The Draft EIR is circulated for a minimum of 45 days, during which time reviewers may make comments. The lead agency must evaluate and respond to comments in writing, describing the disposition of any significant environmental issues raised and explaining in detail the reasons for not accepting any specific comments concerning major environmental issues. If the comments received result in the addition of significant new

information to an EIR after public notice is given, the revised EIR or affected chapters must be recirculated for another public review period with related comments and responses.

Once the lead agency is satisfied that the EIR has adequately addressed the pertinent issues in compliance with CEQA, a Final EIR will be prepared, which is made available for review by the public and commenting agencies. Before approving a project, the lead agency shall certify that the Final EIR has been completed in compliance with CEQA, presented to the decision-making body of the lead agency, and reviewed and considered by that body, and that the Final EIR reflects the lead agency's independent judgment and analysis.

The findings of fact prepared by the lead agency must be based on substantial evidence in the administrative record and must include an explanation that bridges the gap between evidence in the record and the conclusions required by CEQA.

Based on these findings, the lead agency may also prepare a Statement of Overriding Considerations (Statement) as part of the project approval process. If the decision-making body elects to proceed with a project that would have unavoidable significant impacts, then a Statement explaining the decision to balance the benefits of the project against unavoidable environmental impacts must be prepared.

SCOPE OF THE DRAFT EIR

State CEQA Guidelines Section 15126.2(a) states, in pertinent part:

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

Pursuant to these guidelines, the scope of this Draft EIR addresses specific issues and concerns identified as potentially significant. The potentially significant issues and concerns were determined based on the preparation of an Initial Study. The Initial Study prepared for the proposed project concluded that several environmental issues would result in potentially significant impacts. The complete text of the Initial Study is contained in Appendix C.

Resources identified for study in this Draft EIR include the following:

- Land Use and Agricultural Resources (including Williamson Act contracts);
- Traffic and Circulation;
- Air Quality;
- Noise;
- Hazards;
- Biological Resources;
- Geology and Soils;
- Historical and Cultural Resources;

- Hydrology, Water Supply, and Water Quality; and
- Public Services and Utilities.

The evaluation of effects is presented on a resource-by-resource basis in Chapters 4.2 through 4.11 of the Draft EIR. Each chapter is divided into four sections: Introduction, Environmental Setting, Regulatory Context, and Impacts and Mitigation Measures.

Impacts that are determined to be significant in Chapter 4, and for which feasible mitigation measures are not available to reduce those impacts to a less-than-significant level, are identified as *significant and unavoidable*. Chapter 6 of the Draft EIR presents a discussion and comprehensive list of all significant and unavoidable impacts identified in Chapters 4.2 through 4.11.

COMMENTS RECEIVED ON THE NOTICE OF PREPARATION

During the open comment period, the City of Oakley received 13 comment letters on the NOP. A copy of each letter is provided in Appendix B of this Draft EIR. The following letters were authored by representatives of State and local agencies and other interested parties:

- Armor, Charles – Department of Fish & Game
- Boles, Kevin – Public Utilities Commission (June 1, 2007)
- Boles, Kevin – Public Utilities Commission (June 19, 2007)
- Fiack, Linda – Delta Protection Commission
- Gonzales, John A. - Resident
- Leahy, Brian – Department of Conservation
- Miller, Heidi – Department of Energy
- Piros, Mark – Department of Toxic Substances Control
- Rinehart, Vickey – Knightsen School District
- Rogers, Richard – Oakley Union Elementary School District
- Sable, Timothy – Department of Transportation
- Skrel, Jennifer – Ironhouse Sanitary District
- Townsend, Jim – East Bay Regional Park District

The following list, categorized by issue, summarizes the concerns expressed in the NOP comment letters, and indicates the chapter in which the issues and concerns are addressed:

Land Use and Agricultural Resources (Chapter 4.2)	*Concerns related to the proposed project:* • Conversion of prime farmland, impacts on agricultural operations, and cumulatively considerable impacts on agricultural resources. • Compatibility with adjacent agricultural land uses.
Traffic and Circulation (Chapter 4.3)	*Concerns related to the proposed project:* • Impact from increased traffic volume on Delta Road, in front of Knightsen Elementary School. • Identification of impacts to Main Street (State Route 4), with and without the proposed project.

	• Address safety for motorists and pedestrians; specifically, grade separations for major thoroughfares, improvements to existing at-grade highway-rail crossings, and appropriate fencing to limit access of trespassers onto the railroad right-of-way. • Provide safe pedestrian and bicycle crossing at the intersection of the proposed Marsh Creek Regional Trail and Sellers Avenue.
Hazards (Chapter 4.6)	*Concerns related to the proposed project*: • Presence of possible on-site soil and groundwater contaminants.
Biological Resources (Chapter 4.7)	*Concerns related to the proposed project*: • Project compliance with the draft Habitat Conservation Plan/Natural Communities Conservation Plan (NCP/NCCP) for Contra Costa County. • Impacts to federally-listed endangered, State-listed endangered, and special-status species.
Hydrology, Water Supply, and Water Quality (Chapter 4.10)	*Concerns related to the proposed project*: • Degradation of water quality for residents of the town of Knightsen. • Impacts to existing groundwater wells and water supply in the town of Knightsen. • Flood risks and levee requirements.
Public Services and Utilities (Chapter 4.11)	*Concerns related to the proposed project*: • Provide adequate fire suppression services. • Current and future school needs of the Oakley Union Elementary School District. • Routing of wastewater flows from the proposed project.
Initial Study (Appendix C)	*Concerns related to the proposed project*: • Potential encroachment into Western Area Power Administration (WAPA) easement.

Organization of the Draft EIR

The Emerson Property project Draft EIR is organized into the following chapters:

Chapter 1 – Introduction
Provides an introduction and overview describing the intended use of the Draft EIR and the review and certification process, as well as summaries of the chapters included in the Draft EIR and summaries of the environmental resources that would be impacted by the project.

Chapter 2 – Executive Summary
Summarizes the elements of the project and the environmental impacts that would result from implementation of the proposed project, describes proposed mitigation measures and indicates the level of significance of impacts after mitigation. Summarizes alternatives that would reduce or avoid significant impacts.

Chapter 3 – Project Description
Provides a detailed description of the proposed project, including the project's location, background information, major objectives, and technical characteristics.

Chapter 4 – Environmental Assessment of the Emerson Property Project
Contains a project-level and cumulative analysis of environmental issue areas associated with the proposed project. Each technical chapter contains four sections: Introduction, Environmental Setting, Regulatory Context, and Impacts and Mitigation Measures.

Chapter 5 – Alternatives Analysis
Describes the alternatives to the proposed project, their respective environmental effects, and a determination of the environmentally superior alternative.

Chapter 6 – Statutorily Required Sections
Provides discussions required by CEQA regarding impacts that would result from the proposed project, including a summary of cumulative impacts, potential growth-inducing impacts, significant and unavoidable impacts, and significant irreversible changes to the environment.

Chapter 7 – EIR Authors / Persons Consulted
Lists report authors who provided technical assistance in the preparation and review of the Draft EIR.

Chapter 8 – References
Provides bibliographic information for all references and resources cited.

Appendices
Includes the NOP, NOP comment letters, the Initial Study, and additional technical information.

2. EXECUTIVE SUMMARY

2. EXECUTIVE SUMMARY

Introduction

The Executive Summary chapter provides an overview of the Emerson Property project (See Chapter 3, Project Description, for further detail), and summarizes the conclusions of the environmental analysis, provided in detail in Chapter 4. This chapter also summarizes the alternatives to the proposed project that are described in Chapter 5, Alternatives Analysis, and identifies the Environmentally Superior Alternative. Table 2-1, at the end of this chapter, provides a summary of the environmental effects of the proposed project identified in each technical chapter. The table contains the environmental impacts, the significance of the impacts for the proposed project, the proposed mitigation measures, and the significance of the impacts after the mitigation measures are implemented.

Project Description and Location

The proposed 140-acre Emerson property is located in the City of Oakley, Contra Costa County, California (See Figure 3-1, Regional Location Map, and Figure 3-2, Project Location Map in Chapter 3 of this Draft EIR).

The proposed project site is situated west of the vacant Gilbert and Burroughs properties. The City of Oakley 2020 General Plan places the proposed project site within a larger planning area designated as the Cypress Corridor Planning Area. The Gilbert and Burroughs property sites are also part of the Cypress Corridor Planning Area, and development of these sites is anticipated in the future. The proposed project is bounded by the Cypress Grove subdivision, Delta Vista Middle School and Iron House Elementary School to the west, Cypress Road to the south, Sellers Avenue to the east, and the Contra Costa Water District canal (CCWD/USBR canal) to the north. The CCWD/USBR canal separates the project site from the open space acreage to the north. Approximately 1,200 acres to the north of the canal is currently owned by the State of California and is anticipated to be restored to wetlands in the near future. A 55-acre portion of land immediately to the north of the CCWD/USBR canal and the project site at the end of Sellers Avenue is held in escrow, pursuant to a Memorandum of Understanding and Development Agreement, for future conveyance to the City of Oakley as a community park.

The proposed Tentative Map for the project site includes residential and commercial development, trails, a park, levees, storm water detention pond, and the infrastructure improvements necessary to accommodate the new development (See Figure 3-3, Emerson Tentative Map in Chapter 3 of this Draft EIR).

The residential component of the proposed project development includes 578 residential units.

ENVIRONMENTAL IMPACTS AND MITIGATION

The City of Oakley adopted the City's first comprehensive General Plan in 2002, following certification of a programmatic EIR.

Under CEQA, a significant effect on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, mineral, flora, fauna, ambient noise, and objects of historic or aesthetic significance. Implementation of the proposed project could result in significant impacts on those resource areas discussed below.

The mitigation measures associated with the proposed project are summarized in Table 2-1. The mitigation measures presented in the Draft EIR will form the basis of the Mitigation Monitoring Plan. An impact that would remain significant after implementation of mitigation measures is considered an unavoidable adverse impact.

The following list of potential environmental effects, mitigation measures, and alternatives constitutes the identification of issues to be resolved and areas of controversy as required under CEQA Guidelines §15123(b).

Land Use and Agricultural Resources

The Land Use and Agricultural Resources chapter evaluates the consistency of the proposed project with the City of Oakley's adopted plans and policies including the Development Agreement. The General Plan designated the project area for residential development in 1990. Prior to that, the project site was designated for residential uses as an unincorporated area within Contra Costa County. The chapter further assesses the compatibility of the proposed project with the surrounding land uses, both existing and proposed. The land use section of the chapter identifies land use impacts regarding any inconsistencies with adopted plans and policies created by the approval of the proposed project. This chapter of the EIR also summarizes the status of the existing agricultural resources of the site and the site vicinity, including identification of any prime/unique farmland or farmland of Statewide Importance on the project site. The analysis further includes a discussion regarding conversion of farmland to non-agricultural uses. This chapter of the EIR includes an analysis of the existing setting, identification of the thresholds of significance, identification of impacts, and the development of mitigation measures and monitoring strategies.

The Land Use and Agricultural Resources chapter identifies the following as less-than-significant land use impacts: land use compatibility impacts from the agricultural-residential interface between existing and proposed uses in the project area; impacts resulting from inconsistency with General Plan and zoning goals and policies; and cumulative land use impacts. The loss of Prime Farmland and Farmland of Statewide Importance was analyzed at programmatic level in the General Plan EIR. The General Plan EIR determined that the loss of Prime Farmland would be a less-than-significant impact. Because the proposed project would be required to implement General Plan policies and programs, including those that are designed to preserve the agricultural heritage of Oakley and the Development Agreement, for which a

negative declaration was adopted, a less-than-significant impact would occur. In addition, the site is not under any Williamson Act contracts. The cumulative environmental effect on agriculture is also identified as less-than-significant in the Land Use and Agricultural Resources chapter.

Traffic and Circulation

The Traffic and Circulation chapter is based on a traffic study prepared by Abrams Associates. The chapter includes evaluation of the operations at each of the study intersections for five different scenarios. The scenarios include an evaluation of the existing conditions, existing plus planned and approved projects (background) conditions, background plus project conditions, cumulative without project conditions, and cumulative with project conditions. In addition, a detailed site circulation and access discussion is included to determine the adequacy of the proposed site plan in accordance with generally accepted traffic engineering standards. Emergency access, transit, pedestrian, and bicycle facilities are also discussed and analyzed to ensure adequacy of the proposed facilities based upon existing City of Oakley plans. This chapter of the EIR also includes an analysis of the existing setting, identification of the thresholds of significance, identification of impacts, and the development of mitigation measures and monitoring strategies.

The following impacts are identified as less-than-significant in the Draft EIR: impacts related to site access and circulation, impacts regarding emergency vehicle access, and impacts related to adequate parking. The remaining impacts are identified as potentially significant, as follows: the project's contribution to unacceptable LOS operations at the Main Street/Rose Avenue, Main Street/O'Hara Avenue, Main Street/Brownstone Road, Main Street/Delta Road, and Laurel Road/Rose Avenue intersections; an increase in traffic flows that would create congestion at the current railroad crossing at Cypress Road; lack of bus service to the project area; cumulative impacts of the proposed project at the West Cypress Road/O'Hara Avenue and Laurel Road/Empire Avenue intersections. However, these impacts were all found to be less-than-significant after implementation of mitigation measures identified in the chapter.

Air Quality

The Air Quality chapter is based on an air quality analysis conducted by Don Ballanti, Certified Consulting Meteorologist. The chapter summarizes the regional air quality setting, with a description of the climate and meteorology of the project area, historical air quality data, and current efforts to attain and maintain the State and federal air quality standards. The chapter summarizes air quality data from the closest monitoring station to the project site. The chapter also quantifies agricultural emissions from current use of the project site, and identifies sensitive receptors for air pollutants in the vicinity of the project or along roads providing access to the site. Carbon monoxide levels near intersections selected as having the greatest potential of carbon monoxide problems are also identified. In addition, emissions from construction equipment exhaust and windblown dust are identified. The level of significance of impacts identified in the analyses is determined using the thresholds of significance recommended by the Bay Area Air Quality Management District, and mitigation measures and monitoring strategies are recommended for all impacts identified to be significant.

Impacts related to increased TAC emissions as a result of construction, as well as impacts related to the effects of increased traffic and carbon monoxide concentrations and project-specific regional air pollutant emissions, are identified as less-than-significant. Impacts related to construction dust emissions are identified as potentially significant prior to mitigation and less-than-significant after implementation of the identified mitigation measures. A significant and unavoidable impact related to project-level and cumulative effects of the proposed project on air quality is also identified.

Noise

The Noise chapter is based on an environmental noise assessment performed by Illingworth and Rodkin, Inc. The chapter includes an analysis of the existing setting, identification of the thresholds of significance, impacts, and mitigation measures. The noise chapter evaluates potential noise impacts associated with traffic activities, construction activities, and commercial operational impacts.

The Noise chapter identifies noise impacts related to near-term permanent noise increases at existing residences as less-than-significant. Impacts related to land use compatibility, construction noise, and commercial operational noise impacts, are identified as less-than-significant with implementation of the mitigation measures in the Noise chapter. Cumulative impacts related to permanent noise increases at existing residences are identified as significant and unavoidable.

Hazards

The Hazards chapter analyzes the existing setting, describes existing hazardous materials on-site, and determines if the proposed project would exacerbate or create hazardous conditions in the area, or if the proposed project would bring people into contact with hazardous materials or substances. The chapter identifies any hazardous materials or substances that may be present at the project site or adjacent sites and identifies mitigation measures designed to reduce their impacts. This chapter identifies the thresholds of significance and impacts, and specifies mitigation measures.

The Hazards chapter concludes that the following impacts would be less-than-significant: presence of pesticide and/or herbicide residues on the project site; impacts related to the underground storage tanks at the Blue Star Gas station southeast of the project site; impacts involving possible oil spillage from past site uses; potential hazards associated with the proposed gas station on the project site; potential hazards associated with the future gas station on the project site; and long-term hazards-related impacts from the proposed project in combination with existing and future developments in the Oakley area. The following impacts are identified as potentially significant prior to mitigation and less-than-significant with the implementation of the mitigation measures identified: impacts to the off-site pipeline from project construction activities; impacts related to the presence of asbestos and lead particles on the project site; exposure of residents to safety hazards due to the construction of additional residences near the Contra Costa Canal and the stormwater detention ponds; and exposure of project residences to wildland fires.

Biological Resources

The Biological Resources chapter is based on an assessment prepared by Sycamore Associates and includes a description of the potential effects on plant communities, wildlife, and wetlands, including adverse effects on rare, endangered, candidate, sensitive, and special-status species that were identified during site reconnaissance. In addition, the chapter assigns mitigation measures, if feasible, to limit the impacts to a less-than-significant level. In addition, this chapter identifies the required permits relating to biological resources.

The Biological Resources chapter concludes that project impacts to wildlife corridors, impacts to special-status fish species, and special-status dune and sand mound insects would be less-than-significant. However, the following impacts are identified as potentially significant but less-than-significant after implementation of mitigation measures identified in the chapter: impacts to jurisdictional waters of the U.S. and waters of the State; impacts to protected and heritage trees; impacts to the silvery legless lizard; impacts to the giant garter snake; impacts to the western pond turtle; impacts to the western burrowing owl; impacts to raptors and migratory birds; impacts to the Swainson's hawk; impacts to special-status bat species; and contribution to cumulative impacts to biological resources in the project area.

Geology and Soils

The Geology and Soils chapter relies on technical soils reports prepared by ENGEO Inc. and Kleinfelder. This chapter summarizes the setting, and describes the potential effects from earthquakes, landslides, and soil liquefaction, as well as identifies any unique geological features within the project site. Soil types, their characteristics, and their impacts on construction are also addressed. The chapter includes an analysis of the existing setting, and identifies the thresholds of significance, impacts, and mitigation measures.

The Geology and Soils chapter concludes that cumulative impacts related to geological impacts and hazards would be less-than-significant. The following impacts would be potentially significant prior to mitigation: damage to foundations, pavements, and other structures constructed within the project site as a result of heaving and settlement of expansive soils; impacts related to weak or compressible clay; loss of structural support due to potential liquefaction; increased soil erosion, wind and water erosion, and siltation of local drainage during and after construction from excavation and grading activities; and grading and import of fill. However, these potentially significant impacts would be less-than-significant after implementation of mitigation measures identified in the Draft EIR.

Historical and Cultural Resources

The Historical and Cultural Resources chapter summarizes the setting and describes the potential construction-related effects on historical, archaeological, and paleontological resources. This chapter of the EIR includes an analysis of the existing setting, identification of the thresholds of significance, identification of impacts, and the development of mitigation measures and monitoring strategies.

The Historical and Cultural Resources chapter concludes that the following impacts would be potentially significant prior to mitigation and less-than-significant after implementation of identified mitigation measures: unearthing of previously unknown archaeological resources as a result of project grading; and the project's contribution to cumulative cultural resources impacts. A significant and unavoidable impact related to a substantial adverse change in the significance of a historical resource was also identified.

Hydrology, Water Supply, and Water Quality

The Hydrology, Water Supply, and Water Quality chapter of the EIR describes the existing setting and the project's potential effects on water quality, storm drainage, groundwater, and water supply. The section addresses issues regarding water quality, drainage patterns, erosion, siltation and other effects on existing watercourses, and the potential impacts of placing people or structures in danger from flooding and the subsequent demand for water. Mitigation measures designed to reduce impacts to a less-than-significant level are assigned to reduce any potential impacts that are identified in the analysis.

The Hydrology, Water Supply, and Water Quality chapter concludes that the following impacts would be less-than-significant: exposure of future and adjacent residents to flood hazard; change in peak stormwater flows; degradation of water quality in the Contra Costa Canal and Dutch Slough; groundwater interaction with the stormwater pond well; the project's contribution to cumulatively increased stormwater drainage into the existing drainage system; and the project's contribution to cumulative water quality impacts downstream of the project site. In addition, the following impacts are identified as less-than-significant with implementation of the mitigation measures identified in the chapter: maintenance of levees surrounding the project; adequate water supply and delivery for new residents; maintenance of stormwater lake; and maintenance of the storm drain system.

Public Services and Utilities

The Public Services and Utilities chapter summarizes setting information and identifies potential new demand for services, including wastewater systems, solid waste disposal, law enforcement, fire protection, schools, libraries, parks and recreation, and electric power. This chapter includes an analysis of the existing setting, identification of the thresholds of significance, impacts, and mitigation measures.

The Public Services and Utilities chapter concludes that the following impacts would be less-than-significant: impacts related to adequate wastewater treatment and infrastructure capacity and the need for additional waste disposal/recycling services. The chapter indicates that ratios of law enforcement personnel to residents, fire department personnel to residents, school district capacity, adequate provision of parks and recreation space for new residents, and cumulative impacts to wastewater collection facilities would be potentially significant prior to mitigation but less-than-significant after implementation of the identified mitigation.

As stated in Chapter 1, Introduction, the Initial Study prepared for the proposed project concluded that the environmental issues addressed in the Draft EIR would result in a potentially

significant impact. The remaining issues were addressed in the Initial Study, which can be found in Appendix C.

Summary of Project Alternatives

The following summary provides brief descriptions of the four alternatives to the proposed project that are evaluated in this Draft EIR. For a more thorough discussion of project alternatives, please refer to Chapter 5, Alternatives Analysis.

No Project/No Development Alternative

The No Project/No Development Alternative would allow the continued existence of the proposed project site in the site's current agricultural state. While this alternative would not meet with project objectives and would not be consistent with City's General Plan or the Development Agreement, CEQA requires that the No Project/No Development Alternative be addressed.

Minimum Density Clustered Development Alternative

The Minimum Density Clustered Development Alternative would reduce the total number of units on the proposed project site to 564 total units, the lowest density allowable by the Development Agreement for the proposed project site. In addition, the commercial area would be reduced to 5.7 acres in conformance with the General Plan designation. The park uses would remain the same under this alternative. However, the residences would be clustered into denser groupings, creating opportunities to avoid certain resources as well as creating additional open space and greenbelt areas. The alternative would result in fewer impacts than the proposed project related to the following: Transportation and Circulation; Air Quality; Noise; Hazards; Biological Resources; Historical and Cultural Resources; and Hydrology, Water Supply and Water Quality. The alternative would result in greater impacts than the proposed project related to the following: Land Use and Agriculture; and Public Services and Utilities

Off-Site Commercial Alternative

The Off-Site Commercial Alternative would eliminate the presence of the commercial portion of the proposed project, assuming that the commercial area included in the proposed project could be relocated to the Burroughs property located to the east of the proposed project site. Under this alternative, the proposed project would include a total of 863 residential units, the maximum allowable under the Development Agreement for the proposed project. The alternative would result in fewer impacts than the proposed project related to the following: Land Use and Agriculture; and Transportation and Circulation. The alternative would result in greater impacts than the proposed project related to the following: Air Quality; Noise; Hazards; Hydrology, Water Supply and Water Quality; and Public Services and Utilities.

On-Site School Alternative

The On-Site School Alternative would include an elementary school with play fields and a tot lot on a 4.3-acre portion of the proposed project site. Under this Alternative, the residential

component of the proposed project would be reduced from 578 single-family units to 522 single-family units. In addition, under this Alternative, the project would include less acreage for parks/open space. Under this Alternative, the 23.74-acre commercial component and the approximately six-acre stormwater pond would remain. The on-site school alternative would result in fewer impacts with regard to hydrology and water supply, significant and unavoidable impacts to noise, and similar impacts to other areas of study when compared to the proposed project.

Environmentally Superior Alternative

For this project, the environmentally superior alternative would result in development of the site under the Minimum Density Clustered Development Alternative. Impacts to aesthetics would be reduced because fewer housing units would be developed, resulting in less introduction of light and glare to the area. Because fewer residents would occupy the area, fewer vehicle trips would be made, thereby reducing traffic, air quality, and noise impacts. In addition, hydrology, water supply, and water quality impacts would be reduced under the Minimum Density Clustered Development Alternative because fewer impervious surfaces would be created compared to the proposed project due to the fewer number of rooftops. Hazards would also be reduced because fewer people would be exposed to potential hazards such as pesticides and asbestos. Finally, impacts to cultural resources would be reduced due to the fewer number of site pads graded and the decreased risk of cultural resource disturbance. Thus, although impacts would still occur related to land use and agriculture, biological resources, geology, and public services, the Minimum Density Clustered Development Alternative is considered the environmentally superior alternative.

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.2 Land Use and Agricultural Resources			
4.2-1 Compatibility with existing or planned surrounding land uses.	LS	*4.2-1* *None required.*	N/A
4.2-2 Impacts associated with new sources of light and glare.	PS	*4.2-2* *In conjunction with development of the proposed project, the developer shall shield all on-site lighting so that the light is directed within the project site and does not illuminate adjacent properties. In addition, the project applicant shall submit a detailed lighting plan, showing the locations and design of shielded light fixtures, for the review and approval of the Community Development Department, the Police Department, and the Engineering Department in conjunction with the approval of Improvement Plans.*	
4.2-3 Consistency with adopted General Plan designations and policies.	LS	*4.2-3* *None required.*	N/A
4.2-4 Consistency with existing zoning.	LS	*4.2-4* *None required.*	N/A
4.2-5 Increases in the intensity of land uses in the region due to the proposed project and all other projects in the Oakley area.	LS	*4.2-5* *None required.*	N/A
4.2-6 Impacts to Williamson Act contracts and agricultural zoning.	LS	*4.2-6* *None required.*	N/A

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.2-7 Conversion of Prime Farmland to urban uses.	LS	*4.2-7 None required.*	N/A
4.2-8 Cumulative loss of agricultural land.	LS	*4.2-8 None required.*	N/A
4.3 Transportation and Circulation			
4.3-1 Project contribution to unacceptable LOS operations at the intersections of East Cypress Road and the minor (stop-controlled) shopping center entrance, and at Main Street at O'Hara Avenue, Cypress Road, and at Malicoat Avenue.	PS	*4.3-1(a) Prior to final map approval, the proposed project would contribute to the mitigation of the above-identified impacts by paying the proposed project's fair share of the cost to implement the improvements through the payment of regional traffic fees to the East Contra Costa Regional Fee and Finance Authority (ECCRFFA) and the City's Transportation Impact Fee. The amount of the project's fair-share fee shall be determined by the City prior to the final map approval.* *4.3-1(b) The minor (stop-controlled) shopping center driveway on East Cypress Road shall be restricted to right-turns only for both ingress and egress.*	LS
4.3-2 Impacts to traffic at nearby unsignalized intersections.	PS	*4.3-2 Implement Mitigation Measure 4.3-1(a).*	LS
4.3-3 The project could result in impacts to the railroad crossing on Cypress Road.	PS	*4.3-3 Implement Mitigation Measure 4.3-1(a).*	LS
4.3-4 Impacts related to alternative transportation facilities.	PS	*4.3-4 The project shall include bus stops on the north side of Cypress Road near Sellers Avenue. The final design and location of these bus stops shall be subject to the approval of the Oakley City Engineer prior to approval of final*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		maps. The City Engineer shall coordinate with Tri-Delta Transit as to the placement of the bus stops.	
4.3-5 Impacts related to site access and circulation.	LS	*4.3-5* *None required.*	N/A
4.3-6 Impacts regarding emergency vehicle access on and surrounding the proposed project site.	LS	*4.3-6* *None required.*	N/A
4.3-7 Impacts relating to the presence and availability of adequate parking.	LS	*4.3-7* *None required.*	N/A
4.3-8 The proposed project would result in impacts to intersections under cumulative conditions.	PS	*4.3-8(a)* *The Laurel Road/Empire Avenue intersection shall be revised to include exclusive right-turn lanes on all approaches. This improvement is not currently included in the City's Transportation Impact Fee Program. If upon issuance of the first building permit for the project, the improvement is included in the City's Transportation Impact Fee Program, then the project applicant shall contribute to the mitigation by paying their fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit. In the event the improvement has not been added to the City's Transportation Impact Fee Program upon issuance of the first building permit, the project applicant shall install the improvement and be eligible for reimbursement from the Transportation Impact Fee Program.* *4.3-8(b)* *Implement Mitigation Measure 4.3-1(a).*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.4 Air Quality			
4.4-1 Impacts related to construction dust emissions.	PS	*4.4-1 Consistent with guidance from the BAAQMD, and prior to issuance of a grading permit, the applicant shall incorporate the following mitigation measures into the construction contract documents, which shall be submitted for the review and approval of the City Engineer:* • *Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers or dust palliatives;* • *Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard;* • *Pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites;* • *Sweep daily (preferably with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; water sweepers shall vacuum up excess water to avoid runoff-related impacts to water quality;* • *Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets;*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *Apply non-toxic soil stabilizers to inactive construction areas;* • *Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.);* • *Limit traffic speeds on unpaved roads to 15 mph;* • *Install sandbags or other erosion control measures to prevent silt runoff to public roadways; and* • *Replant vegetation in disturbed areas as quickly as possible.*	
4.4-2 Impacts related to increased TAC emissions as a result of construction.	LS	*4.4-2* *None required.*	N/A
4.4-3 Impacts related to effects of increased traffic and carbon monoxide concentrations.	LS	*4.4-3* *None required.*	N/A
4.4-4 Impacts related to regional air pollutant emissions as a result of the proposed project.	PS	*4.4-4* *Consistent with guidance from the BAAQMD, and prior to issuance of a grading permit, the applicant shall incorporate mitigation measures to reduce the impact to the highest degree feasible. The applicant shall implement mitigation measures, submitted for the review and approval of the City Engineer. The mitigation measures could include, but are not limited to, the following:* • *Provide bicycle lanes, sidewalks and/or paths,*	SU

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		connecting project residences to adjacent schools, parks, the nearest transit stop and nearby commercial areas. Provide a satellite tele-commute center within or near the development. • *Provide secure and conveniently placed bicycle parking and storage facilities at parks and other facilities.* • *Implement feasible travel demand management (TDM) measures for a project of this type. This would include a ride-matching program, coordination with regional ride-sharing organizations, provision of transit information, and provision of shuttle service to major destinations such as the Pittsburg BART station.* • *Allow only natural gas fireplaces, pellet stoves or EPA-Certified wood-burning fireplaces or stoves should be permitted. Conventional open-hearth fireplaces should not be permitted. EPA-Certified fireplaces and fireplace inserts are 75 percent effective in reducing emissions from this source.* • *Use electric lawn and garden equipment for landscaping.* • *Construct transit amenities such as bus turnouts/bus bulbs, benches, shelters, etc.* • *Provide direct, safe, attractive pedestrian access from project land uses to transit stops and adjacent development.*	

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *Utilize reflective (or high albedo) and emissive roofs and light colored construction materials to increase the reflectivity of roads, driveways, and other paved surfaces, and include shade trees near buildings to directly shield them from the sun's rays and reduce local air temperature and cooling energy demand.* *The commercial portion of the project should be required to apply TSM measures to reduce trips. Appropriate strategies would be:* • *Provide physical improvements, such as sidewalk improvements, landscaping and bicycle parking that would act as incentives for pedestrian and bicycle modes of travel.* • *Connect site with regional bikeway/pedestrian trail system.* • *Provide transit information kiosks.* • *Implement feasible travel demand management (TDM) measures for a project of this type. This would include a ride-matching program, guaranteed ride home programs, coordination with regional ridesharing organizations and transit incentives program.* • *Provide showers and lockers for employees bicycling or walking to work.* • *Provide secure and conveniently located bicycle*	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		parking and storage for workers and patrons • *Provide electric vehicle charging facilities* • *Provide preferential parking for Low Emission Vehicles (LEVs).* • *Utilize reflective (or high albedo) and emissive roofs and light colored construction materials to increase the reflectivity of roads, driveways, and other paved surfaces, and include shade trees near buildings to directly shield them from the sun's rays and reduce local air temperature and cooling energy demand.*	
4.4-5 Impacts related to the cumulative effects of the proposed project on air quality.	S	*4.4-5* *Implement Mitigation Measure 4.4-4.*	SU
4.4-6 Cumulative impacts related to GHGs.	N/A	*4.4-6* *Not applicable.*	N/A
4.5 Noise			
4.5-1 Noise impacts related to land use compatibility of the proposed project and surrounding properties.	PS	*4.5-1(a)* *Prior to occupancy, the applicant shall construct noise barriers to reduce noise at exterior use residential areas adjacent to Cypress Road to 65 dB L_{dn} or lower. An acoustical analysis shall be conducted using the final detailed design of the project to ensure that the noise barriers reduce the noise levels to 65 dBA L_{dn}, or lower, for the review and approval of the City Engineer. The final detailed design of the heights and limits of the barriers shall be confirmed by the Community Development Director at the time the final grading plan is submitted.*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		The applicant/developer shall include soundwalls that conform to the following standards on the Improvement Plans to be approved by the City Engineer prior to the approval of the Improvement Plans: • *Barriers shall be constructed solidly over the entire surface and at the base. Openings or gaps between barrier materials or the ground decrease the noise reduction provided by a noise barrier; and* • *Suitable materials for barrier construction shall have a minimum surface weight of 3 lbs./ft^2 (such as one-inch thick wood, masonry block, concrete, or metal).* *4.5-1(b)* *Project-specific acoustical analyses shall be conducted during final detailed design of the project when building elevations and floor plans are available in order to determine how interior noise levels can be reduced to 45 dBA L_{dn} or lower, for the review and approval of the City Engineer. The future noise environment at the project site shall require sound rated construction methods and the provision of forced-air mechanical ventilation so that windows could be kept closed at the occupants' discretion to control noise. Noise insulation features include sound-rated windows, sound-rated doors, and careful attention to exterior wall detailing (including caulking and possible sound insulating upgrades such as resilient channels, or*	

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		stucco exterior siding). In addition the final design shall include a 30 percent window-to-wall ratio of the exteriors facing Cypress Road. The final detailed design of noise insulation features necessary to maintain interior noise levels at acceptable levels shall be completed at the time that the final plans are available and prior to the issuance of a building permit.	
4.5-2 Impacts related to permanent noise increases at existing residences.	LS	*4.5-2* *None required.*	N/A
4.5-3 Impacts related to construction noise.	PS	*4.5-3(a)* *Noise-generating activities at the construction site or in areas adjacent to the construction site associated with the project in any way shall be restricted to the hours of 7 a.m. to 6 p.m., Monday through Friday and 8 a.m. to 5 p.m. on Saturdays. Construction is prohibited on Sundays and City holidays unless prior authorization from the Community Development Director is obtained.* *4.5-3(b)* *The applicant/developer shall include the following mitigation measures on the Improvement Plans to be approved by the City Engineer prior to the approval of the Improvement Plans or initiation of any grading or construction activity:* • *Equip all equipment driven by internal combustion engines with intake and exhaust mufflers that are in good condition and appropriate to the equipment. Unnecessary idling*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		of internal combustion engines should be strictly prohibited; • *Stationary noise-generating equipment, such as air compressors or portable power generators, must be located the greatest distance applicable from sensitive receptors. Construct temporary noise barriers to screen stationary noise-generating equipment when located near adjoining sensitive land uses;* • *Utilize "quiet" air compressors and other stationary noise sources where technology exists;* • *Designate a "disturbance coordinator" who would be responsible for responding to any local complaints regarding construction noise. The disturbance coordinator will determine the cause of the noise complaints (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented; and* • *Notify prospective residents within the adjacent subdivision that the development of the commercial portion of the site would generate noise levels during construction that may be considered excessive or annoying.*	
4.5-4 Operational noise impacts to residences within the proposed project.	PS	*4.5-4(a) The applicant shall construct a noise barrier along the northern boundary of the commercial site. To be effective, the barriers should be constructed solidly over the entire surface and at the base. Openings or gaps between barrier*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		materials or the ground decrease the reduction provided by a noise barrier. Suitable materials for barrier construction should have a minimum surface weight of 3 lbs./ft^2. (such as one-inch thick wood, masonry block, concrete, or metal). An acoustical analysis shall be conducted using the final detailed design of the project to ensure that the noise barrier reduces operational noise levels by at least 8 dBA or more, for the review and approval of the City Engineer. The final detailed design of the height and limit of the barrier shall be confirmed by the Community Development Director at the time the final grading plan is submitted. *4.5-4(b) Deliveries shall be limited to daytime hours (7:30 a.m. to 9:00 p.m.) and the posted speed limit should not exceed 15 mph along the truck circulation route. These limits shall be clearly posted to advise delivery personnel as to the time and speed restrictions.* *4.5-4(c) Prior to final approval, the selection and location of mechanical equipment shall be submitted for the review and approval of the Community Development Director during the design phase of the project. Once the selection of the type of equipment and the placement of the equipment has been designed, the project plans should be reviewed by an acoustical specialist to verify that daytime and nighttime hourly noise standards are not exceeded at the property line. Potential mitigation for rooftop units*	

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		could include rooftop unit placement, orientation, screens, or parapet walls. *4.5-4(d)* *Parking lot cleaning activities behind the on-site commercial buildings proposed along the northern end of the commercial site shall be limited to 7:30 a.m. to 9:00 p.m.*	
4.5-5 Cumulative impacts related to permanent noise increases at existing residences.	S	*4.5-5* *None feasible.*	SU
4.6 Hazards			
4.6-1 Presence of pesticide and/or herbicide residues on the project site.	LS	*4.6-1* *None required.*	N/A
4.6-2 Impacts to the off-site pipeline from project construction activities.	PS	*4.6-2* *Prior to approval of Improvement Plans, the construction contractor, the developer, the pipeline owner, and a representative from the City's Engineering Department shall meet on the project site and prepare site-specific safety guidelines for construction in the field to the satisfaction of the City Engineer. The safety guidelines shall be noted on the improvement plans and be included in all construction contracts involving the project site.*	LS
4.6-3 Impacts involving possible oil spillage from past site uses.	LS	*4.6-3* *None required.*	N/A
4.6-4 Impacts related to the presence of asbestos and lead particles on the project site.	PS	*4.6-4* *Prior to issuance of a demolition permit by the City for any on-site structures, the project proponent shall provide a site assessment that determines whether any structures*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		to be demolished contain asbestos and/or lead paint. If structures do not contain asbestos or lead-based paint, further mitigation is not required. If any structures contain asbestos, the application for the demolition permit shall include an asbestos abatement plan consistent with local, state, and federal standards, subject to approval by the City Engineer. If lead-based paint is found, all loose and peeling paint shall be removed and disposed of by a licensed and certified lead paint removal contractor, in accordance with local, state, and federal regulations. The demolition contractor shall be informed that all paint on the buildings shall be considered as containing lead. The contractor shall take appropriate precautions to protect his/her workers, the surrounding community, and to dispose of construction waste containing lead paint in accordance with local, state, and federal regulations subject to approval of the City Engineer.	
4.6-5 Exposure of residents to safety hazards due to the construction of additional residences near the Contra Costa Canal and the stormwater detention pond.	PS	*4.6-5* *The project applicant/engineer shall submit a safety program for the proposed detention basin for the review and approval of the City Engineer prior to the approval of the improvement plans. The safety program shall address the public safety concerns associated with the development of the basins including but not limited to bank stabilization and restricting public access to the basin.*	LS
4.6-6 Exposure of proposed residences to wildland fires.	PS	*4.6-6(a)* *When residential structures are developed, an approved fire apparatus access shall be provided to within 150 feet of all portions of the first floor as measured by an approved route around the exterior of the building.*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		4.6-6(b) *The East Contra Costa Fire Prevention Department shall, as necessary, ensure the installation of radio repeater towers within the proposed project area. The location and design of any radio repeater towers shall be subject to the review and approval of the City Engineer and Community Development Department.* *4.6-6(c)* *Development of the site should be carried out in accordance with East Contra Costa Fire Prevention Department rules and regulations and the Uniform Building Code regulations adopted by the East Contra Costa Fire Prevention Department.* *4.6-6(d)* *Prior to approval of design review for residential structures, the applicant shall show that all roofs shall be Class A type.*	
4.6-7 Impacts related to the underground storage tanks at the Blue Star Gas station southeast of the project site.	LS	*4.6-7* *None required.*	N/A
4.6-8 Potential hazards associated with the future gas station on the project site.	LS	*4.6-8* *None required.*	N/A
4.6-9 Long-term hazards-related impacts from the proposed project in combination with existing and future	LS	*4.6-9* *None required.*	N/A

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance Prior to Mitigation		Mitigation Measures	Level of Significance After Mitigation
	developments in the Oakley area.				
			4.7 Biological Resources		
4.7-1	**Impacts to jurisdictional waters of the U.S. and waters of the State.**	PS	*4.7-1*	*The proposed project site is within the HCP Development Fee Zone I: Cultivated and Disturbed Lands. Prior to the issuance of a grading permit, the applicant shall pay the appropriate development fee (either the HCP Development Fee or the East Cypress HCP Memorandum of Understanding) for the proposed project site.*	LS
4.7-2	**Impacts to protected and heritage trees.**	PS	*4.7-2*	*Prior to the issuance of grading permits that would result in the removal of heritage trees, the applicant shall apply for a tree removal permit and submit a tree replacement plan for the review and approval of the Community Development Department. The plan shall be in compliance with the City of Oakley Zoning Ordinance. The plan shall include but not be limited to:* • *A map showing where the replacement and new trees will be located; and* • *Tree removal shall be mitigated at a minimum 3:1 ratio or other ratio acceptable to the City of Oakley, or an in-lieu fee shall be paid on a per-inch basis as determined by the Community Development Department.*	LS
4.7-3	**Impacts to special-status dune and sand mound insects.**	LS	*4.7-3*	*None required.*	N/A
4.7-4	**Impacts to special-status fish**	LS	*4.7-4*	*None required.*	N/A

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
species.			
4.7-5 Impacts to silvery legless lizard.	PS	*4.7-5 (a)* *Prior to the issuance of a grading permit, pre-construction surveys for silvery legless lizard shall be conducted within the sand mound habitat on the project site and submitted for the review and approval of the City of Oakley. If silvery legless lizard is not found, further mitigation is not required. If silvery legless lizard is found, Mitigation Measure 4.7-5(b) shall be implemented.* *4.7-5(b)* *The following measures shall be implemented to avoid potential take of silvery legless lizards during construction:* • *All construction activity within potential silvery legless lizard aquatic habitat shall be conducted between May 1 and October 1. This is the active period for silvery legless lizards and, if present, potential effects are lessened because the lizards are actively moving and can avoid danger.* • *Any dewatered areas within the sloughs shall remain dry for at least 15 consecutive days prior to excavating or filling of the dewatered area.* • *A qualified biologist shall provide project contractors and construction crews with a worker-awareness program appropriate for silvery legless lizards before any work within aquatic habitats or adjacent upland habitats is initiated. This program shall be used to describe the species, its habits and habitats, its legal*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		status and required protection, all applicable mitigation measures, and conditions of any state or federal permits as they relate to the silvery legless lizard. Proof of this instruction shall be submitted to the City. • *During project activities and following construction, all trash shall be properly contained, removed from the work site, and disposed of properly.* • *24-hours prior to construction activities, the project area shall be surveyed for silvery legless lizards. Survey of the project area shall be repeated if a lapse in construction activity of two weeks or greater has occurred. If a silvery legless lizard is encountered during construction, activities shall not begin until appropriate corrective measures have been completed or it has been determined that the lizard shall not be harmed. Any sightings and any incidental take shall be reported immediately to the USFWS at (916) 414-6600.* • *Movement of heavy equipment to and from the project site shall be restricted to established roadways to minimize disturbance.* • *After completion of construction activities, any temporary fill and construction debris shall be removed and, wherever feasible, disturbed areas shall be restored to pre-project conditions. Restoration work shall include replanting emergent vegetation.* • *All fueling and maintenance of vehicles or other*	

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		equipment and staging areas shall occur at least 66 feet from any water body. Prior to the onset of work, the applicant shall prepare a plan to allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. • *To control erosion during and after project implementation, the applicant shall implement best management practices, as identified by the Regional Water Quality Control Board. Drainage banks shall be stabilized by compacting additional soil after sediment and vegetation removal to minimize the potential for erosion. Additionally, during sediment and vegetation removal in a channel that still contains flowing water during August, September, and October, a silt fence shall be installed directly downstream of the project site. This will help to prevent silt accumulation downstream of the project site.* *4.7-5(c) Implement Mitigation Measure 4.7-1.*	
4.7-6 Impacts to giant garter snake.	PS	*4.7-6(a) Prior to the issuance of a grading permit, pre-construction surveys for giant garter snake shall be conducted and submitted for the review and approval of the City of Oakley. If the giant garter snake is not found, further mitigation is not required. If the giant garter snake is found, Mitigation Measure 4.7-6(b) shall be implemented.* *4.7-6(b) Implement Mitigation Measure 4.7-5(b) for the giant*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		garter snake instead of, or in addition to, the silvery legless lizard. *4.7-6(c)* *Implement Mitigation Measure 4.7-1.*	
4.7-7 Impacts to western pond turtle.	PS	*4.7-7(a)* *The project applicant shall comply with the East Contra Costa HCP's Wetland, Pond, and Stream Avoidance and Minimization measures, which include but are not be limited to:* • *Applicants for coverage under the HCP/NCCP shall follow the guidelines in Conservation Measure 1.10 of the HCP/NCCP to minimize the effects of urban development on downstream hydrology, streams, and wetlands.* • *All wetlands, ponds, streams, and riparian woodland/scrub to be avoided by covered activities shall be temporarily staked in the field by a qualified biologist.* • *Buffer zones shall be established where feasible between the aquatic resource and development. Required setbacks for streams are described in Conservation Measure 1.7 of the HCP/NCCP. Credit for preservation of aquatic habitat will be given only if these features meet minimum distances from dense urban development.* • *Fencing shall be erected between the outer edge of the buffer zone and the project area. The type of fencing*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		shall match the activity and impact types. For example, projects that have the potential to cause erosion shall be required to include erosion control barriers (See below), and projects that may bring more household pets to a site shall be fenced to keep the pets out. The temporal requirements for fencing also depend on the activity and impact type. For example, fencing for permanent impacts shall be permanent, and fencing for short-term impacts shall be removed after the activity is completed. • *Personnel conducting ground-disturbing activities within or adjacent to the buffer zone of wetlands, ponds, streams, or riparian woodland/scrub shall be trained by a qualified biologist in these avoidance and minimization East Contra Costa County measures and the permit obligations of project proponents working under the HCP/NCCP. Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas.* • *Trash generated by covered activities shall be promptly and properly removed from the site.* • *No construction or maintenance vehicles shall be refueled within 200 feet of wetlands, ponds, streams, or riparian woodland/scrub unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.* • *Appropriate erosion-control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) shall be*	

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		used on site to reduce siltation and runoff of contaminants into wetlands, ponds, streams, or riparian woodland/scrub. Filter fences and mesh shall be of material that will not entrap reptiles and amphibians. Erosion control blankets shall be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians. Erosion-control measures shall be placed between the outer edge of the buffer and the project site. • *Fiber rolls used for erosion control shall be certified as free of noxious weed seed.* • *Seed mixtures applied for erosion control shall not contain invasive nonnative species, and shall be composed of native species or sterile nonnative species.* • *Where feasible, stream crossings shall be located in stream segments without riparian vegetation, and bridge footings shall be built outside the stream banks (i.e., clear span structures).* • *Herbicide shall not be applied within 100 feet of wetlands, ponds, streams, or riparian woodland/scrub; however, where appropriate to control serious invasive plants, herbicides that have been approved for use by EPA in or adjacent to aquatic habitats may be used as long as label instructions are followed and applications avoid or minimize impacts on covered species and their habitats. In seasonal or intermittent stream or wetland*	

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		environments, appropriate herbicides may be applied during the dry season to control nonnative invasive species (e.g., yellow star-thistle). Herbicide drift shall be minimized by applying the herbicide as close to the target area as possible. *Implementation of the above measures would reduce impacts to the habitat of the western pond turtle in compliance with the requirements of the HCP/NNCP.* *4.7-7(b)* *Implement Mitigation Measure 4.7-1.*	
4.7-8 Impacts to western burrowing owl.	PS	*4.7-8(a)* *Prior to the issuance of a grading permit, pre-construction surveys of all potential burrowing owl habitat shall be conducted by a qualified biologist within the project area and within 250 feet of the project boundary. Presence or sign of burrowing owl and all potentially occupied burrows shall be recorded and monitored according to CDFG and California Burrowing Owl Consortium guidelines.* *and* *Prior to the issuance of a grading permit, focused over-wintering surveys of all potential burrowing owl habitat shall be conducted by a qualified biologist within the Emerson property. Presence or sign of burrowing owl shall be recorded and monitored according to CDFG and California Burrowing Owl Consortium guidelines. If*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		burrowing owls are not found, further mitigation is not required. If burrowing owls are found, Mitigation Measure 4.7-8(b) shall be implemented.	
		4.7-8(b) *If burrowing owls are detected, a 50 meter buffer zone during non-breeding season (September 1 through January 31) or a 75 meter buffer zone during breeding season (February 1 through August 31) shall be established around each occupied burrow to minimize disturbance. In addition, if owls must be moved away from the disturbance area, passive relocation techniques, which involve the placement of one-way exclusion doors on occupied and potential burrowing owl burrows, shall be used. Owls shall be excluded from burrows within the project area and within a 160-foot buffer zone of the impact area. A minimum of one week shall be allowed to accomplish this task and to allow for owls to acclimate to alternate burrows. The California Department of Fish and Game shall be informed and updated regarding any passive relocation efforts. Passive relocation shall be performed prior to burrowing owl breeding season.*	
		4.7-8(c) *Implement Mitigation Measure 4.7-1.*	
4.7-9 Impacts to raptors and migratory birds.	PS	*4.7-9(a)* *If removal of buildings, trees, emergent aquatic vegetation, or shrubs occurs, or construction begins between February 1 and August 31 (nesting season for passerine or non-passerine land birds) or December 15 and August 31 (nesting season for raptors), a nesting bird*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		survey shall be performed by a qualified biologist within 14 days prior to the removal or disturbance of a potential nesting structure, trees, emergent aquatic vegetation, or shrubs, or the initiation of other construction activities during the early part of the breeding season (late December through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, a qualified biologist shall inspect all potential nesting habitat (trees, shrubs, structures, grasslands, pastures, emergent aquatic vegetation, etc.) in and immediately adjacent to the impact areas for nests. *4.7-9(b)* *All vegetation and structures with active nests shall be flagged and an appropriate non-disturbance buffer zone shall be established around the nesting tree. The size of the buffer zone shall be determined by the project biologist in consultation with CDFG and will depend on the species involved, site conditions, and type of work to be conducted in the area. Typically, if active nests are found, construction activities shall not take place within 500 feet of the raptor nests and within 100 feet of other migratory birds until the young have fledged. A qualified biologist shall monitor active nests to determine when the young have fledged and are feeding on their own. The project biologist and CDFG shall be consulted for clearance before construction activities resume in the vicinity.*	

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		4.7-9(c) Implement Mitigation Measure 4.7-1. *Mitigation Measures 4.7-9(a) and4.7-9(b) include measures to avoid take of birds covered under the Migratory Bird Treaty Act, as required by the HCP, which states the following:* • *All no-take species shall be avoided; and* • *Construction activities shall comply with the Migratory Bird Treaty Act and shall consider seasonal requirements for birds and migratory non-resident species, including covered species.*	
4.7-10 Impacts to Swainson's hawk.	PS	*4.7-10(a) Prior to the issuance of a grading permit that occurs during the nesting season (March 15–September 15), a qualified biologist shall 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 shall be required.* *If preconstruction surveys identify occupied nests within 1,000 feet of the project site during the nesting season (March 15–September 15), construction shall be prohibited within 1,000 feet of occupied nests or nests*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		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 City of Oakley will coordinate with CDFG/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 City of Oakley for a waiver of this avoidance measure. Any waiver must also be approved by USFWS and CDFG. While the nest is occupied, activities outside the buffer can take place.* *4.7-10(b) Any active Swainson's hawk nest trees identified during the preconstruction surveys shall be preserved on site, to the extent feasible. Any nest trees, including non-native trees, lost to construction shall be mitigated by the project proponent in compliance with the HCP guidelines, which requires the applicant to purchase, plant, maintain, and monitor 15 saplings for every nest tree removed, or to pay an additional fee to the City of Oakley to purchase, plant, maintain, and monitor the required trees.* *4.7-10(c) Implement Mitigation Measure 4.7-1.*	

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.7-11 Impacts to special-status bat species.	PS	*4.7-11(a) Prior to the issuance of a grading permit, a pre-construction survey for roosting bats shall be performed by a qualified biologist within 30 days prior to any removal of trees or structures on the site. If active roosts are not found, further mitigation shall not be required. If either a maternity roost or hibernacula (structures used by bats for hibernation) are present for Townsend's big-eared bat, the project applicant shall implement Mitigation Measure(s) 4.7-11(b) and 4.7-11(d). If either a maternity roost or hibernacula is present for pallid bat or Yuma myotis, the applicant shall implement Mitigation Measures 4.7-11(b, c, and d).* *4.7-11(b) If the bat species are discovered or if evidence of recent prior occupation is established, construction shall be scheduled such that the activities minimize impacts to bats. Hibernation sites with evidence of prior occupation shall be sealed before the hibernation season (November–March), and nursery sites shall be sealed before the nursery season (April–August). If the site is occupied, then the action shall occur either prior to or after the hibernation season for hibernacula and after August 15 for nursery colonies. Construction shall not take place as long as the site is occupied.* *4.7-11(c) If a non-breeding bat hibernacula is found in a tree or structure scheduled for removal, the individuals shall be safely evicted, under the direction of a qualified biologist*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		(as determined by a Memorandum of Understanding with CDFG), by opening the roosting area to allow airflow through the cavity. Demolition shall then follow at least one night after initial disturbance for airflow. This action shall allow bats to leave during darkness, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees or structures with roosts that need to be removed shall first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours. *4.7-11(d) Mitigation Measures 4.7-11(a-c) include the avoidance and impact minimization measures included in the HCP. In addition, the applicant shall implement Mitigation Measure 4.7-1.*	
4.7-12 Impacts to wildlife corridors.	LS	*4.7-12 None required.*	N/A
4.7-13 Contribution to cumulative impacts to biological resources in the project area.	PS	*4.7-13 Implement Mitigation Measures 4.7-1 through 4.7-11.*	LS
4.8 Geological Resources			
4.8-1 Damage to foundations, pavements, and other structures constructed within the project site as a result of heaving and settlement of expansive soils.	PS	*4.8-1 Prior to approval of Improvement Plans, the project proponent shall conduct a design-level geotechnical study, which shall consider the recommendations in the existing geology report and additional recommendations as needed. The study shall specifically address whether expansive soils are present in the development area and include measures to address these soils where they occur.*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		The recommendations from the geotechnical study shall be incorporated into the design of roadway and infrastructure improvements as well as foundation and building design for the review and approval of the City Engineer.	
4.8-2 Impacts related to weak or compressible clay.	PS	*4.8-2* *Prior to the approval of Improvement Plans, and after the project grading plans are completed and the approximate building loads are determined, a qualified geotechnical engineer shall determine if remediation measures such as removing and surcharging the compressible materials are necessary to minimize future settlement to acceptable levels. The applicant shall provide the findings of the consolidation analysis to the City Engineer for review and approval.*	LS
4.8-3 Loss of structural support due to potential liquefaction.	PS	*4.8-3(a)* *Prior to issuance of a grading permit, the applicant/developer shall incorporate the recommendations of a design-level geotechnical report into the Improvement Plans. The following measures include, but are not limited to, the options available to reduce site liquefaction potential and/or adverse effects to structures located above potentially liquefiable soils. Once final grading plans are designed, the project's geotechnical engineers shall determine the appropriate methods of mitigating the effects of liquefaction, such as:* • *Remove and replace potentially liquefiable soils;* • *Strengthen foundations (e.g., post-tensioned slab, reinforced mat or grid foundation, or other similar*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		system) to resist excessive differential settlement associated with seismically-induced liquefaction; • *Support the proposed structures on an engineered fill pad (minimum of 5 feet thick) in order to reduce differential settlement resulting from seismically-induced liquefaction and post-seismic pore pressure dissipation; and/or* • *Densify potentially liquefiable soils with an in situ ground improvement technique such as deep dynamic compaction, vibro-compaction, vibro-replacement, compaction grouting, or other similar methods.* *4.8-3(b) If deep dynamic compaction is expected to be implemented as the method of densification or for any other reason, the following measures shall be implemented:* • *Geotechnical engineers for the District and the Group Member performing Deep Dynamic Compaction (the "DDC Member") shall mutually agree upon acceptable threshold limits for peak particle velocities measured during deep dynamic compaction at the toe of the Canal berm (the "Threshold Limits") along the DDC Member's Project. The sole purpose of the Threshold Limits is to attempt to avoid damage to the canal. The parties are not warranting that peak particle velocities at the toe of the Canal berm along the DDC Member's Project less than said Threshold Limits is safe or would not cause or contribute to*	

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Canal damage. In determining Threshold Limits, in addition to general safety and engineering factors, the District and DDC Member Engineers may also consider the types and amounts of comprehensive general liability insurance coverage provided by the DDC Member and its contractors or sub-contractors, as well as specific design, construction monitoring, and other measures that are developed to protect the Canal's Integrity, stability, and water quality as set forth above. (For example, if the District believes the amount of comprehensive general liability insurance coverage provided by the DDC Member and its contractors or sub-contractors is insufficient, the Threshold Limits should be reduced accordingly to reflect this fact.) An independent licensed engineer selected by the District (with the concurrence of the DDC Member) shall, at the DDC Member's sole cost and expense, monitor measurements of peak particle velocities at the toe of the Canal berm along the DDC Member's Project during the period that Deep Dynamic Compaction is being performed, and shall submit to the District logs reflecting such measurements on a daily basis during such period. • *To help ensure that the threshold limits are not exceeded, the DDC Member shall commence deep dynamic compaction on those portions of the project site located farthest from the Canal, and thereafter shall proceed with Deep Dynamic Compaction from*	

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		those portions of the Project toward the Canal. That is, the DDC Member shall always conduct Deep Dynamic Compaction on this Project in a manner that the progression is in a direction toward the canal. • *If the threshold limits are exceeded while deep dynamic compaction is being performed, then the DDC Member shall immediately cease performing deep dynamic compaction within its Project and promptly notify the District. Deep dynamic compaction shall not resume unless and until (i) measures are developed and implemented by the DDC Member to ensure that the threshold limits are not exceeded, and (ii) the DDC Member notifies the District in writing of such measures.*	
4.8-4 Increased soil erosion, wind and water erosion, and siltation of local drainage during and after construction from excavation and grading activities.	PS	*4.8-4 Prior to issuance of a grading permit, the project applicant shall submit, for the review and approval of the City Engineer, an erosion control plan that utilizes best management practices to limit the erosion effects during construction of the proposed project. Measures could include, but are not limited to:* • *Hydro-seeding;* • *Placement of erosion control measures within drainageways and ahead of drop inlets;* • *The temporary lining (during construction activities) of drop inlets with "filter fabric" (a specific type of geotextile fabric);*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact		Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
			• *The placement of straw wattles along slope contours;* • *Directing subcontractors to a single designation "wash-out" location (as opposed to allowing them to wash-out in any location they desire);* • *The use of siltation fences; and* • *The use of sediment basins and dust palliatives.*		
4.8-5	**Grading and import of fill.**	PS	*4.8-5*	*Implement Mitigation Measure 4.8-4.*	LS
4.8-6	**In combination with existing and future developments, increased potential impacts related to geological impacts and hazards.**	LS	*4.8-6*	*None required.*	N/A
4.9 Historical and Cultural Resources					
4.9-1	**Substantial adverse change in the significance of a historical resource.**	S	*4.9-1(a)*	*The former location of Iron House School at the northwest corner of the Cypress Road/Sellers Avenue intersection shall be avoided to the maximum extent practicable as determined by the City in accord with City of Oakley General Plan Policies 6-5 and 6-6. If avoidance is not feasible as determined by the City, archaeological monitoring during ground disturbing construction shall be conducted in the vicinity of the former school. In the event that any historic and cultural materials are uncovered during construction, work within 25 feet of the find shall cease immediately, and a qualified professional archaeologist shall be contacted for further review and recommendations to determine if the resource is significant and to determine appropriate mitigation.*	SU

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		4.9-1(b) *Prior to the issuance of grading permits, the City shall determine if the Iron House School can be relocated to the 55-acre future community park site immediately north of the project site, in accordance with the terms and conditions of the Memorandum of Understanding between the City of Oakley and Emerson, Burroughs, and Gilbert Families, entered into as of September 23, 2002. The specific location within the community park site shall be approved by the Community Development Department. The project proponent shall mitigate as follows:* *The project proponent shall offer to move the Iron House School to another location in the Dutch Slough area. If the Iron House School is moved from the building's original location, the new location shall be appropriate to the historic character of the building (i.e., a rural location similar to the current historic location).* *If moving the Iron House School is not feasible, the historic materials and features of the building shall be salvaged. The salvaged materials may be able to be incorporated into buildings on the proposed project site or on other sites in the project area. Representatives of the East Contra Costa County Historical Society, the Contra Costa County Historical Society, the City of Oakley, and other interested parties shall be contacted and given the opportunity to examine the building and provide suggestions for salvaging various features.*	

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Prior to the demolition, salvage, or moving of the Iron House School building and related landscape features, the building and features shall be photographically documented according to the Historic American Building Survey (HABS) "Photographic Specifications" published by the Great Pacific Basin Office of the National Park Service in Oakland, California. The documentation shall include archival quality, large format (minimum four by five inch) photographs of the exterior and interior of the building. The documentation shall focus on the individual structure. Written documentation shall include a narrative report according to the instructions in the "Historic American Building Survey Guidelines for Preparing Written Historic and Descriptive Data" published by the Cultural Resources Division of the Great Pacific Basin Office of the National Park Service. In addition to photographs, the documentation shall include historic maps and aerials. A copy of the documentation, with original photo negatives, prints, and plans, shall be donated to a historical archive accessible to the public and with facilities for storing archival photographs, such as the East Contra Costa County Historical Society in Oakley or the Contra Costa County Historical Society in Martinez.	
4.9-2 Unearthing of previously unknown archaeological resources as a result of project grading.	PS	*4.9-2(a)*	*During construction, if any earth-moving activities uncover artifacts, exotic rock, or unusual amounts of bone or shell, work shall be halted in the immediate area of the find and shall not be resumed until after a qualified*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		archaeologist has inspected and evaluated the deposit and determined the appropriate means of curation. The appropriate mitigation measures may include as little as recording the resource with the California Archaeological Inventory database or as much as excavation, recordation, and preservation of the sites that have outstanding cultural or historic significance. *4.9-2(b)* *During construction, if bone is uncovered that may be human, the Contra Costa County Coroner and the Native American Heritage Commission in Sacramento shall be notified. Should human remains be found, the Coroner's office shall be immediately contacted and all work halted until final disposition by the Coroner. Should the remains be determined to be of Native American descent, the Native American Heritage Commission shall be consulted to determine the appropriate disposition of such remains.*	
4.9-3 In combination with other known and foreseeable projects in the Oakley area, the project's contribution to cumulative cultural resources impacts.	PS	*4.9-3* *Implement Mitigation Measures 4.9-2(a) and (b).*	LS
4.10 Hydrology, Water Supply and Water Quality			
4.10-1 Exposure of future and adjacent residents to flood hazard.	LS	*4.10-1* *None required.*	N/A

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.10-2 Maintenance of levees surrounding the project.	PS	*4.10-2* *Prior to Improvement Plan approval the project engineer shall develop a levee maintenance program. The maintenance program shall be submitted for the review and approval of the City Engineer and include the plan for financing and maintenance of the levee system. The plan shall include the following guidelines:* • *All pertinent agencies that may have jurisdiction over the repair area shall be consulted. These agencies may include (but are not limited to) the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the Army Corps of Engineers, the Regional Water Quality Control Board, the Contra Costa County Public Works Department, and the Contra Costa County Flood Control District.* • *Both an engineering geologist and a civil engineer shall be consulted on significant embankment repairs.* • *Soil removal and placement shall be limited to the minimum amount needed to achieve bank stabilization.* • *Access roads shall be kept clear of obstructions and maintained in a manner that allows access for maintenance equipment at all times. Access road dimensions and specifications shall conform to guidelines prepared by the City of Oakley.* • *The establishment of woody vegetation (e.g., trees or shrubs) can impair the integrity of the levees.*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Therefore, regular inspection for, and removal of, woody vegetation shall be required. • *Tunnels created by ground squirrels and other animals can also compromise the integrity of the levees. Annual inspection of the levees by a competent professional shall be required to assess the need for remedial repairs and animal control measures.* • *Material shall not be placed in a manner that could be eroded by normal or expected high flows.* • *Bank stabilization in excess of 500 feet in length or an average of one cubic yard per running foot must be authorized by the City of Oakley or Contra Costa County Flood Control.* • *The condition of levee embankments and access roads shall be monitored in detail as part of routine monitoring, as well as during post-flood event inspections. During periodic monitoring visits, personnel shall inspect the entire perimeter of the levees around the project and note evidence of erosion or slope failures on both sides of the levee. Embankments shall generally be free of erosion, rills, slumps, and landslides.*	
4.10-3 Change in peak stormwater flows.	LS	*4.10-3* *None required.*	N/A
4.10-4 Adequate water supply and delivery for new residents.	PS	*4.10-4(a)* *Prior to recording of the final map, the applicant shall be required to pay a fair-share fee as determined by the DWD toward the CIP for water service infrastructure*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		improvements. *4.10-4(b) Prior to recording of the final map, the applicant shall be required to obtain written verification from DWD to verify that water supplies are sufficient to serve the proposed project, consistent with SB 221.* *4.10-4(c) Prior to final map approval, each subdivision map shall be conditioned to ensure that the property included within each subdivision map is within the CCWD's CVP contractual service area.*	
4.10-5 Degradation of water quality in the Contra Costa Canal and Dutch Slough.	LS	*4.10-5 None required.*	N/A
4.10-6 Maintenance of stormwater lake.	PS	*4.10-6 Prior to Improvement Plan approval, the project engineer shall develop a storm drain system maintenance program. The maintenance program shall be submitted for the review and approval of the City Engineer and include the plan for financing and maintenance of the water quality detention basin. The maintenance program shall include measures that would ensure that impacts related to the maintenance of the stormwater lake and sedimentation are fully mitigated to the satisfaction of the City Engineer. The plan shall address aquatic vegetation and vector control, pond bank and inlet structure conditions, and pond sediment removal.*	LS
4.10-7 Maintenance of storm drain system.	PS	*4.10-7 Implement Mitigation Measure 4.10-6.*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.10-8 Groundwater interaction with stormwater pond well.	LS	*4.10-8* *None required.*	N/A
4.10-9 Contribution to cumulatively increased stormwater drainage into the existing drainage system.	LS	*4.10-9* *None required.*	N/A
4.10-10 Cumulative impacts to groundwater recharge	LS	*4.10-10* *None required.*	N/A
4.10-11 Project contribution to cumulative water quality impacts downstream of the project site.	LS	*4.10-11* *None required.*	N/A
4.11 Public Services and Utilities			
4.11-1 Impacts related to adequate wastewater treatment and infrastructure capacity.	LS	*4.11-1* *None required.*	N/A
4.11-2 Need for additional waste disposal/recycling services.	LS	*4.11-2* *None required.*	N/A
4.11-3 Adequate ratio of law enforcement personnel to residents.	PS	*4.11-3* *Prior to approval of the final map for the proposed project, the landowner shall participate in the provision of funding to maintain police services by voting to approve a special tax for the parcels within the project site. The tax shall be the per parcel annual amount (with appropriate future cost of living adjustment) as established at the time of voting by the City Council. The election to provide for the tax shall be completed prior to issuance of permits. Should the buildings be ready for occupancy prior to the*	LS

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

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		City receiving the first disbursement from the tax bill, the project proponent shall be responsible for paying the pro-rata share for the remainder of the tax year prior to the City conducting a final inspection.	
4.11-4 Adequate ratio of fire department personnel to residents.	PS	*4.11-4(a)* *Prior to the issuance of building permits, the project proponent shall pay a fair share of costs for new fire protection facilities and services, consistent with fire impact fees adopted by the City of Oakley.* *4.11-4(b)* *Prior to approval of the building plans, the project applicant shall provide proof to the Community Development Department that fire flow requirements shall be met.*	LS
4.11-5 Number of enrolled students exceeding capacity.	PS	*4.11-5* *Prior to issuance of final building permit, or as otherwise provided by State law, the proposed project property owner shall pay appropriate SB 50 and AB 16 school impact fees.*	LS
4.11-6 Adequate provision of parks and recreation space for new residents.	PS	*4.11-6* *Prior to issuance of building permits, the proposed project property owner shall pay the remaining park in-lieu fee to facilitate the provision of the community park facilities to be located north of the CCWD/USBR canal.*	LS
4.11-7 Cumulative impacts to public services and facilities.	PS	*4.11-7* *Prior to the issuance of building permits, the project proponent shall pay a fair share of costs for new wastewater collection facilities, as determined by the Ironhouse Sanitary District.*	LS

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

3. PROJECT DESCRIPTION

3. PROJECT DESCRIPTION

Introduction

The Project Description chapter of the EIR provides a comprehensive description of the Emerson Property project (proposed project), including the project background, setting, objectives, components, and required public approvals. The detailed information provided in this chapter forms the basis for the environmental analysis and assessment in the following technical chapters.

Project Background

The proposed project site has historically been used for agricultural purposes. The Cypress Grove Project located adjacent to the site to the west previously constructed levees along the north and east boundaries of the project site.

Background of Development Projects in Surrounding Areas

Cypress Corridor Planning Process

The Oakley 2020 General Plan places the project site within a larger planning area termed the Cypress Corridor Planning Area. The Oakley 2020 General Plan EIR analyzed the larger area-wide infrastructure systems, and project-level EIRs for the Cypress Grove development to the west recently addressed the coordinated infrastructure needs for the Cypress Corridor Planning Area. The Cypress Lakes community by Shea Homes has been separately analyzed under a certified project-level EIR. A Mitigated Negative Declaration (MND) was prepared for the Westerly Annexation area south of Cypress Road and east of Sellers Avenue.

On December 2, 2000, the Oakley City Council and Planning Commission conducted a community design forum, providing members a place to come together to help develop a vision for the Cypress Corridor and identify major development concepts and design principles that would guide future development and planning in the area. The primary vision concepts and design principles emerging from this workshop provide the foundation for the future planning and development of the Cypress Corridor and surrounding areas and were reflected in, and are consistent with, the General Plan.

East Cypress Corridor Specific Plan Planning Process

The East Cypress Corridor Specific Plan area was recently annexed into the City of Oakley and is situated to the east of the proposed project site. Located on the eastern side of the City of Oakley, the 2,546-acre Specific Plan area includes the area east of Jersey Island Road, south of Dutch Slough Road, west of Sandmound Slough, north of Rock Slough, and northeast of the

Contra Costa Canal. In 1993, Contra Costa County approved a development plan and rezoning for approximately 678 acres, which permitted development by Shea Homes of up to 1,330 residential dwelling units, in addition to up to 200 second units, a golf course, lakes, and open space.

On December 16, 2002, the City of Oakley adopted the City of Oakley 2020 General Plan, which designated the East Cypress Corridor Specific Plan as the East Cypress Corridor Expansion Area, and designated urban land uses for future development within the Specific Plan.

On August 19, 2003, the Contra Costa County Local Agency Formation Commission (LAFCo) approved a proposed amendment to the City of Oakley Sphere of Influence (SOI) to include the Specific Plan within the City's SOI.

On February 14, 2004, the City of Oakley determined that a Specific Plan should be prepared for the Cypress Corridor Expansion Area and authorized the preparation of the East Cypress Corridor Specific Plan to implement the General Plan and to comprehensively plan for the staged annexation of the properties within the Specific Plan. The Draft EIR and the East Cypress Corridor Specific Plan were certified and adopted by the City Council on March 14, 2006. LAFCo approved the East Cypress Corridor Specific Plan for annexation in July 2006, and Areas 1 and 2 of the Specific Plan were annexed on October 20, 2006. Area 3, which includes existing residences, Sand Mound Road, and portions of Dutch Slough, was not annexed.

Oakley 2020 General Plan

Prior to the incorporation of the City of Oakley, Contra Costa County was responsible for planning and land use in the Oakley community. The 1990 Contra Costa County General Plan Update designated the approximately 1,500-acre Dutch Slough Properties owned by the Emerson, Gilbert and Burroughs families, as Mixed Use (M-8). In 1997, the County approved statutory development agreements providing vested rights to develop these properties, consistent with the County General Plan and General Plan EIR. In 1997, for California Environmental Quality Act (CEQA) purposes, the County relied on the General Plan EIR and approved development agreements providing vested rights to develop the M-8 area with approximately 4,500-5,000 dwelling units and additional retail and community center uses.

During this period, the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) embarked on the CALFED Bay-Delta Program to plan the future of Bay-Delta water resources. The CALFED Bay-Delta Program is a unique collaboration among 25 State and federal agencies that came together with a mission: to improve water supplies in California and the health of the San Francisco Bay/Sacramento-San Joaquin River Delta. This process included the identification of properties along the Delta that could be acquired for wetlands and wildlife habitat restoration. Portions of the Cypress Corridor, including the Emerson property, were identified as prime candidates for this effort. After extensive planning, negotiation, and public review, a deal to acquire those portions of the Emerson, Gilbert, and Burroughs properties located north of the Contra Costa Canal was completed. Those transactions with the State of California Department of Water Resources occurred in 2003, following several Memoranda of Understanding entered into in 2002 between the State, the City of Oakley, the

landowners, and environmental groups (see below for a more complete description of this process).

In 1999, the City of Oakley incorporated. This incorporation area included the M-8 area of the County. In 2000, the City of Oakley embarked on a process to prepare and process a new General Plan to specifically service the needs of the City. The updated General Plan designated the 140-acre Emerson property for residential and commercial land uses. In December 2002, the City of Oakley adopted the Oakley 2020 General Plan. As part of the General Plan update, the City certified a programmatic EIR and prepared an Oakley 2020 General Plan Background Report. As stated in Chapter 1, Introduction, this EIR tiers from the Oakley 2020 General Plan EIR.

Memorandum of Understanding, Development Agreements, and Wetland Restoration

In the fall of 2001, the owners of the original Emerson, Gilbert, and Burroughs properties, together with the California Coastal Conservancy, a State agency, and two non-profit environmental organizations, the Natural Heritage Institute and the Conservation Fund, submitted an application to Cal-Fed seeking funding for a proposal to sell portions of their properties north of the Contra Costa Canal for the purpose of creating the Dutch Slough Tidal Marsh Restoration Project, an ecosystem restoration project for scientific study and Bay Delta habitat preservation. The property owners had previously obtained vested rights to develop these portions of their property under the 1997 development agreements with the County, which upon incorporation were binding on the new City, under State law. The property owners further indicated their intention to develop the remaining land to the south of the Canal.

On September 23, 2002, the Oakley City Council approved a Memorandum of Understanding (MOU) between the City and the property owners summarizing the terms of basic understanding between the City and the owners regarding the disposition of the northern and southern portions of the properties in question, and future planning for the southern properties. As part of the Southern Property Disposition Agreement, the property owners agreed to transfer ownership of portions of the southern properties and northern properties to the City. Portions of the northern properties totaling approximately 97 acres were to be transferred to the City for developing a 55-acre community park and related public recreational facilities. Separate MOUs were entered into with the California Coastal Conservancy, the Natural Heritage Institute, and The Conservation Fund, which identified the project site for housing.

On December 16, 2002, the City Council adopted the Oakley 2020 General Plan, approving urban land use designations for the southern properties, consistent with the terms of the MOUs. This approval encompassed the owners' proposal for a combination of residential and commercial development on the southern properties. The MOU with the landowners called for the development of approximately 1,200 residential units of different densities on approximately 271 acres, resulting in an overall density of approximately 4.2 to 4.4 units per gross acre. The MOU further permitted 10 to 15 acres of commercial development. This considerably reduced the number of units contemplated for development on these properties compared to the 4,500-5,000 units (3.3 units per acre) allowed under the County development agreements, resulting in clustering of development within a smaller area at a greater density.

In August of 2003, the MOU was supplemented by Development Agreements between the City of Oakley and the Emerson, Gilbert, and Burroughs property owners to formalize and secure the rights and obligations created in the MOUs, General Plan, and Cal-Fed transaction.

The City also entered into MOUs in 2002 with the California Coastal Conservancy, the Natural Heritage Institute, and the Conservation Fund. The MOUs with these entities addressed implementation off the Dutch Slough Tidal Marsh Restoration Project and identified the 271-acre area south of the Contra Costa Canal, including the Emerson property, for housing.

In 2003, Cal-Fed purchased the entire northern portion of the Emerson, Gilbert, and Burroughs properties, excluding acreage held in escrow for the City of Oakley to develop as a community park, trails, and other public uses after the Tentative Map approvals for the properties to the south are obtained. Representatives of the Department of Water Resources have indicated that the site will be reclaimed as wetlands, as part of the three-phase Dutch Slough Tidal Marsh Restoration Project. The owners of the Emerson, Gilbert, and Burroughs properties transferred a total of approximately 1,250 acres to the State for the Restoration Project.

In summary, the MOUs and the Development Agreements affecting the Emerson, Gilbert, and Burroughs properties that were entered into during 2002 and 2003 resulted in a comprehensive plan that would result in (1) vested rights for residential development on approximately 271 acres south of the Contra Costa Canal, including the Emerson property; (2) conveyance to the State of California (more specifically, to the Department of Water Resources) of approximately 1,250 acres adjacent to the Delta for wetland and marsh habitat restoration; and (3) conveyance to the City of approximately 100 acres for park, recreation, trail, and community center purposes, including 27 acres within the Burroughs property south of the Contra Costa Canal.

Emerson Property Planning Process

On March 21, 2005, the City Council adopted a four-step collaborative planning process for the Emerson, Gilbert, and Burroughs sites in order to facilitate close involvement between the Oakley community and the prospective homebuilders. The objective was to evolve a coordinated "Planning Framework" (guidelines and concept plans) acceptable to both the City and the homebuilders. The Planning Team (City staff and consultants, and the home builders and their consultants) prepared background information and alternative plan concepts and then presented these to the Council and Planning Commission at public work sessions for the purpose of receiving feedback and further direction. The homebuilders wished to jointly participate in the Planning Framework Study process and then independently move forward with their own individual subdivision applications upon acceptance of the Study by the Council. The five-step planning process consisted of the following:

1. Overview and preliminary Council and Commission input regarding an illustrative land use diagram and conceptual infrastructure plans prepared by the homebuilders pertaining to streets, water, sanitary sewer, stormwater drainage, and trails (March 21, 2005).

2. Educational session at which the Planning Team presented contemporary neighborhood planning and urban design concepts to the Council and Commission (May 9, 2005).

3. Council, Commission, and Planning Team tour of existing housing and neighborhood commercial developments and parks to observe and record Council and Commission reactions to site planning, housing product types and densities, architecture, and landscaping similar to that which the homebuilders envisioned for the Dutch Slough area (May 14, 2005).

4. Presentation and evaluation of the Draft Planning Framework, including site planning, engineering, architecture and landscaping concepts; followed by Council and Commission reactions, and ultimate acceptance by the Council (September 12, 2005).

5. On June 12, 2006 the City authorized a four-party infrastructure cost agreement.

Development Constraints

The Oakley 2020 General Plan identifies the constraints and opportunities unique to the greater "Cypress Corridor Planning Area" in which the proposed project site is located (p. 2-23). The General Plan further provides direction regarding the City's expectations for the development of this area. Some development constraints identified by the General Plan include the following:

1. While Cypress Road and Sellers Avenue provide circulation access, both roads would require expansion to accommodate future traffic.

2. Existing wastewater collection lines are adequate for current operation. Some trunk lines and pump stations would need to be upgraded and/or added to provide greater capacity, as needed. Domestic water facilities also would have to be upgraded to provide greater capacity. While expansion of water and wastewater facilities are underway to serve the Delta Vista Middle School and further facility upgrades would also be required to serve this area.

3. While the banks of the Contra Costa Canal provide some protection against Delta flooding, these levees were not designed for flood control purposes, are not certified by the Army Corps of Engineers, and therefore, their integrity is in question in certain areas of the "Corridor". The primary purpose of the Contra Costa Canal is for conveyance of drinking water supply for the Contra Costa Water District.

4. The Cypress Corridor includes areas susceptible to liquefaction that might be unstable under certain conditions during and after an earthquake.

5. Within the eastern portion of this area are natural gas wells that must be properly abandoned prior to urban development.

6. Because substantial future development areas are located to the east of the Cypress Corridor Planning Area, facilities installed along Cypress Road must be properly sized to support development in both the Cypress Corridor Planning Area, and the Cypress Corridor Expansion Area (as defined in the General Plan). Such facilities include, but are not limited to roads, water service, and wastewater collection facilities.

PROJECT LOCATION AND SURROUNDING LAND USES

Project Location

The proposed approximately 140-acre project site is located in the City of Oakley, Contra Costa County, California (See Figure 3-1, Regional Location Map, and Figure 3-2, Project Location Map). The Emerson property is identified as Assessor's Parcel Numbers (APNs) 037-192-015 and 037-192-023.

The proposed project site is situated west of the vacant Gilbert and Burroughs sites. The Gilbert and Burroughs sites are also part of the Cypress Corridor and development of these sites is anticipated in the future. Surrounding land uses include the following: the Cypress Grove project, Delta Vista Middle School, and Iron House Elementary School to the west; Cypress Road to the south; Sellers Avenue to the east; and the Contra Costa Water District Canal (CCWD/USBR Canal) to the north, which separates the project site from the open space acreage to the north. Approximately 1,200 acres to the north of the canal is currently owned by the State of California and is anticipated to be restored to wetlands in the near future. A 55-acre portion of land immediately north of the CCWD/USBR canal and the project site at the end of Sellers Avenue is held in escrow, pursuant to a MOU and DA, for future conveyance to the City of Oakley as a community park.

Site Characteristics

The project site topography is generally flat, and vegetation consists of grassland and a limited number of mostly non-native trees. Existing development includes a historic home/former school building (to be relocated to the future Community Park site), a second home, a barn, and other small ancillary buildings.

The proposed project site is located to the east of the central area of the City of Oakley. The project site is near several existing and proposed subdivisions, the Contra Costa Canal, parks, and recreational areas. North of the project site, the General Plan land use designations are Delta Recreation and Parks and Recreation, including the future site for a Community Park. The Cypress Grove subdivision, as well as Delta Vista Middle and Iron House Elementary Schools are located west of the project site. The East Cypress Corridor Specific Plan Area is directly east of the project site, and to the south are a variety of land use designations, including Commercial; Single Family Very Low, Low, Medium, and High; and Multi-Family Low; Parks and Recreation; Agriculture; and Agricultural Limited.

Figure 3-1
Regional Location Map

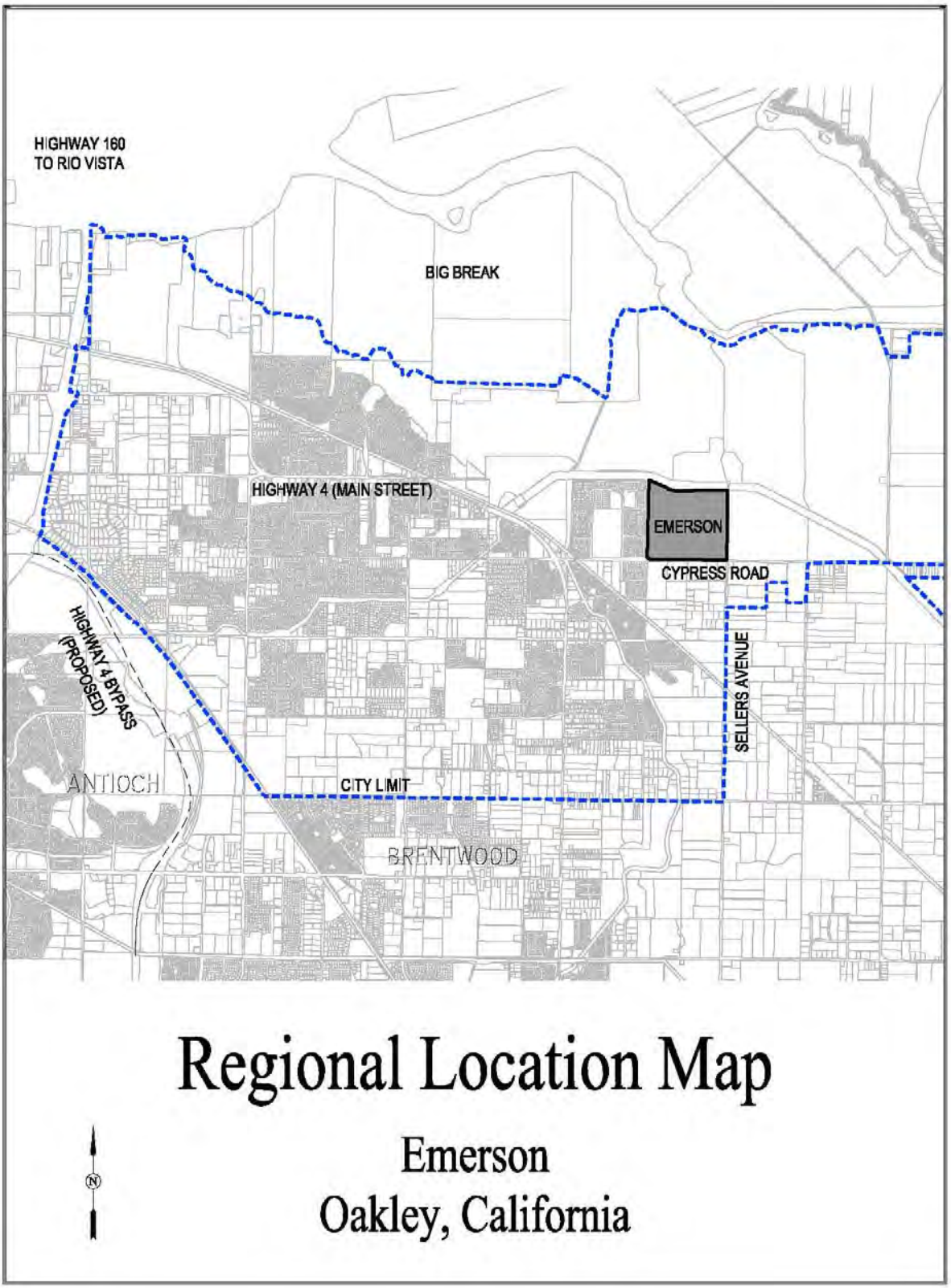
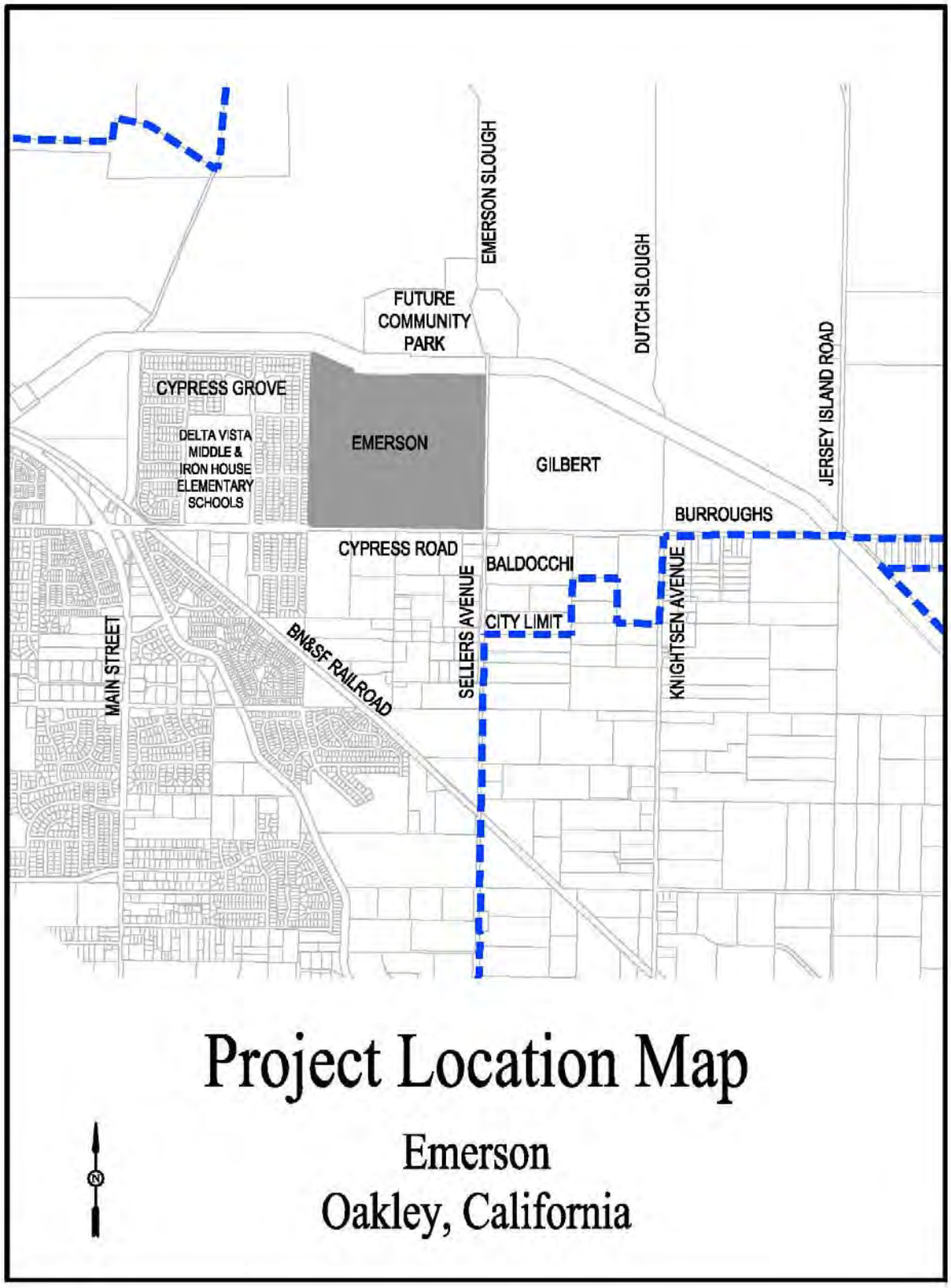


Figure 3-2
Project Location Map



Project Objectives

The objectives for the Emerson Property project are as follows:

- Implement the City's General Plan goals by providing for residential development for which adequate services can be provided in a timely manner.

- Implement and comply with the previously approved Development Agreement for the Emerson property, which granted to the landowner vested rights to develop the property.

- Develop the Emerson property in accordance with the Dutch Slough Planning Framework and the Memorandums of Understanding and Development Agreements entered into in 2002 and 2003.

- Provide an economically viable commercial center to serve the residents of the Emerson Property project, as well as the residents of Cypress Corridor, and to reduce the need to travel for commercial services.

- Create an inviting village setting comprised of distinct, yet integrated neighborhoods, with a central park, all of which would provide a desirable small town atmosphere and attractive lifestyle choice for residents.

- Facilitate the interaction of neighborhood residents through provision of an attractive park and a network of trails.

- Provide the infrastructure necessary for the delivery of safe and reliable public services including water, sewer, drainage, and roadway infrastructure improvements that enhance the entire Oakley community.

- Provide safe, convenient transportation access for pedestrians, bicyclists, transit riders, and motorists between parks and nearby schools, as well as to existing and future transit corridors, using street designs that balance the needs of pedestrians and motorists.

- Target pedestrian orientation as a key element within the development and facilitate access to potential nearby future transit corridors.

- Create an economically viable project that provides a fair-share contribution of infrastructure on a pro rata basis to the community through the payment of fees and/or reimbursement agreements and/or construction of required capital improvements, while creating revenue through the sale of housing of the types and styles that current and future citizens of Oakley desire.

- Provide a variety of desirable housing types and densities consistent with City policies that meet the housing needs of existing and future Oakley residents. Provide a mix of housing choices and affordability levels interspersed among the neighborhoods so as to create ongoing housing opportunities for local school districts, and/or City health and safety personnel.

- Draw upon the agricultural character of Oakley and the adjacent Delta area in establishing the future character of the development projects within the Oakley area.

- Develop the project area consistent with land uses and policies defined in the Development Agreement.

- Advance the City's vision for Cypress Corridor by incorporating design principles and including a variety of architectural styles and home sizes that create a neighborhood with attractive land plans and that serve a variety of households.

- Provide access to the Wetlands Restoration Project areas to the north of the proposed project site.

- Provide increased CCWD/USBR Canal safety.

Project Components

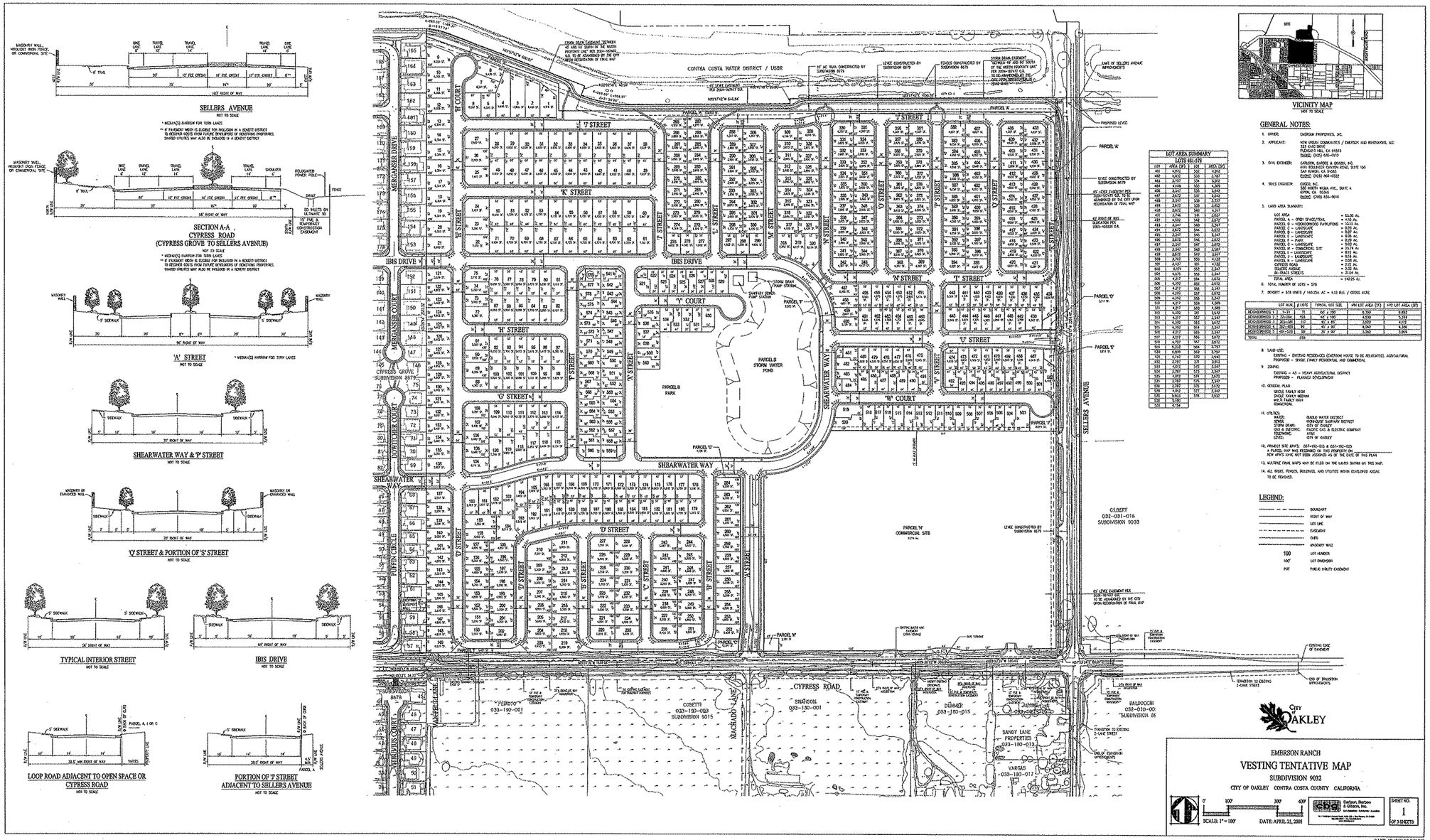
The proposed land plan for the project site includes residential and commercial development, trails, parks, levees, stormwater detention ponds, and the infrastructure improvements necessary to accommodate the new development (See Figure 3-3).

Residential and Commercial Development

The proposed land plan for the project includes a variety of residential development. The neighborhoods would be woven together into a comprehensive community through the use of traffic and pedestrian circulation, a centrally located park surrounding a stormwater pond, coordinated landscape treatments and complimentary architectural styles. In addition, the roadway and trail network would connect to existing and planned development surrounding the proposed project.

New Urban Communities plans to develop the proposed project site (Subdivision 9032). The development would include up to 578 residential units. The project would consist of five neighborhoods with varying lot sizes, with housing that would primarily consist of Single Family Residential, High Density dwelling units, which would all be for-sale properties.

Figure 3-3
Vesting Tentative Map



The first neighborhood would consist of 71 single-family lots, each approximately 6,000 square feet in area. The second neighborhood would include 193 single-family lots, each approximately 4,800 square feet in area. The third neighborhood would include 99 lots, each approximately 4,000 square feet in area. The fourth neighborhood would include 117 single-family lots, each approximately 3,800 square feet in area. The fifth neighborhood would include 98 lots, each approximately 3,500 square feet in area.

In addition, the proposed project includes a 23.74-acre neighborhood shopping center located at the southeast corner of the project site adjacent to Cypress Road and Sellers Avenue (See Figure 3-4). The commercial portion of the site is proposed to accommodate approximately 278,046 square feet, which would include pads for four major retail tenants, a garden center, two retail pads for smaller shops, and four smaller pads located in the southern portion of the site for restaurants, banks or similar uses. The commercial portion of the site would have signalized access to Cypress Road and would be designed to complement the architectural character of the neighborhood and provide appropriate landscaping and buffers.

Open Space

Parks

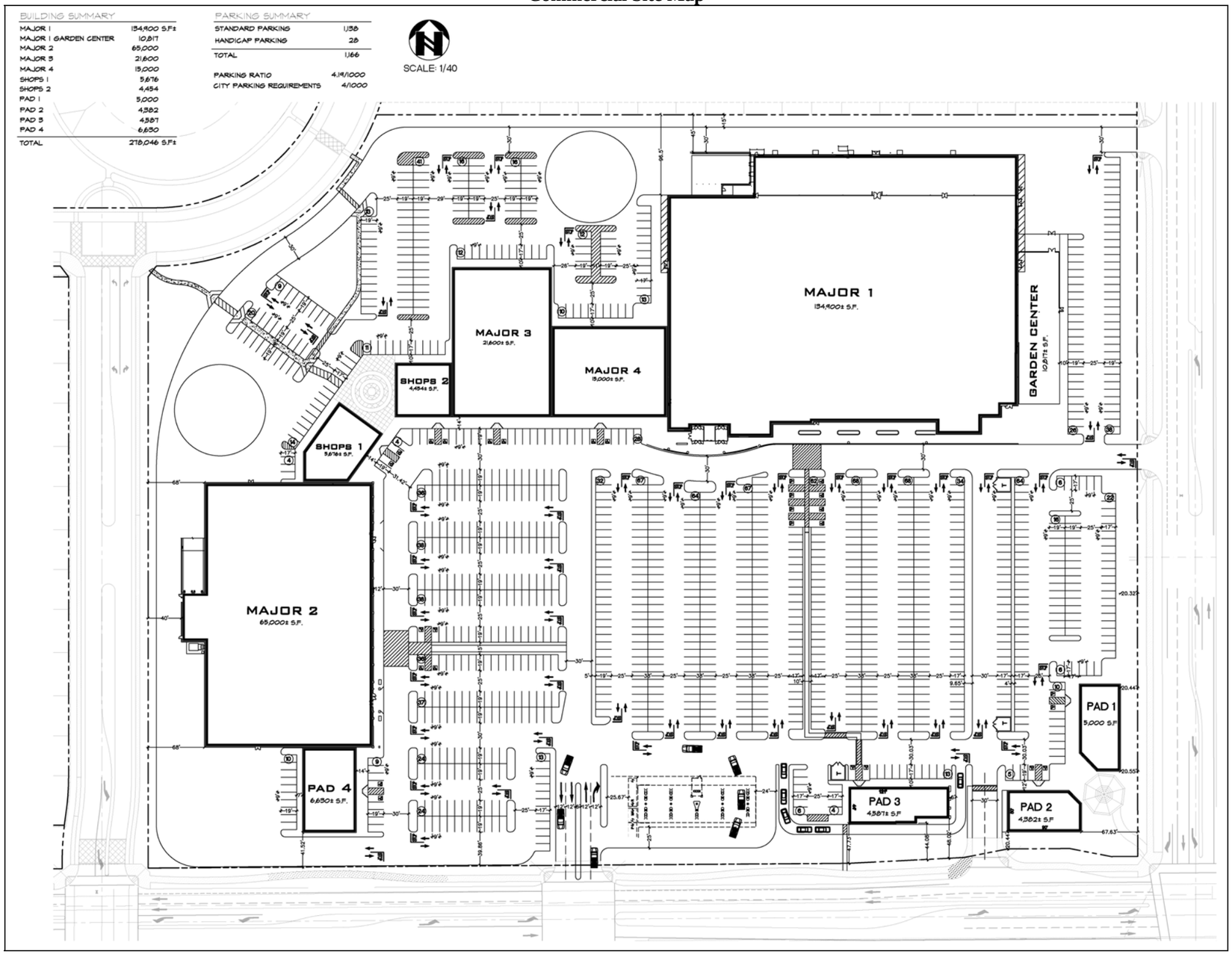
The park system within the proposed project site would include an approximately four-acre park in the center of the community, adjacent to the approximately six-acre stormwater pond.

Trails

The proposed project includes approximately four acres of trails and open space. The project would contribute to the construction of trails along the north side of Cypress Road, the west side of Sellers Avenue, the north edge of the property adjacent to the CCWD/USBR canal, and on certain local streets within the project site. The project's portion of the trail system would be provided in substantial conformance with the planning framework. The trails would ultimately provide pedestrian circulation to and from Delta Vista Middle School, Iron House Elementary School, neighborhood parks, and the future 55-acre City Park north of the CCWD/USBR canal. In addition, the project trail system would connect the project's proposed residential areas with the project's proposed commercial development.

A trail would be located along the northern boundary of the development just south of the CCWD/USBR canal. This trail would connect to the trail constructed by the Cypress Grove development to the west, which in turn provides access to the existing Marsh Creek Trail, and links to an existing regional trail system. It should be noted that the Cypress Grove project has constructed a fence along the CCWD/USBR right-of-way and a safety "liner" fence adjacent to the canal in the CCWD/USBR right-of-way.

Figure 3-4
Commercial Site Map



Levees

The project site is subject to inundation risks from the Sacramento/San Joaquin Delta, which has a 100-year flood elevation of seven feet above mean sea level (msl). The Cypress Grove project has constructed a levee system along the north and east sides of the property. The existing levee constructed by the Cypress Grove project along Sellers Avenue may be modified with this development to cross Sellers Avenue and connect into the proposed Gilbert levee system, eliminating the requirement for levees along both sides of Sellers Avenue. The levee will be built to an elevation of 10 feet above msl to protect against a flood elevation of seven feet, with an additional three feet of freeboard. The remainder of the project perimeter along Cypress Road is higher than 10 feet msl and does not require further flood protection.

Community Components

The Park Facilities Impact Fee program includes community parks, neighborhood parks, and open space components. The developer shall construct the neighborhood parks and trails to meet City requirements. To complete the obligation of the project to dedicate and improve parkland, the project would pay the remaining park in-lieu fee to facilitate the provision of the community park facilities to be located north of the CCWD/USBR canal.

Infrastructure

The primary infrastructure systems would be sized to meet demands created by buildout of the proposed project and the surrounding area. Consistent with the General Plan and the project Development Agreement, infrastructure has been upgraded to accommodate future growth anticipated in the General Plan and General Plan EIR (e.g., roadway design, drainage, etc.). In addition, the proposed infrastructure systems would be designed to accommodate the demands of the additional commercial uses. The infrastructure systems that would be constructed as a part of the project include storm drainage, wastewater, water supply, roadways, and a system of parks and trails.

The General Plan EIR analyzed the larger area-wide infrastructure systems, and project-level EIRs for the development to the west addressed the coordinated infrastructure needs for the Cypress Corridor. The Cypress Lakes community by Shea Homes has been separately analyzed under a certified project-level EIR. The project-level EIR for the Emerson Property project addresses the integrated and coordinated infrastructure relationships raised by the project, including updates to the pending projects in the vicinity of the project site.

Project Site Access

The proposed project's residential development would have a signalized primary entrance on Cypress Road at Machado Lane and a secondary entrance on Sellers Avenue. In addition, the project's internal streets would connect to two of the Cypress Grove streets to the west. The commercial portion of the project site would have a signalized primary entrance and a secondary right-in/right-out entrance on Cypress Road. A secondary entrance and a service entrance would

be provided from Sellers Avenue. Pedestrian access may be provided between the residential and commercial uses.

Roadway Improvements

Consistent with the General Plan, roadway infrastructure would be constructed to meet the needs of new residential neighborhoods and provide access to this portion of Oakley. Street widths would be designed in accordance with traffic studies completed for the project, as well as with the Oakley 2020 General Plan. The proposed project includes both on-site and off-site roadway improvements.

Cypress Road would be designed to provide an ultimate four-lane divided arterial from Cypress Grove to Sellers Avenue with a landscaped median, as well as landscaping corridors and trails on the north side of the road. The Emerson Property project would provide an increment of this improvement by constructing two westbound lanes with a landscaped median and one new eastbound lane along the entire property frontage. Sellers Avenue is ultimately designed to be a four-lane divided road from Cypress Road to the project boundary with the CCWD/USBR right-of-way. The project would include the construction of one southbound lane plus half of the median improvements as a portion of the project. Local streets would be designed and constructed per City of Oakley standards.

Roadway improvements would include the following:

- Right-of-way and easement acquisition on the south side of Cypress Road and along Sellers Avenue south of Cypress Road;
- Removal of structures;
- Transition of Cypress Road to the existing two-lane road to the east of Sellers Avenue;
- Transition of Sellers Avenue south to the existing two-lane road;
- Property dedication and improvement of Sellers Avenue north to the CCWD/USBR right-of-way;
- Modification of existing driveways to adjacent properties;
- Overhead and underground utility relocation as needed; and
- Modifications of utility services including drainage, irrigation, power, telephone, cable, etc. to adjacent properties.

Storm Drain

The design of the stormwater management facilities for the proposed project would be developed to control peak stormwater flows, improve the quality of the stormwater runoff before being discharged from the site, and to protect the homes from flooding during large storm events. A stormwater pond would be located in the central portion of the site. The pond's surface area would be approximately six acres and would be pumped into the existing outfalls to Emerson Slough, which is consistent with the area's drainage shed. The pond would be sized to accommodate developed flows for the proposed project, as well as the existing flows from

properties to the south. As the properties to the south develop, additional ponds or below grade detention would need to be constructed within those properties to detain storm flows. The outfalls have already been comprehensively studied and analyzed for CEQA purposes and permitted by the City of Oakley under the entitlements for the Cypress Grove subdivisions to the west (8678, 8679, and 8680), which have been constructed. As a result, the outfalls are not considered to be part of the proposed project.

Wastewater

The Ironhouse Sanitary District (ISD) is responsible for provision of services to the entire Cypress Corridor area and would provide wastewater service to the project site. Ironhouse Sanitary District is the successor to the former Contra Costa County Sanitation District No. 15 and the Oakley-Bethel Island Wastewater Management Authority, which merged and reorganized as ISD in 1992. Ironhouse Sanitary District owns and operates the wastewater collection, treatment, storage, and disposal facilities for the City of Oakley, for unincorporated eastern Contra Costa County communities including Bethel Island, and for the area in between. Ironhouse Sanitary District staff is currently updating their wastewater master plan and conducting CEQA review covering the master plan, for which all components of the wastewater treatment facilities are being evaluated. The wastewater management plan is intended to develop sufficient wastewater system facilities to accommodate the entire jurisdiction – of which Cypress Corridor is only one part – at buildout of the General Plan. The wastewater system is composed of collection, treatment, and disposal sub-systems.

Currently, properties connected to the system on Cypress Road pump their sewage to the treatment plant through an existing 14-inch force main in Cypress Road. The force main connects to an existing 18-inch gravity main in State Route 4 (SR 4) that flows to the treatment plant. Ironhouse Sanitary District has anticipated that a second force main, estimated at 14 inches, may be needed to serve ultimate City buildout and the ISD service boundary. This line may be constructed in Cypress Road or along the northern trail corridor adjacent to the CCWD/USBR right-of-way. The proposed project may accommodate a portion of this improvement if the improvement falls within the project boundary.

The proposed project would construct a sanitary sewer pump station on-site to collect on-site sewer flows and pump them into the existing 14-inch force main located in Cypress Road.

Water Supply

The Diablo Water District (DWD) maintains the existing water supply and infrastructure for the City of Oakley and has provided a Water Supply Assessment indicating that adequate supply exists to serve the proposed development. The DWD is a water retailer and is provided water by CCWD/USBR, acting as a water wholesaler. Water mains for the proposed project would be constructed in accordance with DWD's master plan and dedicated to the DWD upon completion. To serve the project area, a 20-inch water main has been constructed in Cypress Road from SR 4 to Sellers Avenue. In addition, a 24-inch water main has been constructed in Cypress Road from Sellers Avenue to the Cypress Lakes community by Shea Homes, and has been separately analyzed under the certified project-level EIR for the Shea Cypress Lakes project.

The Emerson property is located within the boundaries of CCWD Service Area A. Service Area A is the Los Vaqueros Project (LVP) Planning Area for receiving LVP water quality benefits. The proposed project would require annexation to the Central Valley Project (CVP) Contractual Service Area. However, the final CEQA documentation and other environmental information, including evidence of compliance with ESA and other federal regulations would need to be completed for the proposed project and coordinated through CCWD for submission to the Bureau of Reclamation as an inclusion application.

In addition, the proposed project would require a source of water for the recharge of the stormwater pond during the dry season and for irrigation of common area landscaping, including the park. The project would get this water from one of two potential sources: 1) groundwater, which would require the construction of a well in the park/stormwater pond area; or 2) water from the Emerson Slough. The Emerson homebuilders are considering the possibility of entering into an agreement with the City of Oakley to continue to use this riparian water right for lake recharge and irrigation purposes.

Required Public Approvals

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

- Certification of the EIR;
- Approval of a General Plan Amendment to redesignate a portion of the project site in order to accommodate 23.74 acres of commercial uses;
- Approval of a Rezone to Planned Development (P-1) (including Preliminary Development Plan);
- Approval of Parcel Maps;
- Approval of Vesting Tentative Maps; and
- Approval of Design Review.

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

- Acquisition of right-of-way and easements;
- Approval of Tree Removal Permit;
- Approval of Grading Permit;
- Approval of Demolition Permit;
- Approval of Building Permits; and
- Approval of pending cost-sharing agreement between the City and the developers of the proposed project and other nearby projects.

The following are actions required by other agencies:

- NPDES general construction stormwater permit from the U.S. Environmental Protection Agency;
- Section 404 permit from the U.S. Army Corps of Engineers;
- Inclusion into the CCWD's contractual service area for CVP water; and

- Flood Control District approvals and any other agency approvals required for the levee improvements.

4.0 ENVIRONMENTAL ASSESSMENT OF THE EMERSON PROPERTY PROJECT

4.1 INTRODUCTION TO THE ANALYSIS

4.1 INTRODUCTION TO THE ANALYSIS

Introduction

This EIR analyzes the potential impacts of the Emerson Property project on a range of environmental issue areas. Chapters 4.2 through 4.11 describe the focus of the analysis, references, and other data sources for the analysis, how the environmental setting relates to specific issues, project-specific impacts and mitigations measures, and cumulative impacts of the proposed project for each issue area. The format of each of these technical chapters is described below.

Determination of Significance

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

Less-Than-Significant Effects Found in the Initial Study

The Initial Study (Appendix C), prepared for the Emerson Property project as a part of this EIR, includes a detailed environmental checklist addressing a range of technical environmental issues. For each technical environmental issue, the Initial Study identifies the level of impact for the proposed project. The Initial Study identifies the environmental effects as either "no impact," "less-than-significant," "potentially significant unless mitigation incorporated," or "potentially significant." The Initial Study provided the following conclusions:

Impacts identified for the proposed project in the Initial Study as having no impact or less-than-significant and therefore, not requiring mitigation, are presented below:

Aesthetics

- Having a substantial adverse effect on a scenic vista.
- Substantially damaging scenic resources.
- Substantially degrading the existing visual character of the site and the site's surroundings.

Biological Resources

- Conflicts with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

Geology and Soils

- 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.

Hazards and Hazardous Materials

- Safety hazards for people residing or working in the project area 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.
- Safety hazards for people residing or working in the project area for a project within the vicinity of a private airstrip.

Hydrology and Water Quality

- Inundation by seiche, tsunami, or mudflow.

Land Use/Planning

- Physical division of an established community.
- Conflicts with any applicable habitat conservation plan or natural community conservation plan.

Mineral Resources

- 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.
- 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.

Noise

- Exposure of people residing or working in the project area to excessive noise levels 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.
- Exposure of people residing or working in the project area to excessive noise levels for a project within the vicinity of a private airstrip.

Population and Housing

- Displacement of substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.
- Displacement of substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Traffic and Circulation

- Changes in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks.

The above impact categories are described in the Initial Study and were deemed less-than-significant. Under Public Resources Code Section 21100(c), therefore, these impacts are not addressed further in the EIR analysis. All remaining issues addressed in the Initial Study were identified as potentially significant and are discussed in this Draft EIR.

Issues Addressed in this Draft EIR

The Initial Study identified potentially significant environmental impacts, which required further analysis. This EIR provides the additional analyses necessary to address the technical environmental impacts not fully resolved in the Initial Study. Consistent with the conclusions of the Initial Study, the following environmental issues are addressed in this Draft EIR:

- Land use and agricultural resources (including Williamson Act contracts);
- Traffic and circulation;
- Air quality;
- Noise;
- Hazards;
- Biological resources;
- Geology and soils;
- Historical and cultural resources;
- Hydrology, water supply, and water quality; and
- Public services and utilities (includes potential impacts to recreation).

Technical Chapter Format

Each technical chapter begins with an **introduction** describing the purpose of the chapter. The introduction is followed by a description of the project's **environmental setting** in reference to that particular issue. The setting description is followed by the **regulatory context** and the **impacts and mitigation measures** discussion. This discussion contains the **significance criteria**, followed by the **methods of analysis**. The **impact and mitigation** discussion includes impact statements prefaced by a number in bold-faced type. An explanation of each impact and an analysis of the impact's significance follow each impact statement. All mitigation measures pertinent to each individual impact follow directly after the impact statement. The degree of

relief provided by identified mitigation measures is also evaluated. An example of the format is shown below:

4.x-1 Statement of impact.

Discussion of impact for the proposed project in paragraph format.

Statement of ***level of significance*** of impact prior to mitigation is included at the end of each impact discussion.

Mitigation Measure(s)
Statement of *level of significance* after the mitigation is included immediately preceding mitigation measures.

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

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

4.2 LAND USE AND AGRICULTURAL RESOURCES

4.2 LAND USE AND AGRICULTURAL RESOURCES

INTRODUCTION

The Land Use and Agricultural Resources chapter of the EIR describes the existing land use setting of the proposed project and the adjacent area, including the identification of existing land uses and current General Plan policies and zoning designations. The proposed project is analyzed for consistency with existing City of Oakley policies and compatibility with surrounding land uses. In addition, the chapter includes an agricultural resources analysis that describes the soils of the project site and whether or not the site is identified as Prime Farmland. Documents referenced to prepare this section include the *City of Oakley General Plan*,[1] the *City of Oakley General Plan Draft Environmental Impact Report*,[2] and the *Contra Costa County Soil Survey*.[3]

EXISTING ENVIRONMENTAL SETTING

Land Use

Section 15125 of the CEQA Guidelines states that "an EIR must include a description of the physical environmental conditions in the vicinity of the project […] and shall discuss any inconsistencies between the proposed project and applicable general plans and regional plans." The following provides the existing land uses on the project site, as well as the existing plans and policies that guide the development of the project site.

Prior to incorporation of the City of Oakley, Contra Costa County was responsible for planning and land use in the Oakley community. The 1990 Contra Costa County General Plan update designated the approximately 1,500-acre Cypress Corridor properties owned by the Emerson, Gilbert and Burroughs families as Mixed Use (M-8). In 1997, the County approved statutory development agreements providing vested rights to develop these properties, consistent with the County General Plan and EIR. In 1997, the County for CEQA purposes relied upon the General Plan EIR and approved development agreements providing vested rights to develop the M-8 area.

In 1999, the City of Oakley incorporated. The incorporation area included the M-8 area of the County. In 2000, the City of Oakley embarked on a process to prepare and process a new General Plan to specifically service the needs of the City. The General Plan designated the 140-acre Emerson property for residential and commercial land uses and placed the site within the Cypress Corridor Special Planning Area. In December 2002, the City of Oakley adopted the Oakley 2020 General Plan. As part of the General Plan Update, the City certified a program-level EIR and prepared the Oakley 2020 General Plan Background Report.

The Cypress Corridor Special Planning Area is envisioned as a primarily residential area with supporting commercial and public uses (Oakley 2020 General Plan, p. 2-23). The General Plan

describes Special Planning Areas as distinct geographic areas within and surrounding the City of Oakley that merit special consideration. Special Planning Areas are established to identify opportunities and constraints unique to each planning area and to provide further direction regarding the City's expectations for development in these areas. The Emerson Property project occupies a portion of the Cypress Corridor Special Planning Area (See Figure 4.2-1, Special Planning Areas).

The proposed project site is bounded by the Cypress Grove subdivision, Iron House Elementary School, and Delta Vista Middle School to the west, Cypress Road to the south, the Contra Costa Water District/United States Bureau of Reclamation (CCWD/USBR) Canal to the north, and the currently vacant Gilbert and Burroughs properties to the east. It should be noted that the adjacent Gilbert Property project was recently approved by the City, and the Burroughs property has vested development rights. The area north of the Canal is currently owned by the State of California and is anticipated to be restored to wetlands in the near future. A 55-acre portion of land immediately to the north of the CCWD/USBR canal and the project site at the end of Sellers Avenue is held in escrow, pursuant to a Memorandum of Understanding and Development Agreement, for future conveyance to the City of Oakley as a community park.

Existing Land Use

Current land uses within the proposed project area include rural residential and active agricultural. The site includes a historic home/former school building in the northeast quadrant of the project site (proposed to be moved to the Community Park site immediately north of the project site), a second home, a barn and other small ancillary buildings. The rural residential uses are located in the central portion of the Emerson property. The majority of the parcel consists of pastures, as well as a private water supply well and septic systems to service the current residents. Ruderal vegetation, debris, agricultural fields, and orchards characterize the area bordering Sellers Avenue.

Existing Land Use Designations

The City of Oakley General Plan 2020 designates the project site within the Cypress Corridor Special Planning Area. The Dutch Slough Framework was created as a specific planning area within the Cypress Corridor for the Burroughs, Emerson and Gilbert properties. The General Plan Land Use Diagram (See Figure 4.2-2) designates the following land uses for the Dutch Slough Framework Plan area, which includes the proposed project site:

Single-Family Residential, High Density (3.8-5.5 du/ac)

The purpose of the Single-Family Residential, High Density (SH) land use designation is to provide for moderately dense single-family residential development that is consistent with suburban uses. This designation allows for a minimum of 3.8 dwelling units per acre (du/ac) and a maximum of 5.5 du/ac. Population density in this land use designation generally ranges from 12 to 18 persons per acre.

Figure 4.2-1
Special Planning Areas

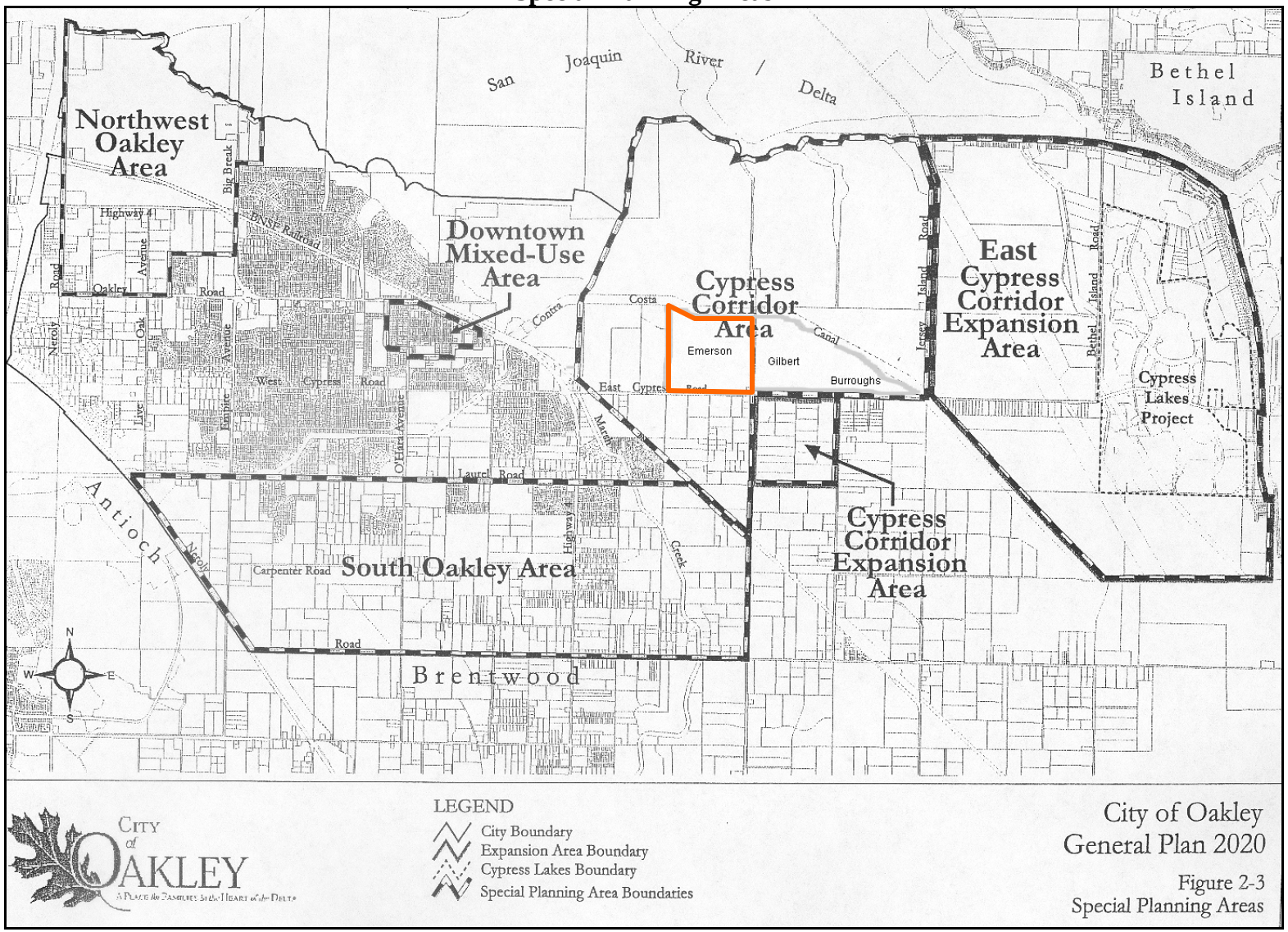
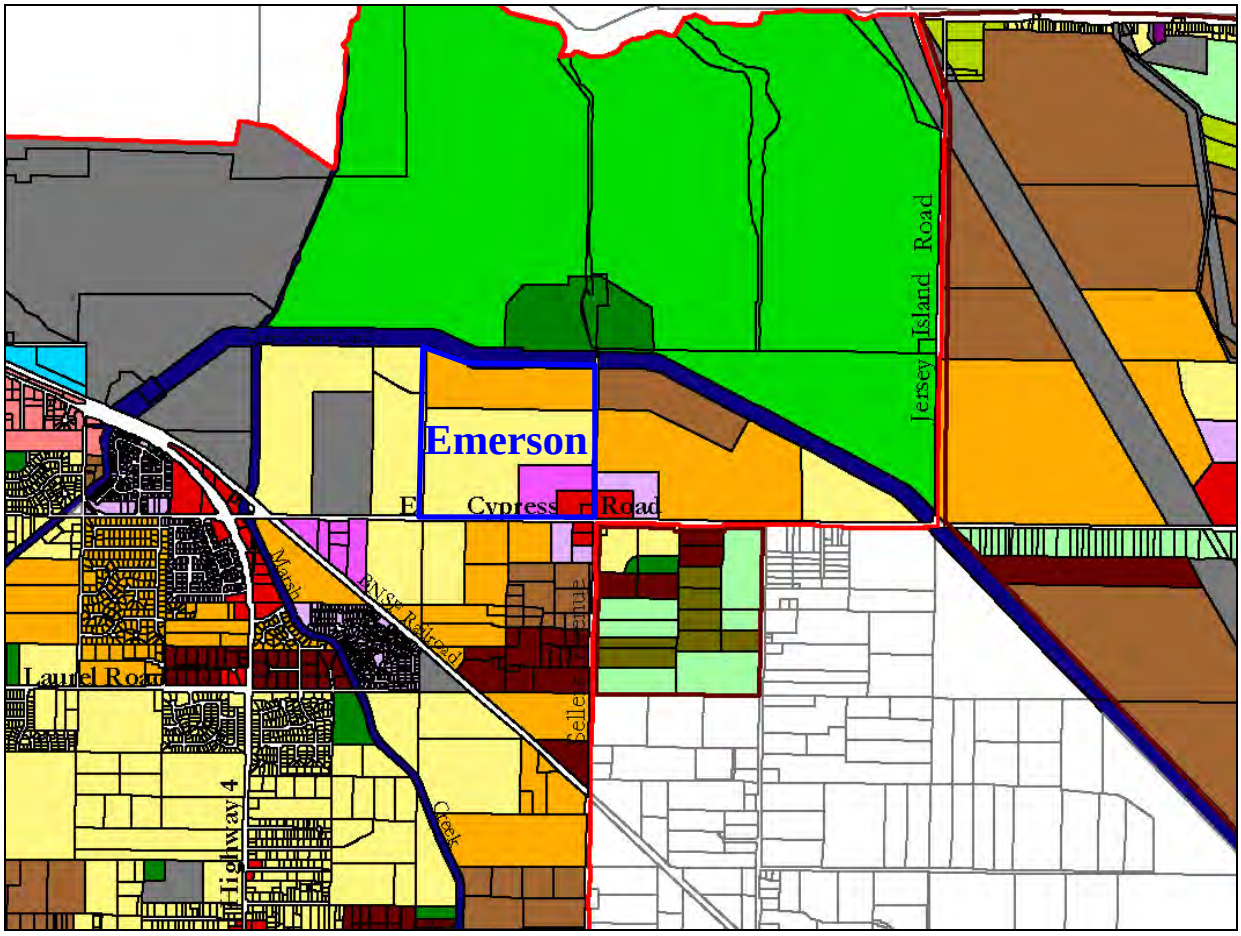


Figure 4.2-2
Existing Land Use Designations



Primary land uses include detached single-family homes and accessory structures. Secondary uses may include home occupations, small residential care and childcare facilities, churches and other places of worship, and other uses and structures incidental to the primary use.

Single-Family Residential, Medium Density (2.3-3.8 du/ac)

The purpose of the Single-Family Residential, Medium Density (SM) land use designation is to accommodate moderate density, single-family residential development. Neighborhoods comprised of this designation would more closely resemble a typical suburban development with spacious yards and little resemblance to a rural neighborhood. This designation allows for a minimum of 2.3 du/ac and a maximum of 3.8 du/ac. Population density generally ranges from eight to 12 persons per acre.

Primary permitted land uses include detached single-family homes and accessory structures. Secondary uses may include home occupations, small residential care and childcare facilities, churches and other places of worship, and other uses and structures incidental to the primary use.

Multi-Family Residential, High Density (9.6-16.7 du/ac)

The purpose of the Multi-Family Residential, High Density (MH) land use designation is to provide affordable and rental residential units, and to maximize urban residential space. This designation allows for a typical apartment-style building or a condominium complex. This designation allows a minimum of 9.6 du/ac and a maximum of 16.7 du/ac. Expected population density would normally range between 20 to 36 persons per acre.

Appropriate primary land uses include attached single-family residences (such as duplexes and duets), multiple-family residences (such as condominiums, town houses, apartments, and mobile home parks), and accessory structures normally auxiliary to the primary uses. Secondary uses may include home occupations, group care and/or childcare facilities, and private schools.

Commercial (1.0 maximum floor area ratio)

This designation allows for a broad range of commercial uses typically found adjacent to residential neighborhoods, downtowns, and freeways. The particular form of commercial zoning for different areas of the City will depend, among other factors, on the characteristics of surrounding land uses. General types of commercial uses include retail and service facilities, and limited office uses. Through sensitive design, commercial uses can be located near single-family residences with minimal disruption or impact. Typical uses may vary widely in size and purpose and include large-scale retail, regional-serving retail, grocery and convenience stores, salons, professional offices, restaurants, drug stores, dry cleaners, post office facilities, banks, and other uses of similar character and impacts. The following standards apply to commercial uses in this commercial (CO) land use designation:

- Maximum Site Coverage: 40 percent
- Maximum Building Height: 35 feet

- Maximum Floor Area Ratio (FAR): 1.0
- Average Employees per Gross Acre: 26

Existing Zoning

When the City of Oakley incorporated in 1999, the City adopted the Contra Costa County Zoning Ordinance. On October 24, 2005, the City of Oakley adopted a City Zoning Ordinance, which went into effect on November 27, 2005. However, an updated zoning map has not been approved; therefore, the project site currently retains the County zoning designation, which is inconsistent with the General Plan land use designations for the site. As a result, the land use designations are therefore considered better descriptors of the types of uses intended and anticipated for the project site.

The Oakley 2020 General Plan Background Report lists the zoning classifications that are currently used within the City of Oakley (See Background Report; Table 2-2). Current zoning for the project site is Heavy Agriculture (A-3). In the Heavy Agriculture Zone, the following uses are permitted:

(1) All types of agriculture, including general farming, horticulture, floriculture, nurseries and greenhouses, mushroom rooms, dairying, livestock production, fur farms, poultry raising, animal breeding, aviaries, apiaries, forestry, and similar agricultural uses;
(2) Other agricultural uses, including the erection and maintenance of sheds, warehouses, granaries, dehydration plants, hullers, fruit and vegetable packing plants, and agricultural cold storage plants on parcels at least ten acres in size and buildings for the storage of agricultural products and equipment;
(3) A stand not exceeding two hundred square feet for sale of agricultural products grown on the premises. The stand shall be set back at least twenty-five feet from the front property line;
(4) Foster home or family care home operated by a public agency, or by a private agency which has obtained state or local approval (license) for the proposed operation, where not more than six minors reside on the premises with not more than two supervisory persons;
(5) A family day care home where care, protection and supervision of twelve or fewer children in the provider's own home are provided for periods of less than twenty-four hours per day, while the parents or guardians are away; and
(6) The residence of the owner, owners, lessee, or lessor of the land on which the use is conducted is permitted.

Surrounding Land Uses and Designations

The surrounding land uses consist of agricultural activities to the north, south, and east, including farming and livestock grazing, and residential to the west. The proposed project site is located east of the central area of the City of Oakley. The project site is surrounded by several existing and proposed subdivisions, the Contra Costa Canal, as well as park and recreational areas. North of the Emerson property, the General Plan land use designations are Delta Recreation, and Parks and Recreation, including the future site for a Community Park. The Cypress Grove subdivision,

Iron House Elementary School, and Delta Vista Middle School are located directly west of the project site.

Surrounding General Plan Land Use Designations

The Gilbert and Burroughs properties are east of the project site and include proposed residential land uses. To the north of the project site, the land uses are Delta Recreation and Parks and Recreation. The land use designations to the west of the site are Single Family High and Public and Semi-Public. To the south of the site, a variety of land use designations exist, including the following: Commercial; Single Family Very Low, Low, Medium, and High; Multi-Family Low; Parks and Recreation; Agriculture; and Agricultural Limited.

Delta Recreation

This land use designation encompasses the lowlands of the San Joaquin Delta along the City's northern edge. Most of the land designated Delta Recreation is currently within the 100-year flood plain as mapped by FEMA, which means the area is subject to periodic flooding.

The potential for flooding on lands designated Delta Recreation is due to the possibility that bay and river waters will overtop existing levees during periods of storms. Another possibility is that portions of the earthen levees may fail entirely during storms or earthquakes, resulting in flooding of low-lying areas. The effects of subsidence and high tides coincident with major storms may increase the danger of flooding.

Due to the proximity of the Delta, these lands have substantial recreational value and offer important opportunities for public access to the Oakley waterfront, including parklands and trails offering public access. Agriculture and wildlife habitat are also considered appropriate uses of these areas. Additional uses that may, at the City's discretion, be allowed within this designation include but are not limited to marinas, shooting ranges, duck and other hunting clubs, campgrounds, golf courses and other outdoor recreation complexes.

Conditional uses allowed in the Delta Recreation land use designation are limited to those low- to medium-intensity establishments that do not rely on urban levels of service or infrastructure, and which will not draw large concentrations of people to flood-prone areas. Specific regulations for development within the Delta Recreation designation are provided within the Goals, Policies and Programs section of the Land Use Element of the General Plan.

Additionally, lands within this designation may support valuable wildlife habitat, possibly including state and federally protected wildlife species. This area is an important component of the Pacific Flyway, a major waterfowl migration route in North America.

Parks and Recreation

The Parks and Recreation designation includes publicly owned City, County, and regional parks facilities, as well as publicly or privately owned golf courses. The City should strive to maintain a ratio of six acres of park for every 1,000 residents. The ratio of six acres of park per 1,000 population is based upon the existing inventory of developed and undeveloped park and open space lands within Oakley that are under the jurisdiction of the City, the local school districts, and the East Bay Regional Park District.

Appropriate uses in this designation are passive and active recreation oriented activities, local and regional park and trails facilities, and ancillary commercial uses specifically related to the adjoining recreational activities. The construction of privately owned residences or general commercial uses, or the subdivision of land for purposes of urban development, is inconsistent with the Parks and Recreation land use designation.

Agriculture

This land use designation was established to allow agricultural uses to continue under appropriate best management practices. Typically, lands designated as Agriculture have either active cultivation of crops or some other type of use that is substantially agricultural in nature.

Due to the range of agricultural uses allowed in this designation, consideration must be given to the potential for use conflicts when urban development is proposed adjacent to designated Agriculture lands.

This designation allows for parcel sizes ranging between 2.5 and 20 acres. Population density would normally not exceed approximately one person per acre. Primary land uses include typical commercial agricultural uses, one single-family dwelling per legal parcel, and accessory structures normally auxiliary to the primary uses.

Agricultural Limited

The purpose of the Agriculture Limited (AL) designation is to accommodate light agriculture including vineyards, orchards, and row crops, animal husbandry and very low-density residential uses - reflections of the historic and continuing agrarian practices within Oakley. This designation provides for a minimum of 0.1 du/ac and a maximum of one du/ac, with a typical parcel size of one to ten acres. Based on the above assumption, population density would normally range between one to three persons per acre.

Primary land uses may include single-family residences, secondary residential units, and limited agriculture and animal husbandry, subject to developmental and operational standards. Equestrian and livestock uses are permitted within the Agriculture Limited district, subject to the following limits: one horse or head of livestock allowed per parcel, with additional horses or livestock allowed on lots greater than one-half acre at the following rate – one additional animal per 10,000 square feet in excess of one-half acre.

Limited commercial activities are possible under this land use designation, including roadside produce stands, animal boarding and breeding, and other products and services associated with the agrarian lifestyle. The Zoning Code provides specific restrictions on the application of herbicides and pesticides, addresses the proper maintenance of livestock corrals, stables and runs, and provides specific guidelines and expectations for agricultural practices within the City. Development standards for street widths, sidewalks, street lighting may, at the City's discretion, vary from typical improvement standards. Septic systems are allowed on parcels of one acre or greater, subject to site conditions and approval of the Contra Costa County Environmental Health Department. Additional land uses include home occupations, small residential care and childcare facilities within a residential dwelling, and other uses and structures incidental to the primary use.

Single Family Residential, Very Low Density

The Single Family Residential, Very Low Density (SV) land use designation is to provide a large lot residential development, which maintains the rural character. The lots typify an estate lot, but are not associated with commercial agriculture or animal husbandry, with the exception of limited numbers of horses or livestock. A maximum of one dwelling unit per gross acre is allowed, with typical lot sizes between one and five acres in size, as specified within the Zoning Code. Population density would typically range between one to three persons per acres.

Primary land uses include detached single-family homes and accessory structures, which are consistent with the rural or estate lifestyle. Unlike the AL designation, commercial agricultural practices are generally not allowed within this designation. Secondary uses may however, include home occupations, small residential care and childcare facilities, churches and other places of worship, secondary dwelling units, and other uses and structures incidental to primary use.

Single Family Residential, Low Density

The purpose of Single-Family Residential, Low Density (SL) Land Use Designation is to accommodate traditional single-family residential development, which maintains the low density typical of large-lot suburban development.

The designation allows for a minimum of 0.8 dwelling units and a maximum of 2.3 dwelling units per gross acre. Sites generally range from approximately 14,000 square feet to one acre in size. Population density in this land use designation generally ranges from three to eight persons per acre.

Primary land uses include detached single-family homes and accessory structures, Secondary uses may include home occupations, small residential care and childcare facilities, churches and other places of worship, secondary dwelling units, and other uses and structures incidental to primary use.

Multi-Family Residential, Low Density

The purpose of the Multi-Family Residential, Low Density Land Use Designation is to provide a more affordable, small lot development and to increase the availability of rental or entry-level housing.

The designation allows for a minimum of 5.5 dwelling units and a maximum of 9.6 dwelling units per gross acre. Population density in this land use designation generally ranges from12 to 20 persons per acre.

Primary land uses include detached single-family dwellings, attached single-family residences (such as duplexes and duets), multiple-family residences (such as condominiums, town houses, apartments), and accessory structures normally auxiliary to the primary uses. Secondary uses may include home occupations, group care and/or childcare facilities, and private schools.

Surrounding Zoning Designations

Surrounding zoning designations include General Agricultural District (A-2) and Heavy Agricultural District (A-3) to the east, Planned Unit District (P-1) to the west, and A-2 to the south. A conservation area is located to the north and is planned for wetland restoration.

The purpose of the A-2, A-3, and P-1 zoning designations are described below.

General Agricultural District

All types of agriculture, including general farming, horticulture, floriculture, nurseries and greenhouses, mushroom rooms, dairying, livestock production, fur farms, poultry raising, animal breeding, aviaries, apiaries, forestry, etc. are permitted in the A-2 district. Other related uses are also permitted, including agricultural accessory structure, detached single-family dwellings and accessory structures, foster homes, and family day care homes.

Heavy Agricultural District

All uses designated in the A-2 district are permitted in the A-3 district, with minor residential exceptions. Refuse disposal is allowed with a permit.

Planned Unit District

This designation provides for a large-scale integrated development or a general plan special area of concern in order to allow for a cohesive design and flexible regulations. The P-1 district is intended to allow diversification in the relationship of various uses, buildings, structure, lot sizes, and open spaces, while insuring substantial compliance with the General Plan and the intent of the City Code in requiring adequate standards necessary to satisfy the requirements of the public health, safety, and general welfare.

Agricultural Resources

The following describes current farmland and soil productivity classification systems, as well as the extent and quality of the agricultural resources present on the project site.

Farmland Classifications

The United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) uses two systems to determine a soil's agricultural productivity: the Soil Capability Classification and the Storie Index Rating System. The "prime" soil classification of both systems indicates the absence of soil limitation, which if present, would require the application of management techniques (e.g., drainage, leveling, special fertilizing practices) to enhance production. The Farmland Mapping and Monitoring Program, part of the Division of Land Resource Protection, California Department of Conservation, uses the information from the USDA and the NRCS to create maps illustrating the types of farmland in the area.

Soil Capability Classification

The Soil Capability Classification System takes into consideration soil limitations, the risk of damage when soils are used, and the way in which soils respond to treatment. Capability classes range from Class I soils, which have few limitations for agriculture, to Class VIII soils, which are unsuitable for agriculture. Generally, as the rating of the capability classification system increases, the yields and profits are difficult to obtain. A general description of soil classification, as defined by the NRCS, is provided in Table 4.2-1, Soil Capability Classification.

Table 4.2-1
Soil Capability Classification

Class	Definition
I	Soils have few limitations that restrict their use.
II	Soils have moderate limitations that reduce the choice of plants, or that require special conservation practices.
III	Soils have severe limitations that reduce the choice of plants, require conservation practices, or both.
IV	Soils have very severe limitations that reduce the choice of plants, require very careful management, or both.
V	Soils are not likely to erode but have other limitations; impractical to remove that limit their use largely to pasture or range, woodland, or wildlife habitat.
VI	Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.
VII	Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife habitat.
VIII	Soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, or water supply or to aesthetic purposes.

Source: USDA Soil Conservation Service, Soil Survey of Contra Costa County, 1977.

Storie Index Rating System

The Storie Index Rating system ranks soil characteristics according to their suitability for agriculture from Grade 1 soils (80 to 100 rating), which do not have limitations or have few limitations for agricultural production, to Grade 6 soils (less than 10), which are not suitable for agriculture. Under this system, soils deemed less than prime can function as prime soils when limitations such as poor drainage, slopes, or soil nutrient deficiencies are partially or entirely removed. The six grades, ranges in index rating, and definition of the grades, as defined by the NRCS, are provided below in Table 4.2-2, Storie Index Rating System.

Table 4.2-2
Storie Index Rating System

Grade	Index Rating	Definition
1 – Excellent	80 through 100	Soils are well suited to intensive use for growing irrigated crops that are climatically suited to the region.
2 – Good	60 through 79	Soils are good agricultural soils, although they may not be so desirable as Grade 1 because of moderately coarse, coarse, or gravelly surface soil texture; somewhat less permeable subsoil; lower plant available water holding capacity, fair fertility; less well drained conditions, or slight to moderate flood hazards, all acting separately or in combination.
3 – Fair	40 through 59	Soils are only fairly well suited to general agriculture use and are limited in their use because of moderate slopes; moderate soils depths; less permeable subsoil; fine, moderately fine or gravelly surface soil textures; poor drainage; moderate flood hazards; or fair to poor fertility levels, all acting alone or in combination.
4 – Poor	20 through 39	Soils are poorly suited. They are severely limited in their agricultural potential because of shallow soil depths; less permeable subsoil; steeper slope; or more clayey or gravelly surface soil texture than Grade 3 soils, as well as poor drainage; greater flood hazards; hummocky micro-relief; salinity; or poor fertility levels, all acting alone or in combination.
5 – Very Poor	10 through 19	Soils are very poorly suited for agriculture, are seldom cultivated and are more commonly used for range, pasture, or woodland.
6 – Non-agriculture	Less and 10	Soils are not suited for agriculture at all due to very severe to extreme physical limitations, or because of urbanization.

Source: USDA Soil Conservation Service, Soil Survey of Contra Costa County, 1977.

Farmland Mapping and Monitoring Program

The Farmland Mapping and Monitoring Program (FMMP) was established in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Department of Agriculture, Soil Conservation Service (USDA-SCS). The intent of the USDA-SCS was to produce agriculture maps based on soil quality and land use across the nation. As part of the nationwide agricultural land use mapping effort, the USDA-SCS developed a series of definitions known as Land Inventory and Monitoring (LIM) criteria. The LIM criteria classified the land's suitability

for agricultural production; suitability included both the physical and chemical characteristics of soils and the actual land use. Important Farmland Maps are derived from the USDA-SCS soil survey maps using the LIM criteria.

Since 1980, the State of California has assisted the USDA-SCS with completing mapping in the state. The FMMP was created within the California Department of Conservation (DOC) to carry on the mapping activity on a continuing basis, and with a greater level of detail. The DOC applied a greater level of detail by modifying the LIM criteria for use in California. The LIM criteria in California utilizes the SCS and Storie Index Rating systems, but also considers physical conditions such as dependable water supply for agricultural production, soil temperature range, depth of the ground water table, flooding potential, rock fragment content and rooting depth.

Important Farmland Maps for California are compiled using the modified LIM criteria (as described above) and current land use information. The minimum mapping unit is 10 acres unless otherwise specified. Units of land smaller than 10 acres are incorporated into surrounding classifications. The Important Farmland Maps identify seven agriculture-related categories: prime farmland, farmland of statewide importance (statewide farmland), unique farmland, farmland of local importance (local farmland), grazing land, urban and built-up land (urban land), and other land. Each is summarized below, based on *A Guide to Farmland Mapping and Monitoring Program (1998)*, prepared by the Department of Conservation.

Prime Farmland: Prime farmland is land with the best combination of physical and chemical features able to sustain the long-term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. The land must have been used for the production of irrigated crops at some time during the two update cycles (a cycle is equivalent to two years) prior to the mapping date of 1998 (or since 1994).

Statewide Farmland: Farmland of Statewide Importance is land similar to prime farmland, but with minor shortcomings, such as greater slopes or with less ability to hold and store moisture. The land must have been used for the production or irrigated crops at sometime during the two update cycles prior to the mapping date (or since 1994).

Unique Farmland: Unique farmland is land of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. The land must have been cultivated at some time during the two update cycles prior to the mapping date (or since 1994).

Local Farmland: Farmland of local importance is land of importance to the local agricultural economy, as determined by each county's Board of Supervisors and a local advisory committee. Contra Costa County

local farmland includes lands which do not qualify as Prime, Statewide, or Unique designation, but are currently irrigated crops or pasture or non-irrigated crops; lands that would meet the Prime or Statewide designation and have been improved for irrigation, but are now idle; and lands that currently support confined livestock, poultry operations and aquaculture.

Grazing Land: Grazing land is land on which the existing vegetation, whether grown naturally or through management, is suited to the grazing of livestock. The minimum mapping unit for this category is 40 acres.

Urban Land: Urban and built-up land is occupied with structures with a building density of at least one unit to one-half acre. Uses may include but are not limited to, residential, industrial, commercial, construction, institutional, public administration purposes, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities are mapped as part of this unit, if they are part of a surrounding urban area.

Other Land: Other land is land that is not included in any other mapping categories. The following uses are generally included: rural development, brush timber, government land, strip mines, borrow pits, and a variety of other rural land uses.

Project Site Characteristics

According to the Contra Costa County Soil Survey, the project site is made up of the Dehli sand, Marcuse clay, Piper loamy sand, and Sycamore silty clay loam soil series. The California Department of Conservation Farmland Mapping and Monitoring Program *Soil Candidate Listing for Prime Farmland and Farmland of Statewide Importance, Contra Costa County*,[4] lists Sycamore silty clay loam as being a soil that meets the criteria for Prime Farmland, and Dehli sand and Piper loamy sand as being soils that meet the criteria for Farmland of Statewide Importance. Table 4.2-3 lists the characteristics of the Dehli sand, Marcuse clay, Piper loamy sand, and Sycamore silty clay loam soil types as determined in the Contra Costa County Soil Survey (1973).

Table 4.2-3
On-Site Soil Capability Classification and Storie Index Rating

Soil Map Symbol and Name	Soil Capability Classification	Storie Index Rating	Grade
Dehli sand (DaC)	IIIs-4 - irrigated	49	3
Marcuse clay (Mb)	IVw-6 - irrigated	16	5
Piper loamy sand (Pe)	IVw-9 - pasture	36	4
Sycamore silty clay loam (So)	I	81	1

Source: USDA Soil Conservation Service, Soil Survey of Contra Costa County, 1973.

REGULATORY CONTEXT

State Regulations

California Land Conservation Act – Williamson Act

The California Land Conservation Act, better know as the Williamson Act, has been the State's premier agricultural land protection program since the act's enactment in 1965. The California legislature passed the Williamson Act in 1965 to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. The Act creates an arrangement whereby private landowners contract with counties and cities to voluntarily restrict land to agricultural and open-space uses. The vehicle for these agreements is a rolling term 10-year contract (i.e., unless either party files a "notice of nonrenewal," the contract is automatically renewed annually for an additional year). In return, restricted parcels are assessed for property tax purposes at a rate consistent with their annual use, rather than potential market value. The Emerson property is not in a Williamson Act contract.

Local Regulations

The following are the local government environmental goals and policies relevant to the CEQA review process.

The Urban Limit Line

The Contra Costa County General Plan includes an Urban Limit Line (ULL) that was established in 1990 by the voters of Contra Costa County. The ULL has been adopted by the City of Oakley and is discussed in the Oakley 2020 General Plan (p. 6-8). The ULL has two purposes: (1) to ensure preservation of identified non-urban agricultural, open space and other areas by establishing a line beyond which urban land uses can not be designated during the term of the General Plan, and (2) to facilitate the enforcement of the County 65/35 Land Preservation Standard. Properties located outside the ULL may not obtain General Plan Amendments that would redesignate them for an urban land use. The 65/35 Land Preservation Standard requires that at least 65 percent of all land in the County shall be preserved for agriculture, open space, wetlands, parks and other non-urban uses. The standard operates on a countywide basis and includes urban and non-urban uses within cities as well as the unincorporated areas. The project site is within the Urban Limit Line.

City of Oakley General Plan

The following are applicable goals and policies from the Oakley 2020 General Plan Land Use Element:

General Land Use

Goal 2.1 Guide development in a manner that creates a balanced and desirable community that maintains and enhances the character and best qualities of Oakley.

Policy 2.1.2 Consider the fiscal impacts of development in order to ensure the City has adequate financial resources to fund community projects and programs.

Policy 2.1.3 Promote commercial and residential development that supports the small town character of Oakley. Key elements include scale of buildings, landscaped open areas within projects and safe and accessible multi-use trails.

Policy 2.1.5 Preserve open space areas, of varying scales and uses, both within development projects and at the City's boundary.

Policy 2.1.8 Avoid development that results in land use incompatibility. Specifically, avoid locating sensitive uses (residential) adjacent to existing potentially objectionable uses and avoid locating potentially objectionable uses adjacent to sensitive uses.

Residential

Goal 2.2 Create new residential developments and reinforce existing neighborhoods to reflect the high quality of life in Oakley.

Policy 2.2.1 Recognize Oakley's predominantly single family residential character and distinctive qualities in planning and development decisions.

Policy 2.2.2 Require that new development be generally consistent with the scale, appearance, and small town character of Oakley.

Policy 2.2.3 Protect existing residential areas from intrusion of incompatible land uses and disruptive traffic to the extent reasonably possible.

Policy 2.2.4 Promote, in areas where different land uses abut one another, land use compatibility by utilizing buffering techniques such as landscaping, setbacks, screening and, where necessary, construction of sound walls.

Policy 2.2.5 Promote the transition from higher density centers to lower densities at City boundaries. Where high density residential is directly adjacent to low density residential or agricultural uses, buffers should be provided.

Policy 2.2.7 Consider modified development standards for large-lot development that reflects the rural nature of the development. This may include reducing or eliminating the need for traditional sidewalks, street lighting or other subdivision improvements, if the

absence of such improvements will not result in conflicts with adjacent land uses and threats to the public health, safety and welfare.

Policy 2.2.8 Preserve the limited areas planned for multi-family residential development and discourage General Plan amendments and rezoning of such areas for other uses.

Policy 2.2.9 Consider the cumulative effects of development on community facilities and services, such as transportation and schools, throughout the planning process.

Policy 2.2.13 Restrict or require increased setbacks for residential development proposed and adjacent to industrially or agriculturally designated or developed land to minimize conflicts.

Trails

Goal 2.7 Provide a system of multi-use trails that connect residential districts, employment centers and natural areas, throughout Oakley, including the Delta.

The following applicable goals and policies are from the Oakley 2020 General Plan Open Space and Conservation Element:

Agriculture

Goal 6.1 Allow agriculture to continue as a viable use of land that reflects the community's origins and minimizes conflicts between agricultural and urban uses.

Policy 6.1.1 Participate in regional programs that promote the long-term viability of agricultural operations within the City.

Policy 6.1.2 Reduce the negative impacts resulting from urban uses and neighboring agricultural uses in close proximity.

Policy 6.1.4 Incorporate parks, open space and trails between urban and agricultural uses to provide buffer and transition between uses.

Implementation Program 6.1.B Encourage consolidated development; with appropriate land use buffers of parks, open space and trails, for proposed major subdivisions adjacent to prime agricultural lands.

Implementation Program 6.1.C Modify the land use classifications and allowed use provisions and development

	standards to reflect current agricultural uses and land use compatibility.
Implementation Program 6.1.D	Require adequate setbacks for any non-agricultural structures adjacent to cultivated agriculture.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

Land Use

Based on CEQA Guidelines, a land use impact may be considered significant if any of the following conditions, or potential thereof, would result if the proposed project's implementation would do any of the following:

- Result in substantial potential for conflict as a result of incompatible land uses;
- Create a new source of substantial light or glare that would adversely affect day or night-time views in the area;
- Result in land use inconsistent with existing city plans and policies. The land use impact analysis considers the proposed project's consistency with several standards, including the existing land uses, the general plan, and the zoning ordinance;
- Disrupt or divide the physical arrangement of an established community;
- Conflict with any applicable habitat conservation plan or natural community conservation plan; or
- Conflict with any applicable land use plan, policy, regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Agricultural Resources

An agricultural impact may be considered to be significant if implementation of the proposed project would do any of the following:

- Result in the conversion of prime farmland, unique farmland, or farmland of statewide importance to nonagricultural use or impairs the agricultural productivity of prime agricultural land;
- Adversely affect agricultural viability by placing incompatible, or potentially incompatible land uses near active agricultural areas;
- Adversely affect agricultural production; or
- Conflict with existing zoning for agricultural uses, or a Williamson Act contract.

Method of Analysis

Land Use

The land use impact evaluation qualitatively compares the uses proposed for the project to the existing and other proposed uses in the vicinity of the project site in order to determine compatibility between existing and proposed uses. The determination of compatibility is based on the anticipated environmental effects of proposed uses and the sensitivity of adjacent uses to those effects. The evaluation also assesses the consistency of the proposed project with the goals and policies of the *Oakley General Plan.*

Agricultural Resources

The Agricultural Resources section utilized the following resources to assess the impacts of the project: the *City of Oakley General Plan EIR*, the *Department of Conservation: Contra Costa County Important Farmland, 1973*, the *Soil Survey for Contra Costa County*, and the *Soil Candidate Listing for Prime Farmland and Farmland of Statewide Importance, Contra Costa County*. The section assesses the impacts of the project on agricultural resources by applying the standards of significance listed above to the proposed project. If the analysis determines that the proposed project would have significant impacts on agricultural resources, mitigation measures, if available, are recommended which would reduce impacts.

Project-Specific Impacts and Mitigation Measures – Land Use

The following discussion of land use impacts is based on the implementation of the proposed project.

4.2-1 Compatibility with existing or planned surrounding land uses.

The proposed project would include single-family residential construction a commercial area, trails, parks, levees, a storm water detention pond, as well as the infrastructure improvements necessary to accommodate the new development. The determination of compatibility of land uses typically relies on a general discussion of the types of adjacent uses to a proposed project, and whether any sensitive receptors exist either on the adjacent properties or associated with the proposed project. Incompatibilities typically exist when uses such as residences, parks, churches, and schools are located adjacent to more disruptive uses such as heavy industrial, major transportation corridors, and regional commercial centers where noise and traffic levels may be high. The identification of incompatible uses occurs if one land use is anticipated to be disruptive of the existing or planned use of an adjacent property.

The proposed project would have an overall density of 4.12 du/ac. Although these dwelling unit densities are greater than the surrounding rural residential uses, the proposed project density is consistent with the densities specified in the General Plan, and is also consistent with surrounding land uses, including Cypress Grove, a residential

subdivision to the west, and another residential subdivision to the southwest of the project site.

Potential land use conflicts associated with the project could result from the agricultural-residential interface with adjacent properties and the proposed project's close proximity to the Contra Costa Canal. An additional conflict could result from the on-site commercial and surrounding, proposed and existing, residential.

The Contra Costa Canal is located at the northern boundary of the project site. Impacts related to potential conflicts between residential uses and the Canal are discussed in Chapter 4.6, Hazards, of this Draft EIR.

Impacts to agricultural operations could result from agricultural-residential land use conflicts, such as trespassing onto adjacent agricultural land by project residents. Trespassing could have potential impacts, including illegal trespass, destruction of private property, vandalism, and personal injury liability to the trespassers.

However, a 120-foot right-of-way that is located between the project site and farming operations to the south of Cypress Road would help to prevent land use conflicts. The sound wall proposed contiguous to the southern boundary of the project site would also protect residences and farming operations from land use conflicts. The Contra Costa Canal on the northern boundary of the project site, and the existing and proposed fences along the canal, would serve as buffers between agricultural operations to the north and east and proposed residential uses to the south and west. The potential land use conflicts would thus not impact the continuation of the existing agricultural activities adjacent to the project site and would not result in adverse affects to the potential residential uses on the project site. In addition, the City of Oakley General Plan 2020 EIR concluded that, at buildout (which includes the development of the proposed project site to urban uses), the impacts associated with potentially conflicting land uses would be less-than-significant.

Differing land uses within the proposed project site consist of residential and commercial. The Oakley General Plan designates five acres for commercial uses on the corner of Cypress Road and Sellers Avenue, which would be included in the proposed project. However, it should be noted that the project would include an additional 18.74 acres of commercial uses, which would require the approval of a General Plan Amendment. The General Plan previously anticipated potential impacts to locating commercial uses adjacent to proposed and existing surrounding residences. In addition, potential impacts to surrounding residential uses related to noise from the proposed commercial uses are addressed in Chapter 4.5, Noise.

Therefore, consistent with the Oakley General Plan 2020 EIR, the proposed project would result in a ***less-than-significant*** impact from the agricultural-residential interface between existing and proposed uses in the project area.

Mitigation Measure(s)
None required.

4.2-2 Impacts associated with new sources of light and glare.

A single-family residence and associated outbuildings, along with the remnants of an orchard, are located on the proposed project site, which was formerly used for agricultural purposes. Very little light or glare is currently emitted from the project site. The change from an agricultural property to a mixed-use development, including 578 single-family residential units and an approximately 278,046 square-foot commercial center, would generate new sources of light and glare. The residences located in the immediate vicinity of the project site would be considered sensitive receptors and would be adversely affected by additional sources of light and glare. In addition, the project would include a commercial center in the southeastern corner of the project site, which would produce light and glare that would impact the future residences located to the north, west, and east of the commercial center, within the proposed project. Therefore, the increase in light and glare produced by the proposed project would be considered a ***potentially significant*** impact to existing and future sensitive receptors on and around the proposed project site.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the potential impacts related to light and glare to a *less-than-significant* level.

4.2-2 *In conjunction with development of the proposed project, the developer shall shield all on-site lighting so that the light is directed within the project site and does not illuminate adjacent properties. In addition, the project applicant shall submit a detailed lighting plan, showing the locations and design of shielded light fixtures, for the review and approval of the Community Development Department, the Police Department, and the Engineering Department in conjunction with the approval of Improvement Plans.*

4.2-3 Consistency with adopted General Plan designations and policies.

The City of Oakley General Plan 2020 Land Use Diagram (Figure 2-2 of the General Plan) designates the following land uses for the proposed project site:

- Single Family High (3.8-5.5 du/ac)
- Single Family Medium (2.3-3.8 du/ac)
- Multi-Family High (9.6-16.7 du/ac)
- Commercial (1.0 maximum floor area ratio)

The proposed project would include 578 single-family residential units, a 23.74-acre commercial center, 10.13 acres of park/open space, trails, levees, a stormwater detention pond, and the infrastructure improvements necessary to accommodate the new development.

The Emerson property, as a component of the 303-acre Dutch Slough Planning Area, is consistent with the 1990 Contra Costa County General Plan Mixed Use (M-8) land use

designation. The project would also be consistent with the General Plan's vision for the project area, in that the project would urbanize the site as a residential corridor with supporting commercial and community uses. In addition, the proposed project would be consistent with the land uses included in the Dutch Slough Properties Development Agreement, and would be consistent with the Framework Study for the proposed project area. However, the project would require a General Plan Amendment to redesignate 13.24 acres in the southeast portion of the site from Multi-Family High to Commercial.

While the proposed project is inconsistent with the General Plan Land Use designation for the site, the application for the site includes a request to amend the General Plan designation. In evaluating the amendment to the General Plan designation, several General Plan policies must be examined for consistency.

The City's policy documents have provided the primary planning direction for the planning area. The residential component of the proposed project would be consistent with *Policy 2.2.1* of the General Plan, because the proposed project would maintain the single-family residential character and distinctive qualities in planning and development decisions by keeping with the scale, appearance, and small town character of Oakley.

Although the proposed project is located adjacent to agricultural lands, the project does incorporate open space and trails between urban and agricultural land to provide buffers and transitions between uses (*Policy 6.1.4*). The proposed project is also consistent with *Policy 2.2.4* of the General Plan because, in areas where different land uses abut, the project would promote land use compatibility by utilizing buffering techniques such as landscaping, setbacks, screening and, where necessary, construction of sound walls.

The proposed project is consistent with *Policy 2.3.6* of the General Plan because the proposed commercial center would be central to the new and existing neighborhoods within the area. Adequate access and consistent design with a community theme are components proposed for the project. The project also includes a system of multi-use trails that connect the residential neighborhoods, employment centers and natural areas, throughout Oakley, including the Delta (*Goal 2.7*).

Overall, in terms of the goals and policies in the Oakley General Plan, the project is generally consistent. However, the final authority for determination of General Plan consistency rests with the Oakley City Council. Approval of the project is a discretionary action of the City Council. Should the City Council deny the project, an inconsistency would not occur. Should the City Council approve the project, the requested amendments to the General Plan would be approved concurrently and an inconsistency would not occur because the project would be found generally consistent. Therefore, a ***less-than-significant*** impact would result.

Mitigation Measure(s)
None required.

4.2-4 Consistency with existing zoning.

The proposed project site is currently zoned Heavy Agriculture (A-3). The current zoning on the project site is not consistent with the urban development proposed for the project or the General Plan land use designations. The project application includes a request to rezone the project site from the existing zoning designation to Planned Development (P-1). The City of Oakley Zoning Ordinance states the following intent and purpose of the P-1 Planned Development zoning:

> A large-scale integrated development, infill development, or a General Plan special area of concern provides an opportunity for, and requires cohesive design when flexible regulations are applied, whereas the application of conventional regulation, designed primarily for individual lot development, to a large-scale development, infill development, or special area may create a monotonous and inappropriate neighborhood or development. The purpose of the P-1 District is to allow diversification in the relationship of various uses, buildings, structures, lot sizes and open spaces, ensure compatibility with surrounding land uses, and to ensure substantial compliance with the General Plan and the intent of the Municipal Code in requiring adequate standards necessary to satisfy the requirements of the public health, safety and general welfare. These standards shall be observed without unduly inhibiting the advantages of a large-scale site or special area planning.

The P-1 district permits any land use permitted in an approved final development plan, consistent with the General Plan. The applicant for the Emerson property has submitted a Tentative Map, which includes the final development plans for the P-1 zoning district. The applicant is also required to undergo Design Review in order to be compliant with the permitted uses, development standards, landscaping, and public improvements associated with the development of the proposed project. However, the rezone of the project site from A-3 to P-1, with the uses proposed in the project, would make the project site consistent with the adopted Oakley 2020 General Plan land use designations, with the exception of a portion located in the southeast corner of the project site that would be redesignated from residential use to commercial use.

The project site has been designated for urban uses and densities by the General Plan. Although the surrounding uses are primarily agricultural, the adjacent properties are also designated for development and the area to the immediate west of the proposed project is developed. The proposed P-1 zoning, which allows for residential, commercial, recreational, and public uses, would be consistent with the City's goals for the Cypress Corridor Planning Area. Although the proposed project does require a rezone, the project is consistent with the City's anticipated use of the site; therefore, impacts resulting from a rezone would be considered ***less-than-significant***.

Mitigation Measure(s)
None required.

Cumulative Impacts – Land Use

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region.

4.2-5 Increases in the intensity of land uses in the region due to the proposed project and all other projects in the Oakley area.

The proposed project, along with all known projects in the City of Oakley, would change the intensity of land uses in the City's Planning Area. However, the 2020 General Plan designates this area for urban development. Furthermore, the 2020 General Plan has anticipated for such growth. The proposed project site was designated M-8 for urban land uses prior to the City's incorporation of the proposed project area. Subsequently, the City's General Plan designated the proposed project area for urban development, and the Development Agreement for the site anticipated that the proposed project area be developed for urban uses. In addition, all development proposed and constructed within the City are reviewed for consistency with citywide land use controls and development standards during the course of the project review and approval process. Given the land use controls and development standards presently in use within the City of Oakley, and the consistency of the project with the goals and policies found in the General Plan, cumulative land use impacts would be reduced to a ***less-than-significant*** level.

Mitigation Measure(s)
None required.

Project-Specific Impacts and Mitigation Measures – Agricultural Resources

The following discussion of agricultural impacts is based on the implementation of the proposed project. It should be noted that land use incompatibilities between proposed uses and adjacent agricultural uses are addressed in Impact 4.2-1 above.

4.2-6 Impacts to Williamson Act contracts and agricultural zoning.

Although the proposed project area is currently zoned for agricultural uses, the City of Oakley General Plan designates the project area for residential and commercial uses. The conversion of the project area to residential and commercial land uses would be generally consistent with the urban land use designations in the General Plan for the project site. Please note that the southeast corner of the project site would be redesignated for additional commercial use. In addition, the project site is not under Williamson Act Contract. Therefore, the proposed project would have a ***less-than-significant*** impact in regard to land that is currently under Williamson Act contracts.

Mitigation Measure(s)
None required.

4.2-7 Conversion of Prime Farmland to urban uses.

The proposed project site has historically been used for agricultural purposes and thus has an agricultural character, with many non-native grasses and forbs and generally disturbed land. Although the site is zoned Heavy Agriculture (A-3) and the recent agriculture/grazing practices were generally consistent with the project zoning, the intended urban uses of the site are designated in the Oakley General Plan Land Use Element.

The project site is comprised of approximately 140 acres of agricultural land, which currently contains vacant fallow agricultural lands and pasture lands. The proposed project includes the development of residential units and a commercial center, which would result in the conversion of the parcel to urban development.

According to the Contra Costa County Soil Survey, the project site is made up of the Dehli sand (DaC), Marcuse clay (Mb), Piper loamy sand (Pe), and Sycamore silty clay loam (So) soil series. According the California Department of Conservation Farmland Mapping and Monitoring Program *Soil Candidate Listing for Prime Farmland and Farmland of Statewide Importance, Contra Costa County* Sycamore silty clay loam (So) is listed as a soil that meets the criteria for Prime Farmland, and Dehli sand (DaC) and Piper loamy sand (Pe) are listed as soils that meet the criteria for Farmland of Statewide Importance.

The certified Oakley 2020 General Plan EIR states that the General Plan accommodates agriculture while providing the balanced needs of the City (General Plan DEIR, p.3-77). The General Plan states that the City of Oakley through the General Plan is primarily completing the urbanization of the area as originally intended by Contra Costa County. Sixty-five (65) percent of the County is protected as undeveloped. The Oakley Planning Area falls in the thirty-five (35) percent that is designated for development.

In addition, agricultural resources are currently fragmented, and, as a result, commercial agriculture is substantially compromised. The Oakley 2020 General Plan EIR found that the incremental environmental effect of the development of the City consistent with the General Plan would have a less-than-significant impact on agriculture, which includes the project site.

The proposed project would be consistent with the Mixed Use (M-8) land use designation for the proposed project site included in the 1990 Contra Costa County General Plan. In 1997, the County approved statutory development agreements providing vested rights to develop these properties, consistent with the County General Plan and EIR. In 1997, the County, for CEQA purposes, relied upon the General Plan EIR and approved development agreements providing vested rights to develop the M-8 area.

In 1999, the City of Oakley incorporated. The incorporation area included the M-8 area of the County. In 2000, the City of Oakley embarked on a process to prepare and process a new General Plan to specifically service the needs of the City. The General Plan

included the 140-acre Emerson property with residential and commercial land use designations (See Figure 4.2-2, Existing Land Use Designations).

Moreover, the Emerson property is subject to a development agreement that vests the property with urban land use designations. The development agreement approvals have already undergone CEQA review and, at that time, a negative declaration was issued finding that agricultural land conversion to urban use was a less-than-significant impact. At that stage in the CEQA process, for the development agreement approval, agricultural impacts associated with the proposed project were addressed and the City approved the development agreement.

The implementation of the General Plan goals and policies regarding agricultural land would reduce the impact of converting the agricultural lands on the project site to urban uses. It should be noted that although the project would include a General Plan Amendment to redesignate a portion of the site for commercial uses, the General Plan previously designated this portion of the site for residential uses, and the conversion of agricultural land to urban development would still occur. Therefore, in accordance with the findings of the certified Oakley 2020 General Plan EIR and the Emerson Property Development Agreement Initial Study/Negative Declaration, the loss of Prime Farmland and Farmland of Statewide Importance caused by the project would be considered a ***less-than-significant*** impact because the project would be required to implement General Plan policies and programs that are designed to preserve the agricultural heritage of Oakley.

Mitigation Measure(s)
None required.

Cumulative Impacts – Agricultural Resources

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region.

4.2-8 Cumulative loss of agricultural land.

The Contra Costa County General Plan incorporates an Urban Limit Line (ULL) and has established a minimum 40-acre lot size for prime agricultural lands outside the Urban Limit Line. The entire Oakley Planning Area is located inside the County ULL and was, therefore, determined generally appropriate for urban development.

Although the General Plan Policies and Programs do preserve a buffer between urban development and agricultural land, the Oakley 2020 General Plan is primarily completing the urbanization of this area as originally intended by the County in the 1990 Contra Costa County General Plan, which designated the proposed project site for Mixed Use land uses. In addition, the proposed project site is within the Cypress Corridor Special Planning Area. The Cypress Corridor Special Planning Area is envisioned as a primarily residential area with supporting commercial and public uses (Oakley 2020 General Plan, p. 2-23). The General Plan describes Special Planning Areas as distinct geographic areas within and surrounding the City of Oakley that merit special consideration. Special

Planning Areas are established to identify opportunities and constraints unique to each planning area and to provide further direction regarding the City's expectations for development in these areas.

As mentioned above, 65 percent of the County is protected as undeveloped land. The Oakley Planning Area falls in the 35 percent that is designated for development. Although agricultural resources are currently fragmented and commercial agriculture is substantially compromised, the Oakley 2020 General Plan EIR found that the General Plan accommodates agriculture while providing for the balanced needs of the City (General Plan DEIR, p. 3-77). In addition, it should be noted that although the project would include a General Plan Amendment to redesignate a portion of the site for commercial uses, the General Plan previously designated this portion of the site for residential uses, and the conversion of agricultural land to urban development would still occur.

Therefore, the proposed project and cumulative development within the ULL resulting from the buildout of the General Plan would not result in a significant regional and/or statewide loss to Prime Farmland. The incremental environmental effect of the General Plan buildout on agriculture is determined to be ***less-than-significant*** upon implementation of the Policies and Programs of the Oakley 2020 General Plan (Oakley 2020 General Plan EIR, pp. 3-75, 77).

Mitigation Measure(s)
None required.

Endnotes

[1] City of Oakley. *Oakley 2020 General Plan*. August 30, 2002.
[2] City of Oakley. *Oakley 2020 General Plan Draft Environmental Impact Report*. September, 2002.

4.3 TRAFFIC AND CIRCULATION

4.3 TRAFFIC AND CIRCULATION

INTRODUCTION

The Traffic and Circulation chapter of the EIR describes the existing and future conditions for transportation and circulation both with and without the proposed project. The analysis provides information on local roadway networks, levels of service, and potential effects on the local transportation system associated with traffic generated by the project. In addition, this chapter provides an assessment of the site access and internal site circulation. The information in this chapter is based on a transportation impact analysis[1] for the Emerson property, conducted by Abrams Associates Traffic Engineering (See Appendix D of this Draft EIR).

EXISTING ENVIRONMENTAL SETTING

The Emerson property includes 140 acres and is located north of Cypress Road. The Emerson property is proposed for residential development consisting of up to 578 single-family residential units. The project includes five neighborhoods with varying lot sizes, with housing that would primarily consist of Single Family Residential, High Density dwelling units. In addition, the proposed project includes a 23.74-acre neighborhood shopping center located at the southeast corner of the project site adjacent to Cypress Road and Sellers Avenue. The site would have signalized access to Cypress Road, accommodating a neighborhood center of approximately 278,000 square feet.

Implementation of the project would increase vehicular traffic in the area, which could adversely affect traffic operations, particularly at critical intersections in the area. Figure 4.3-1 shows the project location and the study intersections that were included in the analysis. A discussion of the existing traffic and transportation conditions in the project study area is provided below.

Existing Conditions

Land Use

The project site has historically been used for dairy and agricultural purposes and is located to the east of the approved and partially developed Cypress Grove residential project, the Delta Vista Middle School and the Iron House Elementary School. The project site is bounded on the north by the Contra Costa Water District Canal (CCWD/USBR Canal), which separates the project site from the open space acreage to the north currently owned by the State of California. A 55-acre portion of land immediately to the north of the CCWD/USBR canal and the project site at the end of Sellers Avenue is held in escrow for future conveyance to the City of Oakley as a community park.

Figure 4.3-1
Project Location and Study Intersections

Source: Abrams Associates, Inc., June 2008.

Roadways

Abrams Associates conducted an extensive analysis of the existing roadways in the vicinity of the project site. The following are descriptions of the primary roadways studied: State Route 4 (SR 4) / Main Street, Cypress Road, Sellers Avenue, Knightsen Avenue, Laurel Road, and Delta Road.

State Route 4 / Main Street is a two-lane major arterial that carries approximately 25,500 vehicles per day. Main Street is currently the only major north-south transportation corridor in the vicinity of the project that provides direct access from Oakley to the greater Bay Area and a link between Contra Costa County and San Joaquin County to the east. Mixed residential, commercial, and agricultural uses characterize the lands along both sides of SR 4 between Rose Avenue and Laurel Road. Maximum speeds posted on SR 4 in the project vicinity are: 35 miles per hour (mph) west of Rose Avenue, 45 mph between Rose and Bernard Road, and 40 mph south of Bernard Road.

Cypress Road is an east-west, two-lane residential arterial west of SR 4 and a two- to four-lane arterial east of SR 4 that is also referred to as East Cypress Road. The posted speed limit on Cypress Road is 50 mph east of SR 4 in the vicinity of the project site.

Sellers Avenue is a north-south, two-lane rural road that currently has residential lots south of Cypress Road and farmlands to the north.

Knightsen Avenue is a north-south, two-lane rural road that extends north from Eden Plains Road to terminate at East Cypress Road.

Laurel Road is an east-west two-lane residential collector street with residential and vacant land on both sides. The posted speed on Laurel Road is 45 mph. Laurel Road is located approximately one-half mile south of the project site, parallel to Cypress Road, and is planned to be extended to Sellers Avenue.

Delta Road is an east-west, two-lane rural road that extends east from Main Street and provides a future connection to the north end of the planned Byron Highway.

Traffic Operations

During the AM peak hour, the primary direction of traffic in the vicinity of the project is westbound as area residents use SR 4 and other roadways to travel to employment in the Bay Area. During the PM peak hour, the primary direction of traffic is eastbound as residents return home. Main Street is currently used as the primary route of travel to the nearest freeway (SR 4). Because Main Street is designated as a State highway in the study area, the roadway also serves a high truck volume (about 10 percent of vehicles are multi-axle trucks) that contributes to the congestion along the corridor. As mentioned previously, the Union Pacific (UP) Railroad crosses East Cypress Road about 650 feet east of Main Street. The crossing is currently at-grade and controlled by gates on East Cypress Road. Based on current observations, when trains cross East Cypress Road the eastbound East Cypress Road traffic can back to Main Street and interfere

with the regular operations at the East Cypress Road/Main Street intersection, mainly during the PM peak hour. Although East Cypress Road is being improved in the area, grade-separating the railroad crossing is not planned.

Intersection Operations

The existing peak hour traffic volumes are shown on Figure 4.3-2 and the existing lane configurations are shown in Figure 4.3-3. Each project study intersection was analyzed according to the methodology and standards set forth in the "Impacts and Mitigation Measures" section of this chapter.

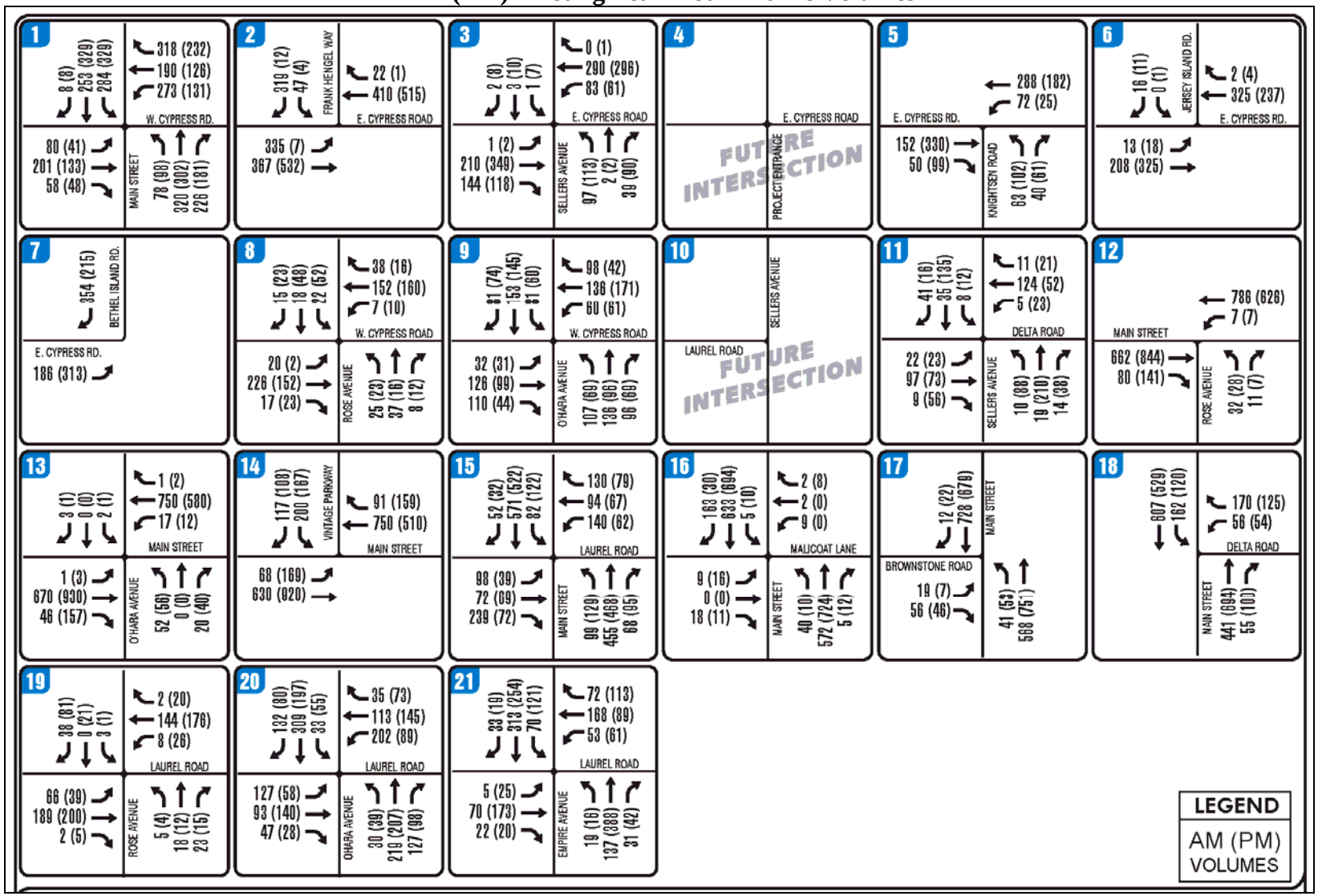
Existing intersection operations were evaluated for the weekday AM and PM peak hours at the study intersections. All signalized study intersections currently operate at an acceptable level of service (LOS), which is LOS D or better, according to City and County standards (See Table 4.3-1 of LOS definitions). However, it should be noted that two unsignalized intersections have side street approaches that operate at LOS F.

The stop-controlled T-intersections of Main Street with Rose Avenue and with Delta Road, though operating at LOS A overall, both operate at LOS F on the stop-controlled side street movements during the peak hours. The motorists on unsignalized side streets such as these often have substantial delays before they can enter the stream of traffic on Main Street. The Main Street/Rose Avenue intersection currently does not meet any of the Caltrans' traffic signal warrants. However, the intersection of Main Street with Delta Road already meets the peak hour volume warrant under existing conditions. A review of the queue lengths for the southbound left-turn movement on Main Street indicates that the current traffic controls do not cause problems to the mainline operations. Observations at this intersection indicate that the current operations are acceptable with stop control on the Delta Road approach because the majority of traffic on the side street turns right onto Main Street. The majority of this side street traffic appears to be generated by commuters attempting to bypass congestion on SR 4 in Brentwood by using side streets such as the Byron Highway and Delta Road. Table 4.3-2 summarizes the existing conditions at the project study intersections.

Transit Service

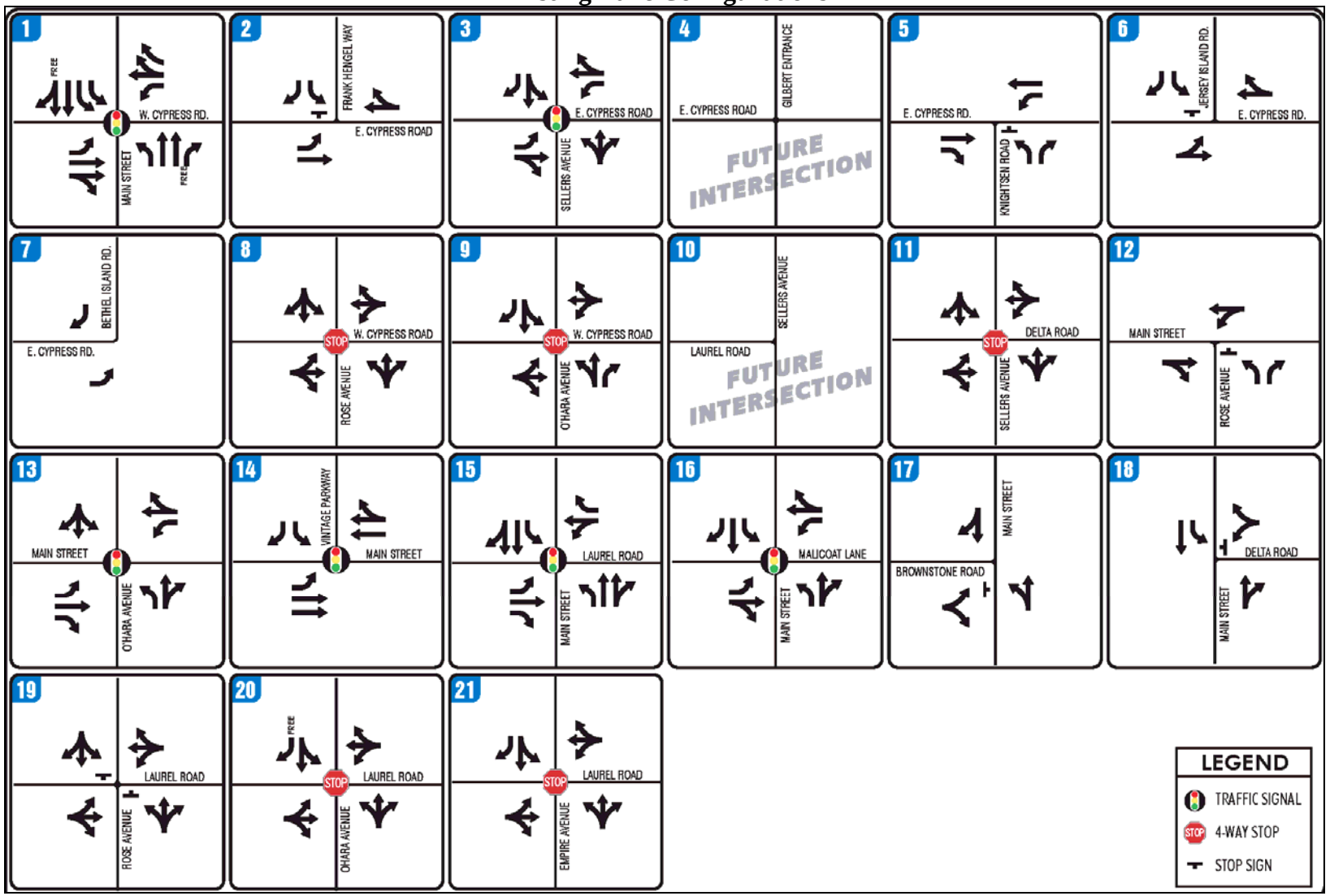
Tri-Delta Transit provides transit service in the area, providing three lines connecting Brentwood and the Pittsburg/Bay Point Bay Area Rapid Transit (BART) station. Tri-Delta Transit Route 391 operates during the commute hours on weekdays and Route 392 operates on weekends only. Both routes travel through local streets in Brentwood, Oakley, and Antioch. Route 300 is an express route on SR 4 with only four stops between Brentwood and the BART station. In the vicinity of the project, all three lines have bus stops located at the Main Street (SR 4)/Cypress Road intersection just to the southwest of the project site. However, service is not currently provided on Cypress Road east of SR 4/Main Street.

Figure 4.3-2
AM (PM) Existing Peak Hour Traffic Volumes



Source: Abrams Associates, Inc., June 2008.

Figure 4.3-3
Existing Lane Configurations



Source: Abrams Associates, Inc., June 2008.

Table 4.3-1
Level of Service for Signalized Intersections

Level of Service	Description
LOS A V/C Range 0.00 - 0.60 Average Stop Delay (seconds) 0.0 - 10.0	Free flow. If signalized, conditions are such that no vehicle phase is fully utilized and no vehicle waits through more than one red indication. Very slight or no delay.
LOS B V/C Range 0.61 - 0.70 Average Stop Delay (seconds) 10.1 - 20.0	Stable flow. If signalized, an occasional approach phase is fully utilized; vehicle platoons are formed. Slight delay.
LOS C V/C Range 0.71 - 0.80 Average Stop Delay (seconds) 20.1 – 35.0	Stable flow or operation. If signalized, drivers occasionally may have to wait through more than one red indication. Acceptable delay.
LOS D V/C Range 0.81 - 0.90 Average Stop Delay (seconds) 35.1 - 55.0	Approaching unstable flow or operation; queues develop but quickly clear. Tolerable delay.
LOS E V/C Range 0.91 - 1.00 Average Stop Delay (seconds) 55.1 - 80.0	Unstable flow or operation; the intersection has reached ultimate capacity. Congestion and intolerable delay.
LOS F V/C Range[1] - Measured 1.00 or less - Forecast 1.01 or more Average Stop Delay (seconds) > 80	Forced flow or operation. Intersection operates below capacity. Jammed.

[1] While forecast demands can exceed maximum capacity, actual measured volumes theoretically cannot. Since traffic inefficiencies arise at capacity demand conditions, the calculated V/C ratios for LOS "F" conditions can be substantially below a V/C of 1.00.

Notes: The 2000 Highway Capacity Manual methodology for analyzing signalized intersections measures the performance by the control delay per vehicle in seconds. The Critical Movement Analysis Methodology, required by the CCTA, is described in Transportation Research Board's Circular 212 and defines LOS for signalized intersections in terms of the ratio of critical movement traffic volumes to an estimate of the maximum capacity for critical volume at an intersection. Critical movements at an intersection are calculated by determining the maximum traffic volumes for conflicting traffic movements (i.e., left-turns plus opposing through traffic) per single stream of traffic (by lane). For the Critical Movement Methodology the LOS for intersections is determined by the ratio of critical movement volume to critical movement capacity (volume-to-capacity ratio = V/C) for the entire intersection. Six categories of LOS are defined, ranging from LOS "A" with minor delay to LOS "F" with delays averaging more than 40 seconds during the peak hour.

Source: Abrams Associates, Inc., June 2008.

Table 4.3-2
Existing Intersection Operations

	Intersection	Control	Peak Hour	Existing	
				Measure	LOS
1	Main Street (SR 4) and Cypress Road	Traffic Signal	AM PM	v/c = 0.56 v/c = 0.45	A A
2	East Cypress Road/Frank Hengel Way	Stop Sign	AM PM	23.1 sec 13.7 sec	C B
3	East Cypress Road/Sellers Avenue	Traffic Signal	AM PM	v/c = 0.20 v/c = 0.24	A A
4	East Cypress Road/Main Project Entrance	Future	AM PM	N/A N/A	N/A N/A
5	East Cypress Road/Knightsen Avenue	Stop Sign	AM PM	12.3 sec 13.1 sec	B B
6	East Cypress Road/Jersey Island Road	Stop Sign	AM PM	10.1 sec 9.8 sec	B A
7	East Cypress Road/Bethel Island Road	Stop Sign	AM PM	9.3 sec 10.1 sec	A B
8	West Cypress Road at Rose Avenue	Stop Sign	AM PM	8.1 sec 7.9 sec	A A
9	West Cypress Road at O'Hara Avenue	Stop Sign	AM PM	10.0 sec 8.9 sec	B A
10	Sellers Avenue at Laurel Road	Future	AM PM	N/A N/A	N/A N/A
11	Sellers Avenue at Delta Road	Stop Sign	AM PM	7.6 sec 8.5 sec	A A
12	Main Street (SR 4) at Rose Avenue	Stop Sign	AM PM	33.5 sec 37.3 sec	D E
13	Main Street (SR 4) at O'Hara Avenue	Traffic Signal	AM PM	v/c = 0.49 v/c = 0.61	A B
14	Main Street (SR 4) at Vintage Parkway	Traffic Signal	AM PM	v/c = 0.40 v/c = 0.39	A A
15	Main Street (SR 4) at Laurel Road	Traffic Signal	AM PM	v/c = 0.45 v/c = 0.35	A A
16	Main Street (SR 4) at Malicoat Avenue	Traffic Signal	AM PM	v/c = 0.42 v/c = 0.47	A A
17	Main Street (SR 4) at Brownstone Road	Stop Sign	AM PM	36.6 sec 26.3 sec	E D
18	Main Street (SR 4) at Delta Road	Stop Sign	AM PM	>50 sec >50 sec	F F
19	Laurel Road at Rose Avenue	Stop Sign	AM PM	11.6 sec 12.0 sec	B B
20	Laurel Road at O'Hara Avenue	Stop Sign	AM PM	13.1 sec 10.6 sec	B B
21	Laurel Road at Empire Avenue	Stop Sign	AM PM	9.4 sec 12.7 sec	A B

Source: Abrams Associates, Inc., June 2008.

Baseline Conditions

In order to provide a more accurate forecast of the impact of the proposed project on traffic in the area, an analysis was conducted to determine the traffic that would be added from approved projects that could affect the study area. The adjusted data is based on a complete list of approved projects provided by the City of Oakley and contained in the East Cypress Road Specific Plan Traffic Study. For the purposes of this analysis, the traffic study assumed that not more than approximately 50 percent of the East Cypress Road Specific Plan development could be constructed and occupied before the proposed project is completed. Figure 4.3-4 shows the baseline traffic volumes that were used in this analysis. The data was used to analyze the baseline (or "background") traffic conditions from which the effects of the proposed project are measured. The baseline represents the traffic conditions that are forecast to exist once already approved projects (and other reasonably foreseeable projects) are completed and occupied.

Baseline Roadway Improvements

Funded roadway improvements planned for the next few years were assumed to be in place under the Baseline conditions. Major roadway improvements planned in the study area include:

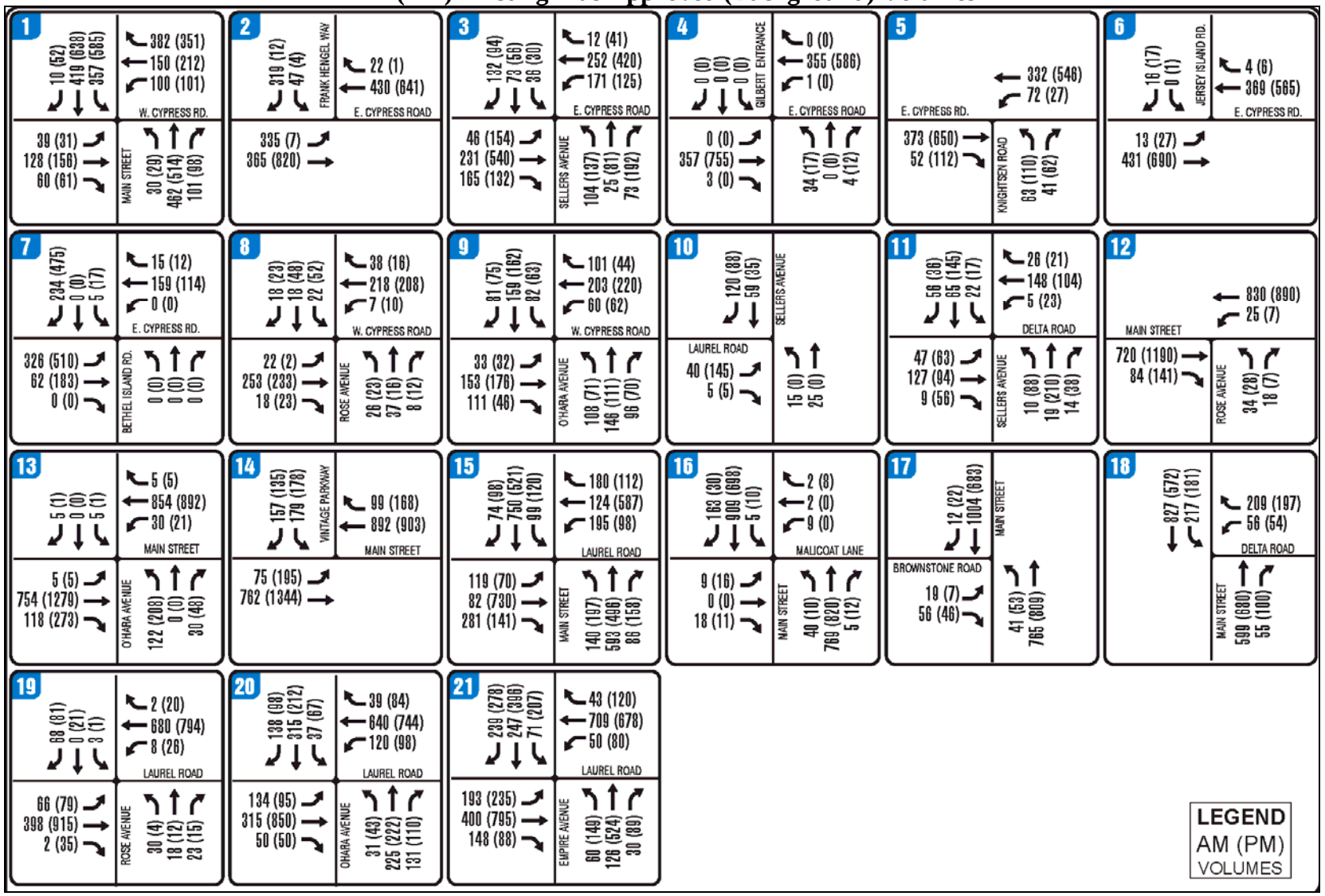
- Extension of Neroly Avenue from the road's current terminus east to Main Street;
- Extension of East Cypress Road from Bethel Island Road to Sandmound Boulevard as a four-lane arterial;
- Signalization of East Cypress Road/Bethel Island Road intersection;
- Signalization of the Main Street/Live Oak Avenue intersection;
- Widening of East 18th Street to four lanes between Willow Avenue and SR 4;
- Addition of a northern leg and signalization of the East 18th Street/Phillips Lane intersection;
- Signalization of the Wilbur Avenue/Minaker Drive intersection; and
- Addition of a second left turn lane on northbound Neroly Road at the Main Street/Bridgehead Road/Neroly Road intersection.

Intersections

With the addition of the approved project's traffic to existing traffic volumes, several intersections would exceed the standards set forth by the City of Oakley and Contra Costa County (LOS D or better). Because Main Street provides the primary access to regional transportation facilities, most of the expected Baseline traffic would be added to Main Street. As a result, several study intersections along Main Street (SR 4) would degrade to LOS E or LOS F including the intersections at O'Hara Avenue, Malicoat Avenue, and Brownstone Road.

One other unsignalized intersection would operate at LOS F on the side street approach – East Cypress Road at Knightsen Avenue. In general, some additional roadway improvements are already needed to adequately accommodate the projected traffic growth due to approved projects.

Figure 4.3-4
AM (PM) Existing Plus Approved (Background) Volumes



Source: Abrams Associates, Inc., June 2008.

Although they are not assumed to be in place as part of the Baseline, many of the improvements required to address these problems (e.g., the Main Street Bypass) are already planned for the area and are discussed in the "Impacts and Mitigations Measures" section of this chapter. The results of the LOS analysis for baseline conditions are shown in Table 4.3-3.

REGULATORY CONTEXT

Existing policies, laws and regulations that would apply to the proposed project are summarized below.

State

The California Department of Transportation (Caltrans) has jurisdiction over State highways. Therefore, Caltrans controls all construction, modification, and maintenance of State highways, such as SR 4. Any improvements to SR 4 would require Caltrans' approval.

Contra Costa County Transportation Authority

The Contra Costa Transportation Authority (CCTA) serves as the Congestion Management Agency (CMA) for Contra Costa County. CCTA adopted the County's first Congestion Management Program (CMP) in October 1991. The most recent CMP, referred to as the 2001 CMP Update, represents the fifth biennial update that the Authority has prepared.

Measure C

The overall goal of the CCTA Growth Management Program (GMP) called for in Measure C-1988 is to "achieve a cooperative process for Growth Management on a countywide basis, while maintaining local authority over land use decisions and the establishment of performance standards." Using a formula based on road miles and population, CCTA allocates 18 percent of the sales tax revenues it receives to local jurisdictions that comply with GMP requirements. Oakley participates in the Measure C program as a member of the TRANSPLAN subregional transportation planning committee, which consists of Antioch, Brentwood, Oakley, Pittsburg, and Contra Costa County.

Local

General Plan Policies

The Transportation and Circulation Element included in the General Plan is prepared pursuant to Section 65302(b) of the California Government Code, and has been a mandatory component of local General Plans since 1955. The Transportation and Circulation Element is required to address the location and extent of existing and planned transportation routes, terminals, and other local public utilities and facilities. Furthermore, the Transportation and Circulation Element must be consistent with the other elements of the General Plan, accommodating future travel demand and contributing to, rather than inhibiting, the attainment of desired land use patterns in the Land Use Element.

Table 4.3-3
Baseline Intersection Operations

	Intersection	Control	Peak Hour	Existing	
				Measure	LOS
1	Main Street (SR 4) and Cypress Road	Traffic Signal	AM PM	v/c = 0.39 v/c = 0.50	A A
2	East Cypress Road/Frank Hengel Way	Traffic Signal	AM PM	v/c = 0.35 v/c = 0.24	C B
3	East Cypress Road/Sellers Avenue	Traffic Signal	AM PM	v/c = 0.34 v/c = 0.40	A A
4	East Cypress Road/Main Project Entrance	Future	AM PM	N/A N/A	N/A N/A
5	East Cypress Road/Knightsen Avenue	Stop Sign	AM PM	14.2 sec 23.6 sec	B B
6	East Cypress Road/Jersey Island Road	Stop Sign	AM PM	9.5 sec 10.7 sec	B A
7	East Cypress Road/Bethel Island Road	Traffic Signal	AM PM	v/c = 0.22 v/c = 0.30	A B
8	West Cypress Road at Rose Avenue	Stop Sign	AM PM	8.5 sec 8.3 sec	A A
9	West Cypress Road at O'Hara Avenue	Stop Sign	AM PM	11.4 sec 9.9 sec	B A
10	Sellers Avenue at Laurel Road	Stop Sign	AM PM	9.2 sec 9.3 sec	N/A N/A
11	Sellers Avenue at Delta Road	Stop Sign	AM PM	7.9 sec 9.1 sec	A A
12	Main Street (SR 4) at Rose Avenue	Stop Sign	AM PM	40.2 sec >50 sec	D E
13	Main Street (SR 4) at O'Hara Avenue	Traffic Signal	AM PM	v/c = 0.60 v/c = 0.92	A B
14	Main Street (SR 4) at Vintage Parkway	Traffic Signal	AM PM	v/c = 0.44 v/c = 0.53	A A
15	Main Street (SR 4) at Laurel Road	Traffic Signal	AM PM	v/c = 0.60 v/c = 0.81	A A
16	Main Street (SR 4) at Malicoat Avenue	Traffic Signal	AM PM	v/c = 0.37 v/c = 0.27	A A
17	Main Street (SR 4) at Brownstone Road	Stop Sign	AM PM	>50 sec 28.5 sec	E D
18	Main Street (SR 4) at Delta Road	Stop Sign	AM PM	>50 sec >50 sec	F F
19	Laurel Road at Rose Avenue	Stop Sign	AM PM	40.3 sec >50 sec	B B
20	Laurel Road at O'Hara Avenue	Traffic Signal	AM PM	v/c = 0.50 v/c = 0.49	B B
21	Laurel Road at Empire Avenue	Traffic Signal	AM PM	v/c = 0.53 v/c = 0.70	A B

Source: Abrams Associates, Inc., June 2008.

The General Plan identifies several roadway and transit goals and policies that have been adopted to ensure that the transportation system of the City will have adequate capacity to serve planned growth. These goals and policies are intended to provide a plan and implementation measures for an integrated, multi-modal transportation system that will safely and efficiently meet the transportation needs of all economic and social segments of the City and provide for the transport of goods and services within the City. The following applicable goals and policies are from the Oakley 2020 General Plan.

Open Space

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

Policy 2.6.1 Provide public access to the Delta and the waterfront wherever appropriate and feasible. Typically, such access should be unobstructed to the public by foot or bicycle, and where appropriate by horse, automobile and/or boat.

Policy 2.6.4 All public recreational areas and facilities shall be accessible by a publicly maintained road.

Policy 2.6.B Through the development review process, ensure that development projects provide increased public access to the Delta and the waterfront. Consider the appropriate type of access (pedestrian, equestrian, vehicular, etc.) and require developer improvements to support such access.

Trails

Goal 2.7 Provide a system of multi-use trails that connects residential districts, parks and schools, employment centers and natural areas, throughout Oakley and the region, including the Delta.

Policy 2.7.1 Promote a comprehensive trail program throughout the Oakley community and give preference to developments that incorporate the design of the trails, including trails of neighboring communities where feasible, and associated open space into their design.

Policy 2.7.A Adopt and regularly update a City of Oakley Comprehensive Trail Plan within 2 years.

Policy 2.7.B Require dedications from developers proposing projects located adjacent to designated trail alignments.

Policy 2.7.C Seek grant funding and participation from regional, state and federal entities and agencies to support implementation of the City's Trail Plan.

Policy 2.7.D Coordinate Oakley's trail system with regional trail programs through the review of plans and programs of neighboring communities, the County and associated agencies that provide trails within the region.

The following applicable goals and policies are from the Oakley 2020 General Plan Circulation Element:

Roadway Goals

Goal 3.1 Provide an efficient and balanced transportation system.

Policy 3.1.1 Strive to maintain Level of Service D as the minimum acceptable service standard for intersections during peak periods (except those facilities identified as Routes of Regional Significance).

Policy 3.1.2 For those facilities identified as Routes of Regional Significance, maintain the minimum acceptable service standards specified in the East County Action Plan Final 2000 Update, or future Action Plan updates as adopted.

Policy 3.1.3 Keep roadway facilities in optimal condition.

Policy 3.1.5 Encourage a multi-modal circulation system that supports non-automobile travel.

Policy 3.1.6 Address future roadway needs through both new road construction and management of existing and planned roadway capacity.

Policy 3.1.8 Mitigate conflicts between new roadway improvements and existing rural roadways when the identified conflicts threaten public health, safety and welfare.

Bicycles and Pedestrians

Goal 3.2 Promote and encourage walking and bicycling.

Policy 3.2.1 Provide maximum opportunities for bicycle and pedestrian circulation on existing and new roadway facilities.

Policy 3.2.2 Enhance opportunities for bicycle and pedestrian activity in new public and private development projects.

Policy 3.2.3 Create a bicycle and pedestrian system that provides connections throughout Oakley and with neighboring areas, and serves both recreational and commuter users.

Public Transportation

Goal 3.3 Provide adequate, convenient, and affordable public transportation.

Policy 3.3.1 Design new roadways and facilities to accommodate public transit.

Policy 3.3.2 Ensure that new public and private development supports public transit.

Policy 3.3.3 Encourage transit providers to improve transit routes, frequency, and level of service to adequately serve the mobility needs of Oakley residents, including those dependent on public transit.

Neighborhood Traffic Management

Goal 3.4 Minimize the intrusion of through traffic on residential streets.

Policy 3.4.1 Direct non-local traffic onto collector streets and arterials.

Policy 3.4.2 Maintain traffic speeds and volumes on neighborhood streets consistent with residential land uses.

Policy 3.4.3 Provide adequate capacity on collector and arterial streets to accommodate travel within the City.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

Based on the adopted policies of CCTA, the City of Oakley, and Contra Costa County a traffic impact would be considered significant if any of the following conditions, or potential thereof, would result from implementation of the proposed project:

- Substantially increased traffic volumes in relation to existing traffic load and capacity of the street system;
- A decline in LOS at a signalized intersection to unacceptable Level E (V/C = 0.90) or lower;
- A decline in LOS at an unsignalized intersection to unacceptable level - LOS E (Average Delay = 35 seconds) or lower;
- An unsignalized intersection is forecast to meet the warrants for installation of a traffic signal, as set forth by Caltrans;

- Failure of any street or portion of a street to meet accepted safety and design standards or guidelines;
- Failure to meet adopted alternative transportation policies, plans, or programs; or
- Inadequate access for emergency vehicles.

Method of Analysis

Abrams Associates Traffic Engineering, Inc. conducted a Traffic Impact Analysis for the Emerson Property project. The analysis is intended to quantify the traffic impacts of the project and to address the circulation and roadway improvements needed to mitigate these impacts. The analysis, summarized herein, addresses traffic conditions occurring during the morning and evening peak hours, and the area studied encompasses all of the major intersections that would be affected by the proposed project. The analysis considers the project's impacts on the baseline traffic conditions as well as conditions occurring in the future under the City of Oakley and Contra Costa County General Plans.

Intersections Studied

The following intersections were studied for project-related impacts:

1. East Cypress Road and Main Street (SR 4) - Traffic Signal
2. East Cypress Road and Hengel Way (Middle School) - Stop Sign
3. East Cypress Road and Sellers Avenue - Traffic Signal
4. East Cypress Road and Entrance to (Franklin) - Future
5. East Cypress Road and Knightsen Avenue - Stop Sign
6. East Cypress Road and Jersey Island Road - Stop Sign
7. East Cypress Road and Bethel Island Road - Future
8. West Cypress Road and Rose Avenue - All-way Stop
9. West Cypress Road and O'Hara Avenue - Traffic Signal
10. Sellers Avenue and Laurel Road - Future
11. Sellers Avenue and Delta Road - All-way Stop
12. Main Street (SR 4) and Rose Avenue - Stop Sign
13. Main Street (SR 4) and O'Hara Avenue - Traffic Signal
14. 1Main Street (SR 4) and Vintage Parkway - Traffic Signal
15. Main Street (SR 4) and Laurel Road - Traffic Signal
16. Main Street (SR 4) and Malicoat Avenue - Traffic Signal
17. Main Street (SR 4) and Brownstone Road - Stop Sign
18. Main Street (SR 4) and Delta Road - Stop Sign
19. Laurel Avenue and Rose Avenue - Stop Sign
20. Laurel Road and O'Hara Avenue - All-way Stop
21. Laurel Road and Empire Avenue - All-way Stop

Levels of Service Evaluations

Levels of service at each of the intersections studied were evaluated to demonstrate how the proposed project would impact the transportation and circulation system. Three near-term and two long-term cumulative scenarios were considered:

- *Existing Conditions* – The current (2001) traffic volumes and roadway conditions were evaluated.
- *Existing-Plus-Approved-Projects (Baseline) Conditions* – This scenario evaluates conditions that would result when adding traffic generated by already approved projects that might affect the study intersections to existing traffic conditions.
- *Baseline-Plus-Project Conditions* – This scenario begins with the conditions determined for the existing-plus-approved-projects scenario and adds traffic that would be generated by the proposed Emerson Property project.
- *Year 2030 Conditions* – Future traffic conditions at the study intersections were projected based on "Eastern Contra Costa County Travel Demand Model" developed by the Contra Costa Transportation Authority (CCTA).
- *Year 2030 Plus Project Conditions* – This scenario begins with the conditions determined for the year 2030 conditions above and adds traffic that would be generated by the proposed Emerson Property project.

Already approved projects consist of developments that are either under construction, are completed but fully or partially unoccupied, or that are not yet built but have final development-plan approval from the City. The methodology used assumes that all approved projects are completed and fully occupied in the year 2030 traffic scenarios.

Intersection Operations

Traffic count information for the project study intersections was obtained from the River Oaks Crossing Specific Plan FEIR and calibrated with data from the East Cypress Road Specific Plan Traffic Study. In addition, new traffic counts were conducted at three key intersections in May 2008 to verify that the traffic volumes are accurately portrayed.

Trip Generation

Trip generation is defined as the number of one-way vehicle trips produced by a particular land use or study site. Trips generated by the Emerson Property project were estimated using the rates contained in *Trip Generation, Seventh Edition*, published by the Institute of Transportation Engineers. Traffic count information for the project study intersections was obtained from the River Oaks Crossing Specific Plan FEIR[2] and calibrated with data from the East Cypress Road Specific Plan Traffic Study.[3] In addition, new traffic counts were conducted at three key intersections in May 2008 to verify that the traffic volumes are accurately portrayed.

Trip Distribution and Assignment

Trip distribution is the process of determining in what proportion vehicle trips will travel between different locations within a traffic study area. Trip assignment is the allocation of vehicle trips to available routes (local streets) between locations in the traffic study area. Traffic was distributed to the roadway system manually based on existing travel patterns. Future traffic generated by approved and buildout developments was distributed and assigned to the local street system using information from the City of Oakley and Contra Costa County General Plans and from the "Eastern Contra Costa County Travel Demand Model," which takes into account likely peak-hour route choices.

Roadway Improvements Assumptions

Based on information provided to Abrams Associates by the City and the data contained in the East County Travel Demand Model, the long-term scenarios include major improvements to the traffic network including a SR 4 bypass, improvements to Laurel Road, an extension of Laurel Road connecting to Sellers Avenue, and improvements to Sellers Avenue between Cypress Road and Laurel Road. The Year 2030 analyses were prepared based on the assumption that these key roadway improvements in the study area will be fully completed as planned.

Intersection Capacity Analysis

The level of service (LOS) measurement is a qualitative description of traffic operating conditions for intersections and roadways. Levels of service describe these conditions in terms of such factors as speed, travel time, delays, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. Levels of service are given letter designations ranging from A to F, which are defined in Table 4.3-1. The LOS measurement that is used to determine the significance of any impacts a project might have on traffic and circulation is an intersection's overall LOS. Separate methodologies are used to determine levels of service at signalized and unsignalized intersections.

Signalized Intersections

The operating conditions at the signalized study intersections were evaluated using the most recent 1995 update of the Contra Costa County Transportation Authority's CCTALOS Program (Version 2.35). This is the intersection analysis methodology currently required by the CCTA. This program uses the TRB (Transportation Research Board) Circular 212 methodology to analyze the operations at signalized intersections based on the utilization of intersection capacity. The LOS definitions for signalized intersections are included in Table 4.3-1.

Unsignalized Intersections

For unsignalized intersections the methodology set forth in Chapter 10 of the 2000 Highway Capacity Manual was used. This methodology is based on average total delay (seconds/vehicle). The HCM analysis was conducted using Traffix 7.7.

As with signalized intersections, six levels of service are identified for unsignalized intersections, A through F, which represent conditions from best to worst, respectively. Table 4.3-4 shows the corresponding average total delay per vehicle at unsignalized intersections for each LOS category from A to F.

Table 4.3-4
Level of Service for Unsignalized Intersections

Level of Service (LOS)	Ave Total Delay (sec/veh)	Traffic Condition
A	< 10	No Delay
B	>10 - 15	Short Delay
C	>15 – 25	Moderate Delay
D	>25 – 35	Long Delay
E	>35 – 50	Very Long Delay
F	> 50	Volume>Capacity

Source: Abrams Associates, Inc., June 2008.

Baseline Plus Project Conditions

Trip Generation – Emerson Property Project

As mentioned previously, the Emerson Property project includes development consisting of 578 single-family residential units and an approximately 278,000 square-foot neighborhood shopping center. The trip generation rates for this project were based on the most current ITE rates from the seventh edition of the ITE Trip Generation Manual for Single-family Detached Housing (Land Use Code 210) and Shopping Center (Land Use Code 820), as shown in Table 4.3-5. Based on the ITE trip rates, the daily and peak hour project trips have been calculated. At the three proposed entrances, the proposed project is expected to generate approximately 13,408 vehicle trips per day, with approximately 623 trips during the AM peak hour and approximately 1,272 trips during the PM peak hour. A summary of the estimated trip generation during the AM and PM peak hours is shown on Table 4.3-6.

Table 4.3-5
Trip Generation Rates for the Emerson Property Project

Development	Daily	AM Peak Hour (8:00-9:00 AM)			PM Peak Hour (5:00-6:00 PM)		
		In	Out	Total	In	Out	Total
Single-Family Detached Housing	9.57	0.19	0.56	0.75	0.64	0.37	1.01
Shopping Center	42.92	0.63	0.40	1.03	1.80	1.95	3.75

Source: Abrams Associates Inc., June 2008.

Table 4.3-6
Trip Generation for the Emerson Property Project

Development	Daily Trips	AM Peak Hour (8:00-9:00 AM)			PM Peak Hour (5:00-6:00 PM)		
		In	Out	Total	In	Out	Total
Single-Family Detached Housing (578 units)	5,531	110	324	434	370	214	584
Shopping Center (278,000 square feet)	11,934	175	112	286	500	542	1,043
Shopping Center Pass-By Traffic (34 percent)	4,057	59	38	97	170	184	355
Net New Shopping Center Trips	7,876	115	74	189	330	358	688
Total Project Trips	13,408	225	397	623	700	572	1,272

Source: Abrams Associates Inc., June 2008.

Pass-By Traffic

Pass-by trips are project trips that are assumed to enter the site and then resume travel in the same direction. They are trips made as intermediate stops on the way from an origin to a primary destination. For the purposes of this analysis, the pass-by adjustments have only been applied to the shopping center component of the Emerson Property project.

Site Access and Circulation

On Cypress Road, the proposed project would have a signalized primary entrance at the main residential entrance, another signalized entrance into the shopping center, and a secondary stop-controlled entrance for the shopping center. It should be noted that the stop-controlled exit from the shopping center onto Cypress Road would need to be restricted to right turns only. Two unsignalized entrances to the project would be located on Sellers Avenue; one would be aligned with the potential future entrance to the Gilbert Property and the other would be located centrally in the commercial portion of the project site. In addition, the project would have two internal connections to the existing Cypress Grove neighborhood to the west.

Emergency Vehicle Access

Factors such as number of access points, roadway width, and proximity to fire stations determine whether a project has sufficient emergency access. In this case, the proposed project would provide multiple access points from the arterials in the area. Therefore, if one of the roadways is blocked or obstructed, an emergency vehicle could use an alternate route to access the project. All lane widths within the project would meet the minimum width that can accommodate an emergency vehicle.

Project-Specific Impacts and Mitigation Measures

4.3-1 Project contribution to unacceptable LOS operations at the intersections of East Cypress Road and the minor (stop-controlled) shopping center entrance, and at Main Street at O'Hara Avenue, Cypress Road, and at Malicoat Avenue.

Based on ITE trip rates, the daily and peak hour project trips have been calculated. At the three proposed entrances the project is expected to generate an increase trips during the PM peak hour. A summary of the estimated trip generation during the AM and PM peak hours is shown on Table 4.3-6, above. The project trips forecast to be added to each of the study intersections are shown on Figure 4.3-5. The construction of the proposed project would be expected to contribute to the already unacceptable LOS F operations during the peak hours at East Cypress Road and the minor (stop-controlled) shopping center entrance and on Main Street at O'Hara Avenue, Cypress Road, and at Malicoat Avenue.

Trip Distribution

Figure 4.3-6 shows the trip distribution percentages that were used in the analysis. Figure 4.3-7 shows the resulting existing plus project turning movements at each of the study intersections. Although Cypress Road would remain the primary access to the project, in the future a large portion of the traffic from this area is assumed to travel to and from the south on Sellers Avenue to access the SR 4 Bypass via the planned extension of Laurel Road. The analysis forecasted that approximately 22 percent of the project traffic would be internal trips within the Oakley city limits. These trips would be distributed through most of the project intersections along East Cypress Road and Main Street into Downtown Oakley. The reduction was mainly taken at the perimeter intersections to the south and beyond Oakley's commercial areas. In addition, the analysis includes local trips generated by the commercial portion of the project site.

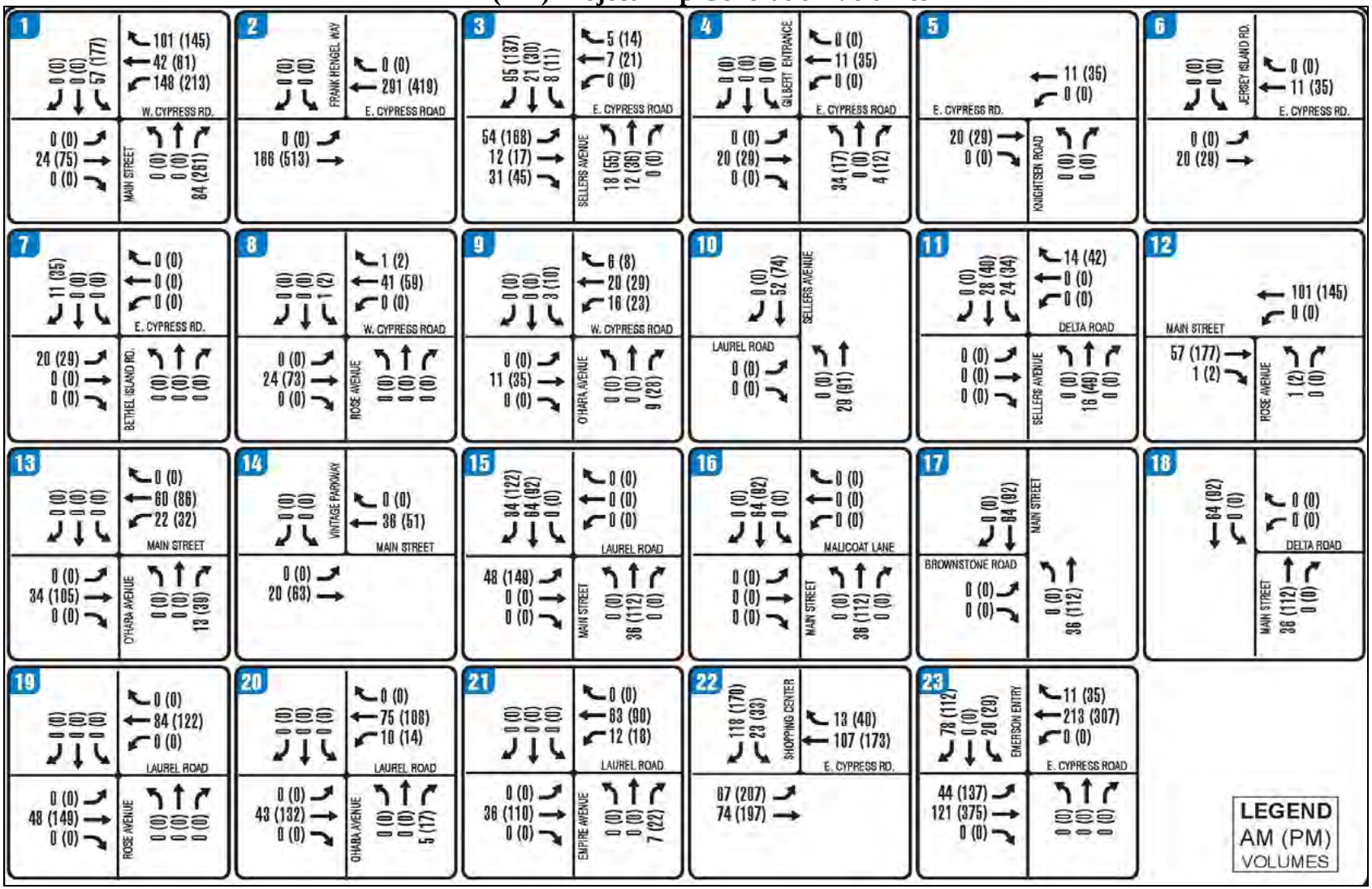
Project Roadway Improvements

Consistent with the Oakley 2020 General Plan, roadway infrastructure would be constructed to meet the needs of new residential neighborhoods and provide access to this portion of Oakley. Street widths would be designed in accordance with traffic studies completed for the project as well as the Oakley 2020 General Plan.

Cypress Road would be improved along the project boundary with a landscaped median, as well as a landscaped corridor with a trail on the north side of the road. The project would complete the northern half of Cypress Road with two westbound through lanes from Sellers Avenue to the western boundary of the project.

Sellers Avenue would be constructed as a two lane divided road from Cypress Road north to the project boundary with the CCWD/USBR Right of Way, as adopted by the Development Agreement.

Figure 4.3-5
AM (PM) Project Trip Generation Volumes

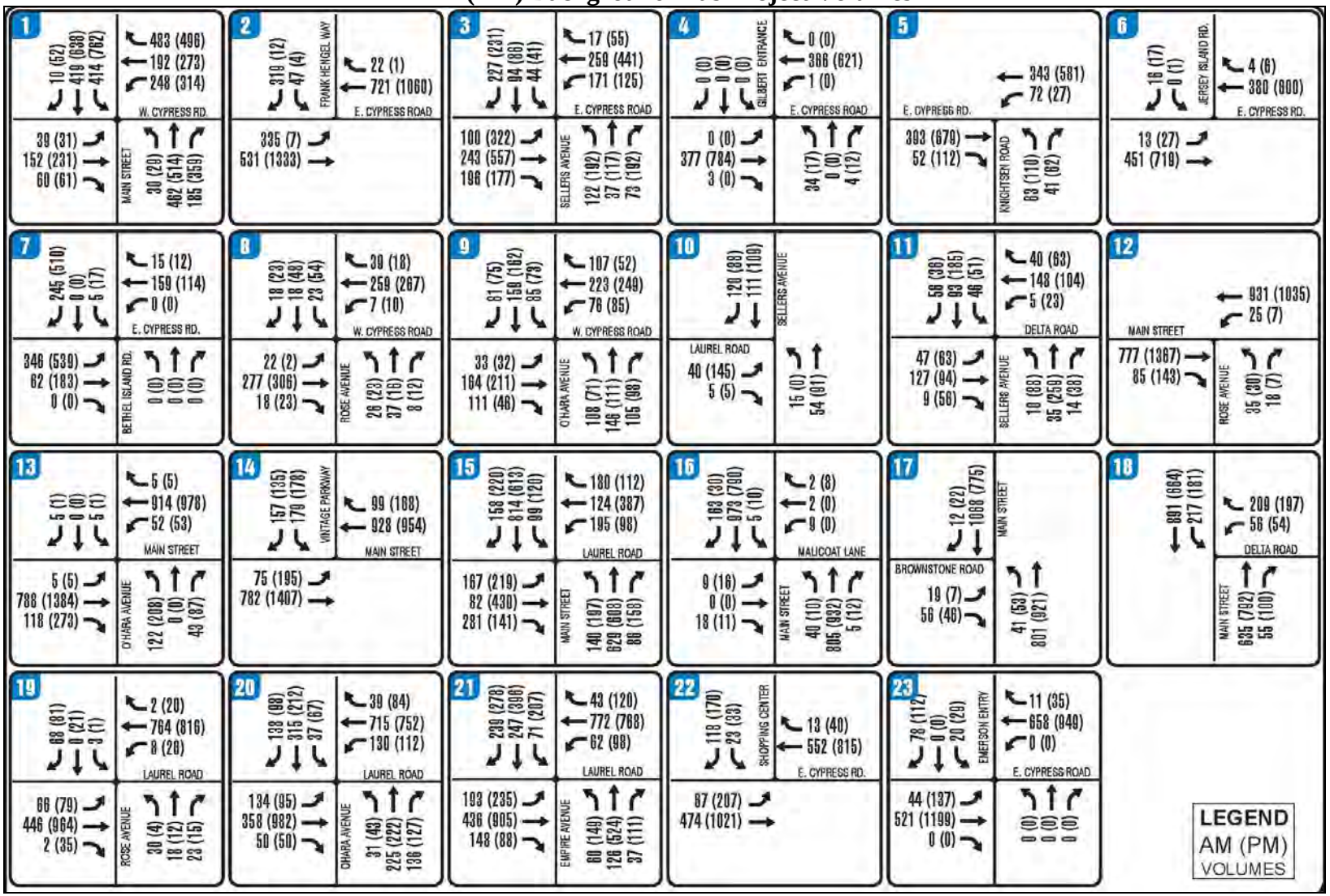


Source: Abrams Associates Inc., June 2008.

Figure 4.3-6
Trip Distribution

Source: Abrams Associates Inc., June 2008.

Figure 4.3-7
AM (PM) Background Plus Project Volumes



Source: Abrams Associates Inc., June 2008.

Local streets would be designed and constructed per City of Oakley and Contra Costa County standards.

Other roadway improvements associated with the Emerson Property project include the following:

- Transition of Sellers Avenue north to the future community park;
- Modification of existing traffic signal at Sellers Avenue and East Cypress Road and installation of two new traffic signals at the main entrances to the residential area and to the shopping center;
- Modification of existing driveways to adjacent properties;
- Modification of existing Cypress Road improvements (adjacent to Cypress Grove development) along western boundary for connection; and
- Transition of Sellers Avenue north to the future community park.

Intersection Operations

The capacity calculations for the Baseline Plus Project scenario are shown in Table 4.3-7. As seen in this table, the addition of traffic from the proposed project would contribute to the already failing LOS at the intersection of Main Street (SR 4) at O'Hara Avenue as well as the intersections of Main Street and Cypress Road and Main Street and Malicoat Avenue. Beyond these intersections, the analysis indicates the project would not cause any other significant impacts on traffic operations in the area.

Conclusion

The implementation of the proposed project would contribute to the volume of traffic in the area. As illustrated in Table 4.3-7, the development of the proposed project would lead to an increase in waiting times at nearby intersections. As a result, the intersections at Main Street at O'Hara Avenue would likely fall to LOS F and have a negative impact on intersection delay during peak times.

Mitigation of the unacceptable conditions at intersections on Main Street would be partially achieved through the planned construction of Segment 1 of the SR 4 Bypass, the Laurel Road Interchange, and improvements to Laurel Road and Sellers Avenue as discussed below. The improvement would provide an alternative route to Main Street and alleviate some of the congestion on Main Street.

Improvements to Laurel Road would include extending the western portion to connect with the SR 4 Bypass, widening to a four-lane arterial between Empire Avenue and Main Street, and extending Laurel Road on the east from Laurel Road's current terminus just west of the Union Pacific Railroad to Sellers Avenue. Sellers Avenue would be upgraded to a four-lane arterial between East Cypress Road and Laurel Road.

Table 4.3-7
Baseline Plus Project Intersection Operations

Intersection	Control	Peak Hour	Baseline		Control	Baseline Plus Project	
			Measure	LOS		Measure	LOS
Main Street (SR 4) and Cypress Road	Traffic Signal	AM PM	v/c = 0.39 v/c = 0.50	A A	Traffic Signal	v/c = 0.49 v/c = 0.69	A B
East Cypress Road/Frank Hengel Way	Traffic Signal	AM PM	v/c = 0.35 v/c = 0.24	A A	Traffic Signal	v/c = 0.44 v/c = 0.39	A A
East Cypress Road/Sellers Avenue	Traffic Signal	AM PM	v/c = 0.34 v/c = 0.40	A A	Traffic Signal	v/c = 0.39 v/c = 0.51	A A
East Cypress Road/Main Project Entrance	Future	AM PM	N/A N/A	N/A N/A	Traffic Signal	v/c = 0.23 v/c = 0.49	A A
East Cypress Road/Knightsen Avenue	Stop Sign	AM PM	14.2 sec 23.6 sec	B C	Stop Sign	14.6 sec 25.7 sec	B D
East Cypress Road/Jersey Island Road	Stop Sign	AM PM	9.5 sec 10.7 sec	A B	Stop Sign	9.5 sec 10.9 sec	A B
East Cypress Road/Bethel Island Road	Traffic Signal	AM PM	v/c = 0.22 v/c = 0.30	A A	Traffic Signal	v/c = 0.23 v/c = 0.31	A A
West Cypress Road at Rose Avenue	Stop Sign	AM PM	8.5 sec 8.3 sec	A A	Stop Sign	8.8 sec 8.9 sec	A A
West Cypress Road at O'Hara Avenue	Stop Sign	AM PM	11.4 sec 9.9 sec	B A	Stop Sign	12.6 sec 11.2 sec	B B
Sellers Avenue at Laurel Road	Stop Sign	AM PM	9.2 sec 9.3 sec	A A	Stop Sign	9.7 sec 10.5 sec	A B
Sellers Avenue at Delta Road	Stop Sign	AM PM	7.9 sec 9.1 sec	A A	Stop Sign	8.1 sec 9.8 sec	A A
Main Street (SR 4) at Rose Avenue	Stop Sign	AM PM	**40.2 sec** **>50 sec**	**E** **F**	Stop Sign	**>50 sec** **>50 sec**	**F** **F**
Main Street (SR 4) at O'Hara Avenue	Traffic Signal	AM PM	v/c = 0.60 **v/c = 0.92**	A **E**	Traffic Signal	v/c = 0.64 **v/c = 1.00**	B **E**
Main Street (SR 4) at Vintage Parkway	Traffic Signal	AM PM	v/c = 0.44 v/c = 0.53	A A	Traffic Signal	v/c = 0.45 v/c = 0.54	A A

Table 4.3-7 (continued)
Baseline Plus Project Intersection Operations

Intersection	Control	Peak Hour	Baseline		Control	Baseline Plus Project	
			Measure	LOS		Measure	LOS
Main Street (SR 4) at Laurel Road	Traffic Signal	AM PM	v/c = 0.60 v/c = 0.81	A D	Traffic Signal	v/c = 0.67 v/c = 0.80	B C
Main Street (SR 4) at Malicoat Avenue	Traffic Signal	AM PM	v/c = 0.37 v/c = 0.27	A A	Traffic Signal	v/c = 0.38 v/c = 0.31	A A
Main Street (SR 4) at Brownstone Road	Stop Sign	AM PM	**>50 sec** 28.5 sec	**F** D	Stop Sign	**>50 sec** **>50 sec**	**F** **F**
Main Street (SR 4) at Delta Road	Stop Sign	AM PM	**>50 sec** **>50 sec**	**F** **F**	Stop Sign	**>50 sec** **>50 sec**	**F** **F**
Laurel Road at Rose Avenue	Stop Sign	AM PM	**40.3 sec** **>50 sec**	**E** **F**	Stop Sign	**>50 sec** **>50 sec**	**F** **F**
Laurel Road at O'Hara Avenue	Traffic Signal	AM PM	v/c = 0.50 v/c = 0.49	A A	Traffic Signal	v/c = 0.52 v/c = 0.54	A A
Laurel Road at Empire Avenue	Traffic Signal	AM PM	v/c = 0.53 v/c = 0.70	A B	Traffic Signal	v/c = 0.55 v/c = 0.73	A C

Source: Abrams Associates, Inc., June 2008.

The roadway improvements on Laurel Road and Sellers Avenue in conjunction with the construction of Segment 1 of the SR 4 Bypass would provide access to and from the SR 4 freeway, and improve operations along East Cypress Road and Main Street. The West Cypress Road/Main Street intersection additions of a second southbound left-turn lane, reconfiguration of the eastbound right-turn lane to a shared through/right-turn lane, and reconfiguration of the westbound through lane to a shared through/right-turn lane would result in acceptable conditions.

The Main Street/O'Hara Avenue intersection can achieve acceptable LOS through the construction of the Main Street Downtown Bypass. The bypass project would realign Main Street north of its current alignment as a new four-lane arterial between west of Vintage Parkway and 2nd Street and provide an alternative to Main Street through Downtown Oakley. The Main Street Downtown Bypass was included in the Old Town Oakley Specific Plan in 1999. The creation of the bypass would decrease the total traffic load on the existing roadways and decrease the total traffic volumes on the above-identified intersections.

The development of the Emerson Property project would result in an increased demand on local traffic circulation in the vicinity of the proposed development. Therefore, without the implementation of recommended mitigations, the development of the proposed project would result in a ***potentially significant*** impact to the LOS of East Cypress Road and the minor (stop-controlled) shopping center entrance as well as Main Street (SR 4) at O'Hara Avenue, as well as the intersections of Main Street and Cypress Road and Main Street and Malicoat Avenue.

Mitigation Measure(s)
The required roadway improvements outlined above have been included in the City's Transportation Impact Fee program; therefore, implementation of the following mitigation measures would reduce the impact to a *less-than-significant* level.

4.3-1(a) *Prior to final map approval, the proposed project would contribute to the mitigation of the above-identified impacts by paying the proposed project's fair share of the cost to implement the improvements through the payment of regional traffic fees to the East Contra Costa Regional Fee and Finance Authority (ECCRFFA) and the City's Transportation Impact Fee. The amount of the project's fair-share fee shall be determined by the City prior to the final map approval.*

4.3-1(b) *The minor (stop-controlled) shopping center driveway on East Cypress Road shall be restricted to right-turns only for both ingress and egress.*

4.3-2 Impacts to traffic at nearby unsignalized intersections.

Traffic signals are used to provide for an orderly flow of traffic through an intersection. Many times they are needed to provide side street traffic an opportunity to access a major road where high volumes and/or high vehicle speeds block crossing or turn movements.

The signals do not, however, necessarily increase the capacity of an intersection (i.e., increase the intersection's ability to accommodate additional vehicles) and, in fact, often slightly reduce the number of total vehicles that can pass through an intersection in a given period of time. Signals can also cause an increase in traffic accidents if installed at improper locations.

Eleven possible tests exist (called "warrants") set forth by Caltrans (and the Manual of Uniform Traffic Control Devices) for determining whether a traffic signal should be considered for installation. The tests consider criteria such as traffic volumes and delay, pedestrian volumes, presence of school children, and accident history. Usually, two or more warrants must be met before a signal is installed. If the Peak Hour Volume Warrant (Warrant #11) is met at an intersection that is usually a strong indication that a more detailed signal warrant analysis covering all possible warrants is appropriate.

Future traffic signals are already planned at the four unsignalized intersections that have side streets that operate at LOS E or LOS F. Although the project would contribute to the need for these traffic signals, they would not be required as mitigations because the overall LOS at these intersections would remain at acceptable levels and the traffic from the proposed project alone would not cause any intersections to meet the warrants where they were not already warranted.

The development of the proposed project would increase the total traffic during both AM and PM peak hours and result in a decrease in the levels of service of existing intersections which are currently regulated by stop signs. The traffic study conducted by Abrams Associates Traffic Engineering reveals, the AM/PM peak hour levels of service (LOS) is currently F (failing) at the intersections of East Cypress Road/Knightsen Avenue, Main Street/Rose Avenue, Main Street/Brownstone Road, Main Street/Delta Road and Laurel Road at Empire Avenue. Wait times at these intersections would be expected to be more than 50 seconds (See Table 4.3-7, above).

The development of the proposed project would increase the traffic through these intersections, resulting in additional waiting times at these stop signs. Although the overall LOS at these unsignalized intersections would remain unchanged with the addition of project generated trips, traffic would be added to minor movements that would continue to operate at LOS F. Traffic signals will ultimately be warranted at each of these locations regardless of whether or not the proposed project is implemented. The addition of these signals would provide the necessary traffic controls to bring the LOS delays at these intersections within acceptable levels. The addition of project traffic would contribute to the need for traffic signals at Main Street and Rose Avenue, Main Street and Brownstone Road, Main Street and Delta Road, and East Cypress Road and Knightsen Avenue. Therefore, the development of the proposed project would be expected to have a ***potentially significant*** impact to nearby unsignalized intersections.

Mitigation Measure(s)

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

4.3-2 Implement Mitigation Measure 4.3-1(a).

4.3-3 The project could result in impacts to the railroad crossing on Cypress Road.

The proposed project is expected to generate 232 eastbound trips on Cypress Road during the evening peak hour. Despite the proposed widening of Cypress Road from two to four lanes, which would help increase the flow of peak evening traffic, the increase in vehicle trips during peak hours would result in increased congestion which would extend to the existing railroad crossing on Cypress Road to the west of the project site.

The proposed project would result in an increase in traffic flows that would create congestion at the current railroad crossing, even with the widening of Cypress Road to four lanes; therefore, a ***potentially significant*** impact would result from the proposed project.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the impact to a *less-than-significant* level.

4.3-3 Implement Mitigation Measure 4.3-1 (a).

4.3-4 Impacts related to alternative transportation facilities.

Oakley currently has limited bicycle facilities within the City. Bicycle lanes are provided on Cypress Road between Rose Avenue and Marsh Creek. The Contra Costa Countywide Transportation Plan designates Oakley Road/Empire Avenue/Cypress Road as a Regional Bicycle Route, providing a connection to the Marsh Creek Regional Trail. The Marsh Creek Regional Trail, along with the Delta de Anza Regional Trail (between Neroly Road and Cypress Road), is a multi-use, paved trail for hikers, horses, and bicycles. The proposed roadway improvements are designed to meet minimum City of Oakley standards, which could accommodate transit services.

For pedestrian access the roadways within the project would provide sidewalks on at least one side of the roadway. Trails would also be provided on top of the levees surrounding the project site. For bicycles off-street multi-use trails (Class I facilities) would be located along the top of the levees surrounding the project site, and the park within the site. On-street bicycle lanes (Class II facilities) would be provided along both sides of East Cypress Road and Sellers Avenue. Dedicated bicycle facilities would not be provided along the internal roads or local streets within the neighborhoods.

Transit services do not currently service the site. However, given the amount of planned development in the area surrounding the project, Tri Delta Transit, the local transit service provider, will provide regular transit service in the area. The arterials and collectors within the project area would provide adequate lane widths to accommodate future transit vehicles and bus pullouts are currently planned for East Cypress Road at

Sellers Avenue. In general, the project's current design would not conflict with the City's adopted alternative transportation policies and plans.

Transit for the local area, but not the project site itself, is provided by Tri-Delta Transit. The proposed project would increase demand for public transit service. The proposed roadway improvements are designed to meet minimum City of Oakley standards, which could accommodate transit services. Tri-Delta Transit, after reviewing the conceptual development plan, indicated that the proposed project could be served in the future if bus stops and/or shelters are included in the designs. The lack of bus service to the project area would be a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce impacts related to transit to a *less-than-significant* level.

4.3-4 *The project shall include bus stops on the north side of Cypress Road near Sellers Avenue. The final design and location of these bus stops shall be subject to the approval of the Oakley City Engineer prior to approval of final maps. The City Engineer shall coordinate with Tri-Delta Transit as to the placement of the bus stops.*

4.3-5 Impacts related to site access and circulation.

The proposed project's residential development would have a signalized primary entrance on Cypress Road at the main residential entrance, another signalized entrance into the shopping center, and a secondary stop-controlled entrance for the shopping center. Two unsignalized entrances to the project site would be located on Sellers Avenue; one would be aligned with the potential future entrance to the Gilbert Property and the other would access the commercial site. In addition, the project would have two internal connections to the existing Cypress Grove neighborhood to the west.

According to Abrams Associates, the proposed site plan circulation is anticipated to function well and would not cause any safety or operational problems. The project site design has been required to conform to City design standards and is not expected to create any significant impacts to pedestrians, bicyclists or traffic operations. All necessary truck turning movements can also be accommodated. Therefore, impacts related to site access and circulation to the proposed project would be ***less-than-significant***.

Mitigation Measure(s)
None required.

4.3-6 Impacts regarding emergency vehicle access on and surrounding the proposed project site.

Sufficient emergency access is determined by factors such as number of access points, roadway width, and proximity to fire stations. The land use plan (See Figure 3-3 in Chapter 3, Project Description, of this Draft EIR) for the proposed project would have a signalized primary entrance on Cypress Road at the main residential entrance, another signalized entrance into the shopping center, and a secondary stop-controlled entrance for the shopping center. Two unsignalized entrances to the project site would be located on Sellers Avenue; one would be aligned with the potential future entrance to the Gilbert Property and the other would access the commercial site. All lane widths within the project would meet the minimum width that can accommodate an emergency vehicle; therefore, the width of the internal roadways would be adequate. Fire Station 93, located at 215 Second Street in Oakley, would allow for timely emergency response within the project area. Additionally, a fire station site is planned for construction on East Cypress Road immediately east of Bethel Island Road. Therefore, the development of the proposed project is expected to have ***less-than-significant*** impacts regarding emergency vehicle access.

Mitigation Measure(s)
None required.

4.3-7 Impacts relating to the presence and availability of adequate parking.

The proposed project is expected to provide a minimum of two off-street parking spaces for each residential unit and would provide adequate parking for the shopping center to ensure consistency with the City requirements. New on-street parking spaces would be created along the new internal project roadways and would not infringe upon other streets in the area. Therefore, the proposed project is not expected to create parking impacts on the surrounding areas, and impacts related to adequate parking would be ***less-than-significant***.

Mitigation Measure(s)
None required.

Cumulative Impacts and Mitigation Measures

Cumulative (2030) Traffic Forecasts

Cumulative traffic forecasts for this study were based on information obtained from the East County Travel Demand Model and the East Cypress Road Specific Plan Traffic Study. The model was executed with the following land use assumptions:

- Buildout of the Oakley General Plan within the City of Oakley; and
- The Association of Bay Area Governments (ABAG) Projections 2000 land use forecasts extended to year 2030 for areas outside of Oakley.

The resulting Cumulative (No Project) traffic volumes at each of the project study intersections are shown on Figure 4.3-8.

Cumulative (2030) Planned Roadway Improvements

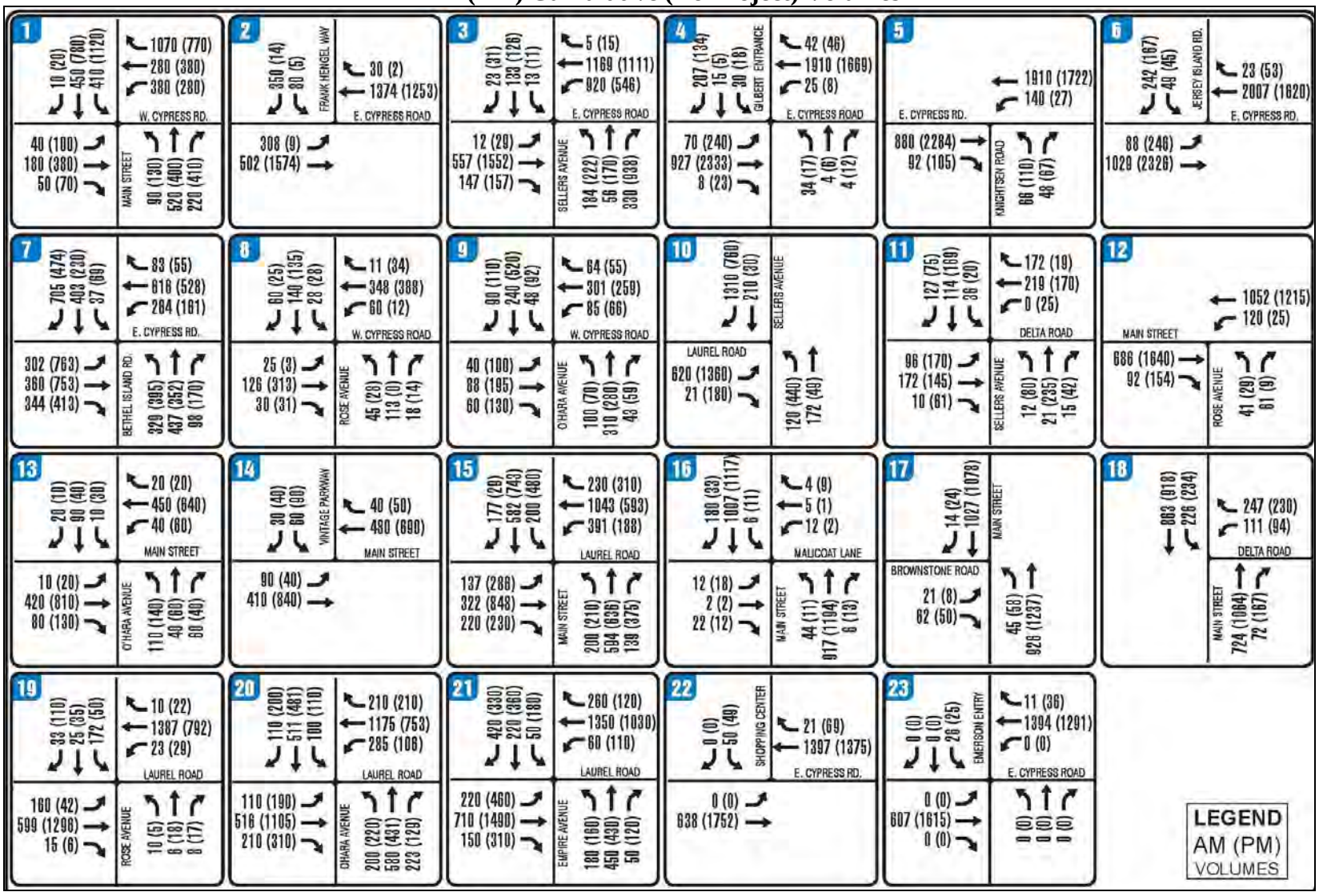
This analysis assumes that several roadway improvements would be constructed in the interim period between the Baseline and Cumulative analysis years. Only roadway improvements with identified funding or improvements that are identified as mitigation measures under Baseline conditions were included in this scenario. It should be noted that some portions of these improvements would be constructed as part of the proposed project. Major roadway improvements that are fully funded and planned to be completed by 2030 include:

- Completion of SR 4 Bypass Segment 2 as a four-lane freeway between Lone Tree Way and Balfour Road with interchanges at Sand Creek Road and Balfour Road;
- Completion of SR 4 Bypass Segment 3 as a two-lane expressway between Balfour Road and Vasco Road with at-grade intersections at Marsh Creek Road and Walnut Boulevard;
- Widening of Main Street to a six-lane arterial between Big Break Road and SR 160;
- Extension of Laurel Road from Empire Avenue to Antioch City Limits;
- Completion of a two-lane bridge over Rock Slough connecting Bethel Island Road and Byron Highway;
- Widening of East Cypress Road to a six-lane arterial between Sellers Avenue and Jersey Island Road;
- Extension of Laurel Road between Union Pacific Railroad and Sellers Avenue as a four-lane arterial;
- Widening of Sellers Road to a four-lane arterial between East Cypress Road and Laurel Road;
- Widening of Laurel Road to a four-lane arterial between Empire Avenue and Main Street;
- Signalization of the intersections of Main Street with Rose Avenue, Brownstone Road, and Delta Road and the intersections of Sellers Avenue with Laurel Road and Delta Road; and
- Completion of the Main Street Downtown Bypass.

4.3-8 The proposed project would result in impacts to intersections under cumulative conditions.

The results of the Year 2030 (No Project) levels of service are summarized in Table 4.3-8. Under the No Project scenario, the above-listed assumptions were made as to transportation improvements. Based on the information provided by the City and the data contained in the East County Travel Demand Model, the long-term scenarios considered major improvements to the traffic network, including the SR 4 Bypass and the extension of Laurel Road to Sellers Avenue.

Figure 4.3-8
AM (PM) Cumulative (No Project) Volumes



Source: Abrams Associates, Inc., June 2008.

Table 4.3-8
Cumulative Plus Project Intersection Operations

Intersection	Control	Peak Hour	Cumulative No Project		Control	Cumulative Plus Project	
			Measure	LOS		Measure	LOS
Main Street (SR 4) and Cypress Road	Traffic Signal	AM PM	v/c = 0.65 v/c = 0.75	B C	Traffic Signal	v/c = 0.71 v/c = 0.88	C D
East Cypress Road/Frank Hengel Way	Traffic Signal	AM PM	v/c = 0.63 v/c = 0.46	B A	Traffic Signal	v/c = 0.72 v/c = 0.61	C B
East Cypress Road/Sellers Avenue	Traffic Signal	AM PM	v/c = 0.67 v/c = 0.83	B D	Traffic Signal	v/c = 0.69 v/c = 0.89	B D
East Cypress Road/Main Project Entrance	Traffic Signal	AM PM	v/c = 0.72 v/c = 0.76	C C	Traffic Signal	v/c = 0.72 v/c = 0.78	C C
East Cypress Road/Knightsen Avenue	Traffic Signal	AM PM	v/c = 0.59 v/c = 0.74	A C	Traffic Signal	v/c = 0.60 v/c = 0.77	A C
East Cypress Road/Jersey Island Road	Traffic Signal	AM PM	v/c = 0.73 v/c = 0.70	C B	Traffic Signal	v/c = 0.73 v/c = 0.71	C C
East Cypress Road/Bethel Island Road	Traffic Signal	AM PM	v/c = 0.73 v/c = 0.79	C C	Traffic Signal	v/c = 0.74 v/c = 0.80	C C
West Cypress Road at Rose Avenue	Stop Sign	AM PM	10.6 sec 10.5 sec	B B	Stop Sign	11.9 sec 13.0 sec	B B
West Cypress Road at O'Hara Avenue	Stop Sign	AM PM	16.4 sec **38.8 sec**	C **E**	Stop Sign	20.0 sec **46.0 sec**	C **E**
Sellers Avenue at Laurel Road	Traffic Signal	AM PM	v/c = 0.58 v/c = 0.71	A C	Traffic Signal	v/c = 0.58 v/c = 0.75	A C
Sellers Avenue at Delta Road	Traffic Signal	AM PM	v/c = 0.47 v/c = 0.47	A A	Traffic Signal	v/c = 0.51 v/c = 0.59	A A
Main Street (SR 4) at Rose Avenue	Traffic Signal	AM PM	v/c = 0.36 v/c = 0.55	A A	Traffic Signal	v/c = 0.39 v/c = 0.61	A B
Main Street (SR 4) at O'Hara Avenue	Traffic Signal	AM PM	v/c = 0.43 v/c = 0.66	A B	Traffic Signal	v/c = 0.47 v/c = 0.74	A C
Main Street (SR 4) at Vintage Parkway	Traffic Signal	AM PM	v/c = 0.24 v/c = 0.30	A A	Traffic Signal	v/c = 0.25 v/c = 0.31	A A

Table 4.3-8 (continued)
Cumulative Plus Project Intersection Operations

Intersection	Control	Peak Hour	Cumulative No Project		Control	Cumulative Plus Project	
			Measure	LOS		Measure	LOS
Main Street (SR 4) at Laurel Road	Traffic Signal	AM PM	v/c = 0.72 v/c = 0.70	C B	Traffic Signal	v/c = 0.79 v/c = 0.84	C D
Main Street (SR 4) at Malicoat Avenue	Traffic Signal	AM PM	v/c = 0.41 v/c = 0.39	A A	Traffic Signal	v/c = 0.43 v/c = 0.42	A A
Main Street (SR 4) at Brownstone Road	Traffic Signal	AM PM	v/c = 0.38 v/c = 0.41	A A	Traffic Signal	v/c = 0.40 v/c = 0.44	A A
Main Street (SR 4) at Delta Road	Traffic Signal	AM PM	v/c = 0.45 v/c = 0.57	A A	Traffic Signal	v/c = 0.46 v/c = 0.61	A B
Laurel Road at Rose Avenue	Traffic Signal	AM PM	v/c = 0.62 v/c = 0.47	B A	Traffic Signal	v/c = 0.64 v/c = 0.51	B A
Laurel Road at O'Hara Avenue	Traffic Signal	AM PM	v/c = 0.82 v/c = 0.82	D D	Traffic Signal	v/c = 0.85 v/c = 0.87	D D
Laurel Road at Empire Avenue	Traffic Signal	AM PM	**v/c = 0.97** **v/c = 0.93**	**E** **E**	Traffic Signal	**v/c = 0.99** **v/c = 0.96**	**E** **E**

Source: Abrams Associates, Inc., June 2008.

Assuming completion of the proposed transportation network improvements, both the intersections of West Cypress Road at O'Hara Avenue and Laurel Road at Empire Avenue are forecast to degrade to unacceptable operations with the traffic growth estimated by the year 2030.

The Cumulative (2030) traffic volumes with the addition of traffic from the proposed project are shown in Figure 4.3-9 and the future lane configurations are shown in Figure 4.3-10. The resulting levels of service for the Cumulative Plus Project scenario are compared to the No Project scenario in Table 4.3-8. As mentioned above, the intersection of West Cypress Road at O'Hara Avenue is forecast to operate at LOS F in the PM peak hour regardless of whether or not the proposed project is implemented. Although some of the intersections would be operating at a high LOS D, all study intersections would have acceptable operations with implementation of the mitigation measures outlined in this chapter.

In addition, the proposed project would contribute to the intersection of Laurel Road and Empire Avenue deteriorating to unacceptable operations. It should be noted that this intersection is forecast to have unacceptable operations regardless of whether or not the proposed project is implemented. However, the proposed project would further contribute to the failing LOS at this intersection.

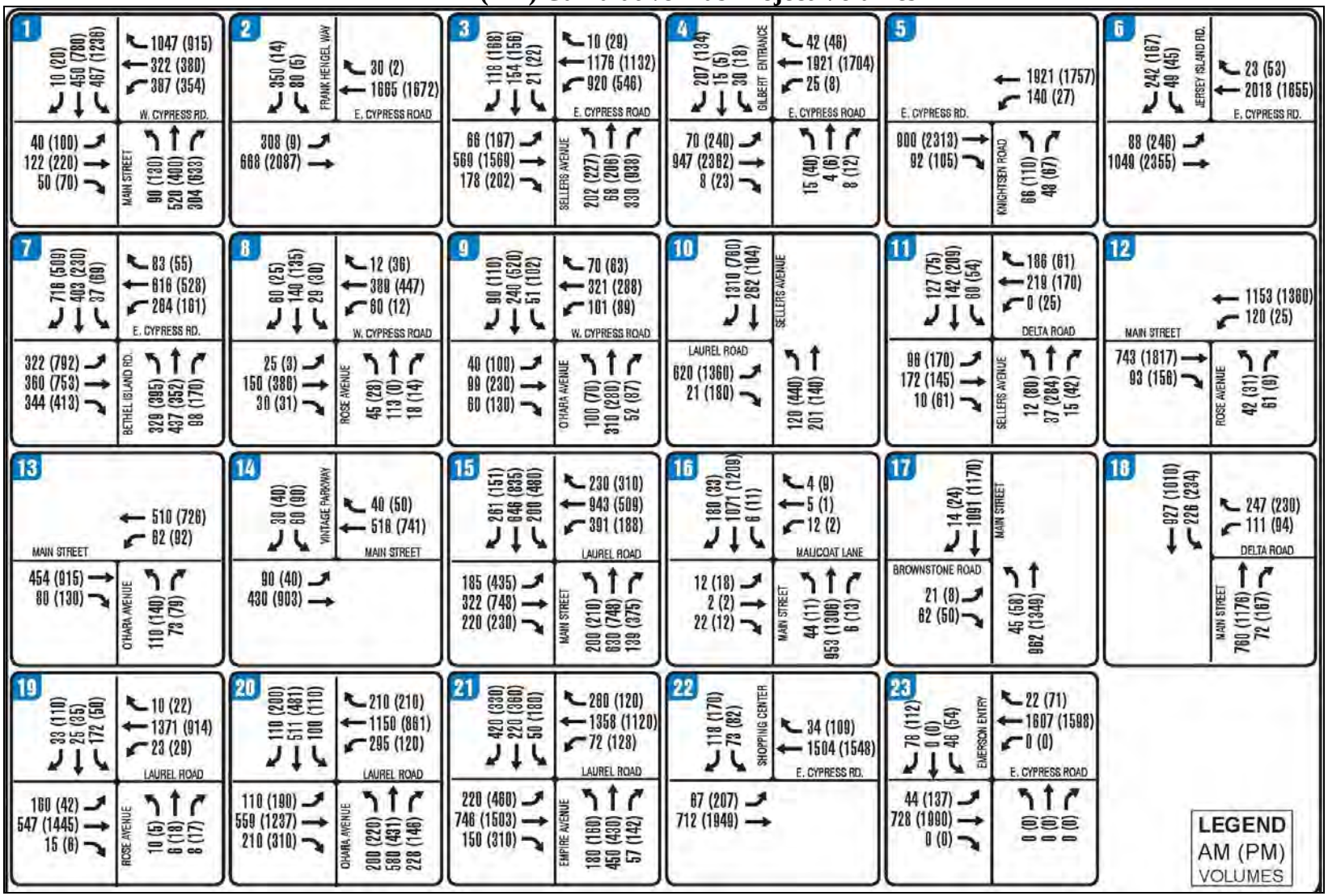
Therefore, the proposed project would contribute to the unacceptable operations at the intersections of West Cypress Road/O'Hara Avenue and Laurel Road/Empire Avenue. Therefore, the proposed project would have a ***potentially significant*** impact on intersections under the Cumulative Plus Project scenario.

Mitigation Measure(s)

Implementation of the following mitigation measure would mitigate potential impacts to a *less-than-significant* level. This measure would minimize impacts to the intersection and change the LOS F to an LOS C and LOS D, respectively, during the evening peak hour.

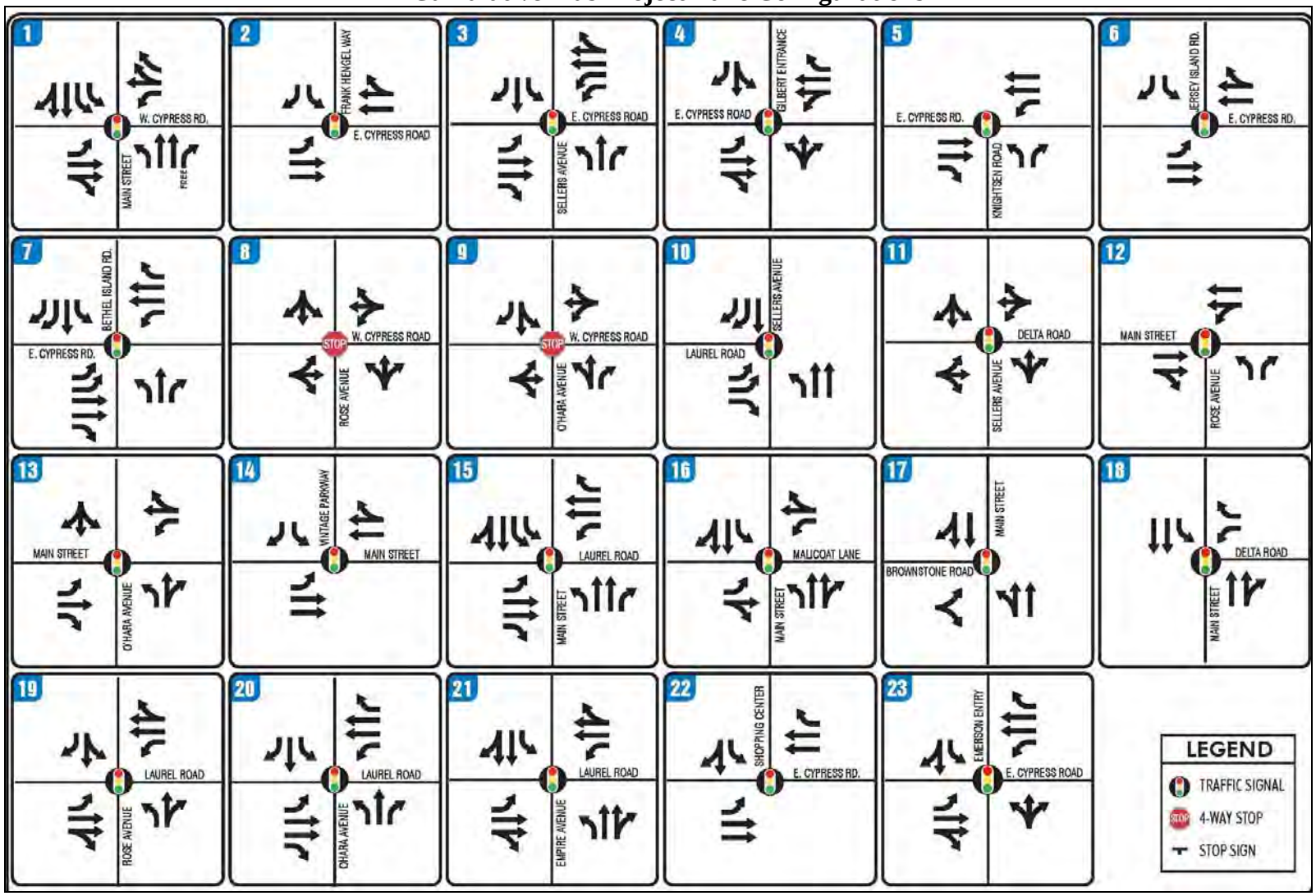
4.3-8(a) *The Laurel Road/Empire Avenue intersection shall be revised to include exclusive right-turn lanes on all approaches. This improvement is not currently included in the City's Transportation Impact Fee Program. If upon issuance of the first building permit for the project, the improvement is included in the City's Transportation Impact Fee Program, then the project applicant shall contribute to the mitigation by paying their fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit. In the event the improvement has not been added to the City's Transportation Impact Fee Program upon issuance of the first building permit, the project applicant shall install the improvement and be eligible for reimbursement from the Transportation Impact Fee Program.*

Figure 4.3-9
AM (PM) Cumulative Plus Project Volumes



Source: Abrams Associates, Inc., June 2008.

Figure 4.3-10
Cumulative Plus Project Lane Configurations



Source: Abrams Associates, Inc., June 2008.

4.3-8(b) Implement Mitigation Measure 4.3-1(a).

Endnotes

[1] Abrams Associates Traffic Engineering, *Emerson Traffic Study*, June 2008.
[2] City of Oakley, *River Oaks Crossing Specific Plan Final Environmental Impact Report*, March 2008.
[3] Fehr & Peers, *East Cypress Road Specific Plan – Draft Traffic Study*, March 2005.

4.4 AIR QUALITY

4.4 AIR QUALITY

Introduction

The Air Quality chapter of the EIR describes the effects of the proposed project on local and regional air quality. The chapter discusses existing air quality, construction-related impacts, direct and indirect emissions associated with the project, the impacts of these emissions on both the local and regional scale, and mitigation measures to reduce or eliminate any identified significant impacts. This chapter is based on the *Air Quality Impact Analysis for the Emerson Ranch Project*[1] prepared by Don Ballanti, Certified Consulting Meteorologist (See Appendix E of this Draft EIR).

Existing Environmental Setting

Air Basin Characteristics

The City of Oakley is located on the south side of the San Joaquin River Delta, east of the Carquinez Strait, between the Bay Area and the Central Valley. The climate and air quality in Oakley is greatly influenced by both the Bay Area and Central Valley. Oakley is located at the eastern boundary of the nine-county San Francisco Bay Area Air Basin. Oakley is a few miles west of San Joaquin County, which is part of the eight-county San Joaquin Valley Air Basin.

Oakley has a relatively low potential for air pollution, given the persistent strong winds that are typical of the area. Wind records from the closest wind-measuring sites show a strong predominance of westerly winds. Average wind speed is relatively high and the frequency of calm winds is quite low. The winds dilute pollutants and transport them away from the area, so that emissions released in the project area have more influence on air quality in the Sacramento and San Joaquin Valleys than they do locally. However, the City of Oakley is located downwind of the greater Bay Area. The proximity to the Bay Area negatively affects the air quality of the City of Oakley.

Ambient Air Quality Standards

Both the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards for each contaminant represent safe levels that avoid specific adverse health effects. The ambient air quality standards cover what are called “criteria” pollutants because the effects of each pollutant are described in the criteria documents. Table 4.4-1 identifies the major pollutants, characteristics, health effects and typical sources. The federal and California ambient air quality standards are summarized in Table 4.4-2.

Table 4.4-1
Major Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive photochemical pollutant created by the action of sunshine on ozone precursors (primarily reactive hydrocarbons and oxides of nitrogen). Often called photochemical smog.	• Eye irritation. • Respiratory function impairment.	Combustion sources such as factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	An odorless, colorless gas that is highly toxic. Formed by the incomplete combustion of fuels.	• Impairment of oxygen transport in the bloodstream. • Aggravation of cardiovascular disease. • Fatigue, headache, confusion, dizziness. • Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, and combustion of wood in woodstoves and fireplaces.
Nitrogen Monoxide	Reddish-brown gas that discolors the air, formed during combustion.	• Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes and fossil-fueled power plants.
Sulfur Dioxide	Sulfur dioxide is a colorless gas with a pungent, irritating odor.	• Aggravation of chronic obstruction lung disease. • Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Solid and liquid particles of dust, soot, aerosols and other matter, which are small enough to remain suspended in the air for a long period of time.	• Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories, and unpaved roads. Also a result of photochemical processes.

Source: Don Ballanti, June 2008.

Table 4.2-2
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	Federal Standards	
			Primary	Secondary
Ozone	1 Hour	0.09 ppm	-	Same as primary
	8 Hour	0.07 ppm	0.075 ppm	
Carbon Monoxide	8 Hour	9 ppm	9 ppm	None
	1 Hour	20 ppm	35 ppm	
Nitrogen Dioxide	Annual Mean	0.03 ppm	0.053 ppm	Same as primary
	1 Hour	0.18 ppm	-	
Sulfur Dioxide	Annual Mean	-	0.030 ppm	-
	24 Hour	0.04 ppm	0.14 ppm	-
	3 Hour			0.50 ppm
	1 Hour	0.25 ppm		-
Respirable Particulate Matter (PM_{10})	Annual Mean	20 ug/m^3	-	Same as primary
	24 Hour	50 ug/m^3	150 ug/m^3	
Fine Particulate Matter ($PM_{2.5}$)	Annual Mean	12 ug/m^3	15 ug/m^3	Same as primary
	24 Hour	-	35 ug/m^3	
Sulfates	24 Hour	25 ug/m^3	-	-
Lead	30 Day Average	1.5 ug/m^3	-	-
	Calendar Quarter	-	1.5 ug/m^3	Same as primary
Hydrogen Sulfide	1 Hour	0.03 ppm	N/A	N/A
Vinyl Chloride	24 Hour	0.01 ppm	N/A	N/A

ppm = parts per million
ug/m^3 = micrograms per cubic meter

Source: California Air Resources Board, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, accessed July 28, 2008.

The federal and State ambient standards were developed independently with differing purposes and methods. As a result, the federal and state standards differ in some cases. In general, the State of California standards are more stringent, particularly for ozone and particulate matter (PM_{10} and $PM_{2.5}$).

The State of California regularly reviews scientific literature regarding the health effects and exposure to particulate matter and other pollutants. On May 3, 2002, the CARB staff recommended lowering the level of the annual standard for PM_{10} and establishing a new annual standard for $PM_{2.5}$ (particulate matter 2.5 micrometers in diameter and smaller). The new standards became effective on July 5, 2003. In early 2006, a new 8-hour standard for ozone (0.07 PPM) went into effect.

Ozone

Ozone is the most prevalent of a class of photochemical oxidants formed in the urban atmosphere. The creation of ozone is a result of a complex chemical reaction between reactive organic gases (ROG) and nitrogen oxide (NO_X) emissions in the presence of sunshine. Unlike

other pollutants, ozone is not released directly into the atmosphere from any sources. Factories, automobiles, and evaporation of solvents and fuels are the major sources of ozone precursors. The health effects of ozone are difficulty breathing, lung tissue damage, and eye irritation.

Particulate Matter

Suspended particulate matter (airborne dust) consists of solid and liquid particles small enough to remain suspended in the air for long periods. "Respirable" PM consists of particles less than 10 microns in diameter, and is defined as "suspended particulate matter" or PM_{10}. Particles between 2.5 and 10 microns in diameter arise primarily from natural processes, such as wind-blown dust or soil. Fine particles are less than 2.5 microns in diameter ($PM_{2.5}$). $PM_{2.5}$, by definition, is included in PM_{10}. Fine particles are produced mostly from combustion or burning activities. Fuel burned in cars and trucks, power plants, factories, fireplaces, and wood stoves produces fine particles.

Particulate matter is a complex mixture that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These tiny particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particulate matter is divided into two classes, primary and secondary. Primary particles are released directly into the atmosphere from sources of generation. Secondary particles are formed in the atmosphere as a result of reactions that involve gases.

Particles greater than 10 microns in diameter can cause irritation in the nose, throat, and bronchial tubes. Natural mechanisms remove many of these particles, but smaller particles are able to pass through the body's natural defenses and the mucous membranes of the upper respiratory tract and enter into the lungs. The particles can damage the alveoli, tiny air sacs responsible for gas exchange in the lungs. The particles may also carry carcinogens and other toxic compounds, which adhere to the particle surfaces and can enter the lungs.

Carbon Monoxide

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

Nitrogen Oxide

Nitrogen oxides (NO_X) are reddish-brown gasses that discolor the air and are produced from burning fuels, including gasoline and coal. Nitrogen oxides react with ROG (found in paints and solvents) to form smog, which can result in adverse impacts to human health, damage the environment, and cause poor visibility. Additionally, NO_X emissions are a major component of acid rain. Health effects related to NO_X include lung irritation and lung damage and can cause increased risk of acute and chronic respiratory disease.

Sulfates

Sulfates (SO_X) are colorless gases and constitute a major element of pollution in the atmosphere. SO_X is commonly produced by fossil fuel combustion. In the atmosphere, SO_X is usually oxidized by ozone and hydrogen peroxide to form sulfur dioxide and trioxide. If SO_X is present during condensation, acid rain may occur. Exposure to high concentrations for short periods of time can constrict the bronchi and increase mucous flow, making breathing difficult. Children, the elderly, those with chronic lung disease, and asthmatics are especially susceptible to these effects.

Toxic Air Contaminants

In addition to the criteria pollutants (Table 4.4-1), Toxic Air Contaminants (TACs) are also a category of environmental concern. Toxic Air Contaminants are present in many types of emissions with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different TACs. In terms of health risks, the most volatile contaminants are diesel particulate, benzene, formaldehyde, 1,3-butadiene and acetaldehyde.

Public exposure to TACs can result from emissions from normal operations as well as accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

Attainment Status and Regional Air Quality Plans

The federal Clean Air Act and the California Clean Air Act of 1988 require that the State Air Resources Board, based on air quality monitoring data, designate portions of the state where the federal or state ambient air quality standards are not met as "nonattainment areas." Because of the differences between the national and state standards, the designation of nonattainment areas is different under the federal and state legislation.

The Bay Area is currently designated as a nonattainment area for 1-hour ozone standard. However, in April 2004, U.S. EPA made a final finding that the Bay Area has attained the national 1-hour ozone standard. The finding of attainment does not mean the Bay Area has been reclassified as an attainment area for the 1-hour standard. The region must submit a re-designation request to EPA in order to be reclassified as an attainment area.

The U.S. EPA has classified the San Francisco Bay Area as a nonattainment area for the federal 8-hour ozone standard. The Bay Area is designated as attainment for the annual condition, and unclassifiable for the 24-hour federal $PM_{2.5}$ standards.

Under the California Clean Air Act, Contra Costa County is a nonattainment area for ozone and particulate matter (PM_{10} and $PM_{2.5}$). The County is either attainment or unclassified for other pollutants. The California Clean Air Act requires local air pollution control districts to prepare air quality attainment plans. These plans must provide for district-wide emission reductions of

five percent per year averaged over consecutive three-year periods or, provide for adoption of "all feasible measures on an expeditious schedule."

Local Air Quality Monitoring

The Federal Clean Air Act and the California Clean Air Act require all areas of California to be classified as attainment, non-attainment, or unclassified as to their status with regard to the national and/or State Ambient Air Quality Standards.

The Bay Area Air Quality Management District (BAAQMD) has for many years operated a multi-pollutant monitoring site in nearby Bethel Island. Table 4.4-3 shows historical occurrences of pollutant levels exceeding the state/federal ambient air quality standards for the three-year period 2005-2007. The number of days that each standard was exceeded is shown.

Table 4.4-3 shows that all federal ambient air quality standards are met in the Oakley area with the exception of ozone. Additionally, the State ambient standards of ozone and PM_{10} are regularly exceeded.

Table 4.4-3
Air Quality Data Summary for Bethel Island, 2005-2007

Pollutant	Standard	Days Standard Exceeded During:		
		2005	2006	2007
Ozone	1-Hour State	0	9	0
	1-Hour Federal	2	14	4
	8-Hour Federal	0	1	0
Carbon Monoxide	8-Hour State and Federal	0	0	0
	1-Hour State	0	0	0
Nitrogen Dioxide	1-Hour State	0	0	0
Sulfur Dioxide	1-Hour State	0	0	0
	24-Hour State	0	0	0
PM_{10}	24-Hour State	1	1	0
	24-Hour Federal	0	0	0

Source: Air Resources Board, Aerometric Data Analysis and Management (ADAM), 2008.
(http: //www.arb.ca.gov./adam/cgi-bin/adamtop/d2wstart)

Sensitive Receptors

The Bay Area Air Quality Management District defines sensitive receptors as facilities where sensitive receptor population groups (children, the elderly, the acutely ill and the chronically ill) are likely to be located. These land uses include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals and medical clinics. Sensitive land uses near the project site include the existing Cypress Grove subdivision, Delta Vista Middle School and Iron House Elementary School, all located directly west of the project site. Scattered single-family homes are located south of the site across Cypress Road.

Greenhouse Gases

The greenhouse effect is a natural process by which some of the radiant heat from the sun is captured in the lower atmosphere of the earth. The gases that help capture the heat are called greenhouse gases (GHG). While greenhouse gases are not normally considered air pollutants, all of these gases have been identified as forcing the earth's atmosphere and oceans to warm above naturally occurring temperatures. Some greenhouse gases occur naturally in the atmosphere, while others result from human activities. Naturally occurring greenhouse gases include water vapor, carbon dioxide, methane, nitrous oxide and ozone. Certain human activities add to the levels of most of these natural occurring gases.

According to the 2006 California Climate Action Team Report[2] (CCAT), the following climate change effects are predicted in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, threatening the state's water supply.
- Increasing temperatures from eight to 10.4 degrees Fahrenheit under the higher emission scenarios, leading to a 25 to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas.
- Coastal erosion along the length of California and seawater intrusion into the Delta from a 4- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions.
- Increased vulnerability of forests due to pest infestation and increased temperatures.
- Increased challenges for the state's important agriculture industry from limited water shortage, increasing temperatures, and saltwater intrusion into the Delta.
- Increased electricity demand, particularly in the hot summer months.

In September 2006, the California legislature passed the California Global Warming Solutions Act (CGWSA), which was added to Health and Safety Code Section 38500 (also commonly referred to as AB32). The CGWSA states that global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. Many scientists believe that anthropogenic emissions of greenhouse gases (GHG) (defined as carbon dioxide [CO_2], methane [CH_4], nitrous oxide [N_2O], hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) are having a significant impact on the global environment by accelerating or even causing global warming.

The CGWSA requires that the state reduce emissions of GHG to 1990 levels by 2020. The reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased-in starting in 2012. To effectively implement the cap, CGWSA directs CARB to develop appropriate regulations and establish a mandatory reporting system to track and monitor GHG emission levels.

The CGWSA mandates that by January 1, 2008, CARB must determine what the statewide GHG emissions level was in 1990 and approve a statewide GHG emissions limit that is equivalent to the level to be achieved by 2020. On or before January 1, 2011, CARB must adopt GHG emission limits and emission reduction measures by regulation to achieve the maximum technologically feasible and cost-effective reductions in GHG emissions in furtherance of

achieving the statewide GHG emissions limit, to become operative beginning on January 1, 2012.

The scientific community has largely agreed that the earth is warming, and that humans are contributing to that change. However, the earth's climate is composed of many complex mechanisms, including: ocean currents, cloud cover, as well as the jet-stream and other pressure/temperature weather guiding systems. These systems are in turn influenced by changes in ocean salinity, changes in the evapotranspiration of vegetation, the reflectivity (albedo) of groundcover, as well as numerous other factors. Some changes have the potential to reduce climate change, while others could form a feedback mechanism that would speed the warming process beyond what is currently projected. The climate system is inherently dynamic; however, the overall trend is towards a gradually warming planet.

REGULATORY CONTEXT

Air quality is monitored through the efforts of various federal, State, and local government agencies. These agencies work jointly and individually to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for regulating and improving air quality within the Oakley area are discussed below.

Federal

U.S. Environmental Protection Agency (EPA)

The U.S. EPA is responsible for enforcement of National Ambient Air Quality Standards (NAAQS). The EPA has adopted policies requiring states to prepare State Implementation Plans (SIP) that demonstrate attainment and maintenance of the NAAQS. After a review of the SIP, the EPA will further classify non-attainment areas according to a District's projected date of attainment. Districts that project attainment of standards in three to five years would be classified as near-term non-attainment, whereas Districts that cannot meet standards within five years would be classified as long-term non-attainment. For an area to be classified as near-term non-attainment, the District would be required to demonstrate that pollutant reductions of three-percent-per-year are obtainable and that maintenance of standards could occur for ten years.

The USEPA has been directed to develop regulations to address the GHG emissions of cars and trucks. At the time of this writing, USEPA regulations for GHGs do not exist, and are not expected until late 2008 at the earliest.

State

California Clean Air Act

The California Clean Air Act (CCAA) requires that air quality plans be prepared for areas of the State that have not met State air quality standards for ozone, CO, NO_X, and SO_2. Among other requirements of the CCAA, the plans must include a wide range of implemental control measures, which often include transportation control measures and performance standards. In

order to implement the transportation-related provisions of the CCAA, local air pollution control districts have been granted explicit authority to adopt and implement transportation controls.

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493. AB 1493 requires that the California Air Resources Board (ARB) develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty truck and other vehicles determined by the Air Resources Board (ARB) to be vehicles whose primary use is noncommercial personal transportation in the state." Currently, the State is waiting for a determination on the State's request for a waiver from the USEPA to begin regulation of GHG emissions from vehicles.

Executive Order S-3-05

In 2005, Governor Schwarzenegger signed Executive Order S-3-05, which established total GHG emission targets. Specifically, emissions are to be reduced to year 2000 levels by 2010, 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (Cal-EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary is also directed to submit biannual reports to the governor and state legislature describing: (1) progress made toward reaching the emission targets; (2) impacts of global warming on California's resources; and (3) mitigation and adaptation plans to combat these impacts.

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

Assembly Bill 32

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Climate Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased starting in 2012. To implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

Senate Bill 1368

Senate Bill (SB) 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (PUC) to establish a GHG emission performance standard for baseload generation

from investor owned utilities by February 1, 2007. The California Energy Commission (CEC) must establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas fired plant. On January 27, 2007, the PUC adopted an interim Greenhouse Gas Emissions Performance Standard to require that all new long-term commitments for baseload power generation to serve Californians do not exceed the emissions of a combined cycle gas turbine plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the PUC and CEC. On May 28, 2007 the Energy Commission adopted regulations pursuant to SB 1368 establishing and implementing a GHG emission performance standard for baseload generation of local publicly owned electric utilities. The final rulemaking package was submitted to the Office of Administrative Law (OAL) on June 1, 2007 with a request for expedited review. On June 29, 2007 OAL issued a decision disapproving the rulemaking action. Revised regulations have not been submitted as of the writing of this DEIR (March 2008).

Senate Bill 1078

SB 1078 establishes a renewable portfolio standard (RPS) for electricity supply. The RPS requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide 20 percent of their supply from renewable sources by 2017. This target date was moved forward by SB 107 to require compliance by 2010. In addition, electricity providers subject to the RPS must increase their renewable share by at least 1 percent each year. The outcomes of this legislation will impact regional transportation powered by electricity.

Executive Order S-01-07

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

California Air Resources Board (CARB)

The CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing California's own air quality legislation called the California Clean Air Act (CCAA) adopted in 1988. The CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the U.S. EPA. As discussed above, the CARB is charged with developing rules and regulations to cap and reduce GHG emissions.

The CCAA requires that air quality plans be prepared for areas of the State that have not met State air quality standards for ozone, carbon monoxide, nitrogen dioxide, and sulfur dioxide. Areas that met standards by 1994 were classified as moderate, those that attained standards between 1994 and 1997 were classified as serious, and those that could not attain standards until after 1997 were classified as severe. In order to implement the transportation-related provisions of the CCAA, local air pollution control districts have been granted explicit authority to adopt and implement transportation controls.

Local

Bay Area Air Quality Management District (BAAQMD)

The Bay Area Air Quality Management District (BAAQMD) has permitting authority for stationary air pollutant sources in the region and operates a total of seven air monitoring sites within Contra Costa County. The BAAQMD has prepared *CEQA Guidelines* to assist in CEQA review. The BAAQMD maintains annual daily thresholds for ROG, NO_x and PM_{10}. Under these guidelines, any proposed project that would have a significant air quality impact would also be considered to have a significant cumulative air quality impact.

City of Oakley General Plan

The following applicable goals and policies are from the Oakley 2020 General Plan Open Space and Conservation Element:

Air Quality

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

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

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

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

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

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

IMPACTS AND MITIGATION MEASURES

Standards of Significance

California Environmental Quality Act (CEQA) guidelines provide that a project would have a significant air quality impact if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- 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 (including releasing emissions which exceed quantitative threshold for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

The *BAAQMD CEQA Guidelines* provide the following refinements to the definition of a significant air quality impact:

- A project contributing to carbon monoxide (CO) concentrations exceeding the State Ambient Air Quality Standard of 9 parts per million (PPM) averaged over 8 hours or 20 PPM for 1 hour would be considered to have a significant impact.
- A project that generates criteria air pollutant emissions in excess of the BAAQMD annual or daily thresholds would be considered to have a significant air quality impact. The current thresholds are 15 tons/year or 80 pounds/day for Reactive Organic Gases (ROG), Nitrogen Oxides (NO_X) or PM_{10}. Any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact.
- Any project with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact.
- Any project with the potential to expose sensitive receptors or the general public to substantial levels of toxic air contaminants would be deemed to have a significant impact.

Despite the establishment of both federal and State standards for $PM_{2.5}$ (particulate matter, 2.5 microns), the BAAQMD has not developed a threshold of significance for this pollutant. For this analysis, $PM_{2.5}$ impacts would be considered significant if project emissions of PM_{10} exceed 80 pounds per day.

The BAAQMD significance threshold for construction dust impacts is based on the appropriateness of construction dust controls. The *BAAQMD CEQA Guidelines* provide feasible control measures for construction emission of PM_{10}. If the appropriate construction controls are to be implemented, then air pollutant emissions for construction activities would be considered less-than-significant.

Method of Analysis

Operational emissions generated by the proposed projects were estimated by the URBEMIS-2007 computer program, which estimates the emissions resulting from various land-use development projects. These emissions were compared to the thresholds of significance recommended by the BAAQMD.

A screening-level form of the CALINE-4 program was used to predict concentrations. Normalized concentrations for each roadway size (two lanes, four lanes, etc.) are adjusted for the two-way traffic volume and emission factor. Calculations were made for a receptor at a corner of the intersection, located at the curb. Emission factors were derived from the CARB EMFAC7-2002 computer program based on a 2006 and 2030 Bay Area vehicle mix.

For this chapter the Draft EIR relies on an air quality report prepared for the proposed project by Don Ballanti, Certified Consulting Meteorologist.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project.

4.4-1 Impacts related to construction dust emissions.

Construction activities such as demolition, clearing, excavation and grading operations, construction vehicle traffic, and wind blowing over exposed earth would generate fugitive particulate matter emissions that would temporarily affect local air quality.

Construction dust would affect local air quality during construction of the proposed project. The dry, windy climate of the area during the summer months creates a high potential for dust generation when and if underlying soils are exposed to the atmosphere. The proposed project would involve substantial excavation and earthmoving in the grading for the construction of the drainage basins on the project site. The movement of earth on the site is a construction activity with a high potential for creating air pollutants.

According to the *BAAQMD CEQA Guidelines*, emissions of ozone precursors (ROG and NO_X) and carbon monoxide related to construction equipment are already included in the emission inventory that is the basis for regional air quality plans, and thus are not expected to impede attainment or maintenance of ozone and carbon monoxide standards in the Bay Area. Thus, the effects of construction activities would be increased dustfall and locally elevated levels of PM_{10}, and thus $PM_{2.5}$, downwind of construction activity. The BAAQMD significance threshold for construction dust impacts is based on the appropriateness of construction dust controls. The BAAQMD guidelines provide feasible control measures for construction emission of PM_{10}. The implementation of appropriate construction controls would result in air pollutants and emissions that would be considered less-than-significant during the construction process. Therefore, construction dust has the potential for creating a nuisance at nearby properties, resulting in a ***potentially significant*** impact.

Mitigation Measure(s)
As outlined in the *BAAQMD CEQA Guidelines*, implementation of the following mitigation measure would reduce any impacts related to construction dust emissions to a *less-than-significant* level.

4.4-1 Consistent with guidance from the BAAQMD, and prior to issuance of a grading permit, the applicant shall incorporate the following mitigation measures into the construction contract documents, which shall be submitted for the review and approval of the City Engineer and implemented during construction:

- *Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers or dust palliatives;*
- *Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard;*
- *Pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites;*
- *Sweep daily (preferably with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; water sweepers shall vacuum up excess water to avoid runoff-related impacts to water quality;*
- *Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets;*
- *Apply non-toxic soil stabilizers to inactive construction areas;*
- *Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.);*
- *Limit traffic speeds on unpaved roads to 15 mph;*
- *Install sandbags or other erosion control measures to prevent silt runoff to public roadways; and*
- *Replant vegetation in disturbed areas as quickly as possible.*

4.4-2 Impacts related to increased TAC emissions as a result of construction.

In 1998, the CARB identified particulate matter from diesel-fueled engines as a TAC. The CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.[3] High volume freeways, stationary diesel engines and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truckstop) were identified as having the highest associated risk.

Health risks from TACs are a function of both concentration and duration of exposure. Unlike the above types of sources, construction diesel emissions are temporary, affecting an area for a period of days or perhaps weeks. Additionally, construction-related sources are mobile and transient in nature, and the bulk of the emission occurs within the project site at a substantial distance from nearby receptors. Because the construction phase of the project would occur in a relatively short period of time and the fact that nearby sensitive receptors would not be down-wind of construction activity when the wind is from the

prevailing west direction, health risks from construction emissions of diesel particulate would be a ***less-than-significant*** impact.

Mitigation Measure(s)
None required.

4.4-3 Impacts related to effects of increased traffic and carbon monoxide concentrations.

On the local scale, the proposed project would change traffic on the local street network, changing carbon monoxide levels along roadways used by project traffic. The primary source of carbon monoxide in the Bay Area is automobiles. Concentrations of this gas are highest near intersections of major roads.

Table 4.4-4 shows the results of the CALINE-4 analysis for the peak 1-hour and 8-hour traffic periods in PPM. The 1-hour values are to be compared to the federal 1-hour standard of 35 PPM and the State standard of 20 PPM. The 8-hour values in Table 4.4-4 are to be compared to the State and federal standard of 9 PPM.

Table 4.4-4
Worst Case Carbon Monoxide Concentrations Near Selected Intersections

Intersection	Existing (2008)		Existing + Background (2008)		Existing + Background + Project (2008)		Cumulative + Project (2030)	
	1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr
Laurel Road/ Empire Avenue	4.4	2.4	5.7	3.3	5.7	3.3	4.0	2.2
Laurel Road/ O'Hara Avenue	4.2	2.3	5.2	3.0	5.3	3.1	4.0	2.1
Laurel Road/ Main Street	4.7	2.6	5.1	2.9	5.6	3.3	4.0	2.2
Main Street/ Cypress Road	4.8	2.7	5.6	3.2	5.9	3.5	4.2	2.3
E. Cypress Road/Sellers Avenue	4.3	2.3	4.8	2.7	4.2	3.0	4.2	2.3
Main Street/ O'Hara Avenue	4.8	2.7	5.6	3.3	5.7	3.4	3.8	2.0
Most Stringent Standard	20.0	9.0	20.0	9.0	20.0	9.0	20.0	9.0

Note: All measurements are in parts per million (PPM).

Source: Don Ballanti, June 2008.

Table 4.4-4 shows that existing predicted concentrations near the intersections meet the 1-hour and 8-hour standards. Traffic from the proposed project would increase concentrations by up to 0.5 PPM, but concentrations would remain well below the State

and federal standards. Concentrations with project and cumulative traffic growth in 2030 would also not exceed the State or federal ambient air quality standards.

Because project traffic would not cause any new violations of the 8-hour standards for carbon monoxide, nor contribute substantially to an existing or projected violation, project impacts on local carbon monoxide concentrations are considered to be ***less-than-significant***.

Mitigation Measure(s)
None required.

4.4-4 Impacts related to regional air pollutant emissions as a result of the proposed project.

Vehicle trips generated by the project would result in air pollutant emissions affecting the entire San Francisco Bay Air Basin. Regional emissions associated with project vehicle use have been calculated using the URBEMIS-2007 emission model.

Land use projects also generate area source emissions. Area sources are sources that individually emit fairly small quantities of air pollutants, but which cumulatively may represent significant quantities of emissions. The URBEMIS-2007 program quantifies five types of area source emissions: natural gas combustion, hearth emissions, landscape equipment, architectural coatings and consumer products. Some of these area sources vary seasonally. The URBEMIS-2007 program was used to quantify emissions separately for summer and winter. Summertime emissions were utilized for reactive organic gases (ROG) and oxides of nitrogen (NO_X), as both are ozone precursors (ozone is a summer time pollutant). Winter emissions were utilized for PM_{10} when emissions of this pollutant are at a maximum, primarily due to hearth emissions.

The incremental daily emission increase associated with project area source emissions is identified in Table 4.4-5 for reactive organic gases and oxides of nitrogen (two precursors of ozone) and PM_{10}.

The BAAQMD has established threshold of significance for ozone precursors and PM_{10} of 80 pounds per day, applicable to vehicular emissions. Project vehicular emissions shown in Table 4.4-5 would exceed these thresholds of significance; therefore, the proposed project would have a ***significant*** effect on regional air quality.

Mitigation Measure(s)
The following mitigation measures have the potential to reduce project-related regional emissions by 10-20 percent. Even with a reduction of this magnitude, project emissions would remain well above the BAAQMD significance threshold of 80 pounds per day. Project regional air quality impacts and cumulative impacts would remain *significant and unavoidable*.

Table 4.4-5 Project Regional Emissions (Pounds Per Day)			
	Reactive Organic Gases	**Nitrogen Oxides**	**PM_{10}**
Proposed Project:			
Vehicular Emissions	114.6	119.3	155.2
Area Source Emissions	43.9	10.2	47.4
Total	158.5	129.5	202.6
BAAQMD Significance Threshold	80.0	80.0	80.0
Source: Don Ballanti, June 2008.			

4.4-4 Consistent with guidance from the BAAQMD, and prior to issuance of a grading permit, the applicant shall incorporate mitigation measures to reduce the impact to the highest degree feasible. The applicant shall implement mitigation measures, submitted for the review and approval of the City Engineer. The mitigation measures could include, but are not limited to, the following:

- *Provide bicycle lanes, sidewalks and/or paths, connecting project residences to adjacent schools, parks, the nearest transit stop and nearby commercial areas. Provide a satellite tele-commute center within or near the development.*
- *Provide secure and conveniently placed bicycle parking and storage facilities at parks and other facilities.*
- *Implement feasible travel demand management (TDM) measures for a project of this type. This would include a ride-matching program, coordination with regional ride-sharing organizations, provision of transit information, and provision of shuttle service to major destinations such as the Pittsburg BART station.*
- *Allow only natural gas fireplaces, pellet stoves or EPA-Certified wood-burning fireplaces or stoves should be permitted. Conventional open-hearth fireplaces should not be permitted. EPA-Certified fireplaces and fireplace inserts are 75 percent effective in reducing emissions from this source.*
- *Use electric lawn and garden equipment for landscaping.*
- *Construct transit amenities such as bus turnouts/bus bulbs, benches, shelters, etc.*
- *Provide direct, safe, attractive pedestrian access from project land uses to transit stops and adjacent development.*
- *Utilize reflective (or high albedo) and emissive roofs and light colored construction materials to increase the reflectivity of roads, driveways, and other paved surfaces, and include shade trees near buildings to directly shield them from the sun's rays and reduce local air temperature and cooling energy demand.*

The commercial portion of the project should be required to apply TSM measures to reduce trips. Appropriate strategies would be:

- *Provide physical improvements, such as sidewalk improvements, landscaping and bicycle parking that would act as incentives for pedestrian and bicycle modes of travel.*
- *Connect site with regional bikeway/pedestrian trail system.*
- *Provide transit information kiosks.*
- *Implement feasible travel demand management (TDM) measures for a project of this type. This would include a ride-matching program, guaranteed ride home programs, coordination with regional ridesharing organizations and transit incentives program.*
- *Provide showers and lockers for employees bicycling or walking to work.*
- *Provide secure and conveniently located bicycle parking and storage for workers and patrons.*
- *Provide electric vehicle charging facilities.*
- *Provide preferential parking for Low Emission Vehicles (LEVs).*
- *Utilize reflective (or high albedo) and emissive roofs and light colored construction materials to increase the reflectivity of roads, driveways, and other paved surfaces, and include shade trees near buildings to directly shield them from the sun's rays and reduce local air temperature and cooling energy demand.*

Cumulative Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region.

4.4-5 Impacts related to the cumulative effects of the proposed project on air quality.

The cumulative air quality impacts of development projects are primarily related to automobile traffic and areas sources of pollutants such as fuel combustion for heating, maintenance equipment emissions, certain consumer products, evaporation of solvents, etc. The BAAQMD considers these types of emissions to be secondary in importance to vehicle emissions, so the recommended BAAQMD thresholds of significance is to be compared to vehicular emissions only.

Emissions from development projects have several cumulative impacts. Growth in emissions would delay attainment of the ambient air quality standards for which the region is in non-attainment (ozone, particulate matter), contribute to visibility reduction and contribute to mobile-source toxic air contaminant concentrations.

Because ozone, particulate matter, and some constituents of ROG that are also TACs have been shown to be correlated with adverse heath effects, cumulative emissions increases in the region would have potential cumulative health effects. Studies have

shown that children who participated in several sports and lived in communities with high ozone levels were more likely to develop asthma than the same active children living in areas with less ozone pollution. Other studies have found a positive association between some volatile organic compounds and symptoms in asthmatic children. A large body of evidence has shown significant associations between measured levels of particulate matter outdoors and worsening of both asthma symptoms and acute and chronic bronchitis. However, to predict the increases in severity of disease, hospital visits or deaths from respiratory diseases such as asthma, bronchitis or lung cancer is impossible because:

- Estimation is not possible for long-term concentrations of pollutants such as ozone, the TAC components of ROG or particulate matter (PM_{10} and $PM_{2.5}$) resulting from an indirect source of air pollutants such as the project.
- Dose-response relationships are lacking that would allow a quantitative analysis of health effects.

In recognition of the incremental health effects associated with these pollutants, air quality management districts have established thresholds for each pollutant that indicate the limits of acceptability in terms of effect on health. In addition, as presented in Impact Statement 4.4-4, the proposed project would exceed the BAAQMD significance thresholds even with the implementation of feasible mitigation measures. According to BAAQMD significance criteria, any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. Therefore, based on the BAAQMD cumulative impact threshold, this project would have a ***significant*** contribution to cumulative air quality impacts.

Mitigation Measure(s)
The implementation of the following mitigation measure would reduce the magnitude of the cumulative project-related regional emissions by 10 to 20 percent. Even with this reduction, project emissions would individually exceed the BAAQMD significance threshold of 80 pounds per day and contribute to the cumulative non-attainment condition. Therefore, the impacts would remain *significant and unavoidable*.

4.4-5 Implement Mitigation Measure 4.4-4.

4.4-5 Cumulative impacts related to GHGs.

As described above in the Existing Environmental Setting section, increases in greenhouse gas emissions in the State and City could contribute to increases in global average temperatures and climate change. Climate change in turn could lead to sea level rise and other changes in environmental conditions.

The major sources of GHG emissions generated from the proposed project are vehicle source CO_2 emissions. Vehicle transportation is one of the major contributors to GHG emissions in Contra Costa County and the City of Oakley. Vehicle emissions primarily consist of CO_2 from the tailpipe during vehicle operation. Carbon dioxide emissions

associated with the proposed project were estimated using the URBEMIS-2007 program. The estimated annual emission of carbon dioxide (the primary greenhouse gas associated with development projects) is 17,940 tons per year.

Carbon dioxide emissions in California totaled approximately 391 million tons in 2004.[4] Total CO_2 emissions from the proposed project, as estimated above, would equate to a nearly negligible percent of the statewide total. However, the actual statewide GHG emissions totals generated by the proposed project are likely even lower than the percentage listed above, because the vast majority of the vehicle trips "generated" by the proposed project are already occurring elsewhere. Furthermore, due to the expansion of the State population and economy, the current statewide GHG emissions are likely higher than in 2004; therefore, the project's percentage of statewide emissions would be even further reduced.

Qualitative vs. Quantitative Assessment

As discussed above, CARB and other air quality regulatory agencies have not issued any guidance that agencies can follow in evaluating how land use developments contribute to climate change. While there are some established methodologies and mitigation measures for stationary source emissions, an accepted methodology for evaluating how land use projects may contribute to climate change via mobile source emissions does not exist.

Issues of GHG emissions and climate change are fundamentally different from other areas of air quality impact analysis, which are all linked to some region or area in which the impact is significant. In the case of toxic air contaminants, that area typically is a localized area. In the case of ozone precursors, that area is typically the air basin, which is in non-attainment status for ozone. In those contexts, where air quality is linked to a particular location or area, considering the creation of new emissions in that area in itself as an environmental impact is appropriate.

The proposed project, for the most part, would not "create" GHG emissions. Instead, the project would "move" the emissions from one area to another, as an existing driver moves from one area to the other. Therefore, quantitative analysis of GHG emissions would be substantially different from other air quality impacts, where the addition of "moved" emissions to a new locale (such as a toxic hot spot or an air basin that is not attaining ozone standards) could make a substantial difference. Accordingly, the above quantitative analysis of the proposed project's contribution to global climate change is inherently inaccurate and speculative.

Conclusion Regarding Global Climate Change

Given the overwhelming scope of global climate change, a single development project would be unlikely to have an individually discernable effect on global climate change (i.e., that any increase in global temperature or sea level could be attributed to the emissions resulting from the proposed project). A more appropriate discussion would

center on how the proposed project could combine with emissions across California, the United States, and the globe to cumulatively contribute to global climate change.

However, even in a cumulative discussion of global climate change, declaring an impact significant, or not significant, implies knowledge of the incremental effects of the proposed project to the global cumulative scenario. To determine whether the proposed project would have a significant impact associated with global climate change, in light of the fact that significance thresholds for such an impact do not exist, would be speculative and substantial evidence is not available at present to legitimately evaluate the issue in this EIR. Therefore, consistent with CEQA Guidelines Section 15145, because the City has made an effort to fully explore the potential for global climate change and has determined that the conclusion would be speculative, a determination of significance cannot be made. It should be noted, however, that mitigation measures included in the Air Quality chapter of this Draft EIR would reduce GHGs.

Endnotes

[1] Don Ballanti. *Air Quality Impact Analysis for the Proposed Emerson Ranch Project*. June 2008.
[2] California Environmental Protection Agency Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the Legislation*, March 2006.
[3] California Air Resources Board. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October 2000.
[4] California Energy Commission (CEC). 2006a. *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004*. Publication CEC-600-2006-013-D.

4.5 NOISE

4.5 NOISE

INTRODUCTION

The Noise chapter of the EIR discusses the existing noise environment in the project vicinity, and identifies potential impacts and mitigation measures related to development of the proposed project in the City of Oakley, California. Specifically, this chapter analyzes potential noise impacts, due to and upon development of the project, relative to applicable noise criteria and to the existing ambient noise environment. In addition, the analysis addresses the impacts of construction-related noise. The Noise chapter is based on the *Emerson Property Project Environmental Noise Assessment*[1] prepared by Illingworth and Rodkin, Inc. (See Appendix F of this Draft EIR), as well as the *Oakley 2020 General Plan*.[2]

EXISTING ENVIRONMENTAL SETTING

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing. Decibels and other technical terms are defined in Table 4.5-1.

Most of the sounds that we hear in the environment do not consist of a single frequency, but rather a broad band of frequencies, with each frequency differing in sound level. The intensities of each frequency add together to generate a sound. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound in accordance with a weighting that reflects that human hearing is less sensitive at low frequencies and extreme high frequencies than in the frequency mid-range. This is called "A" weighting, and the decibel level so measured is called the A-weighted sound level (dBA). In practice, the level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. Typical A-weighted levels measured in the environment and in industry are shown in Table 4.5-2 for different types of noise.

Although the A-weighted noise level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from distant sources, which create a relatively steady background noise in which a particular source is not identifiable. To describe the time-varying character of environmental noise, the statistical noise descriptors, L_{01}, L_{10}, L_{50}, and L_{90}, are commonly used. They are the A-weighted noise levels equaled or exceeded during one percent, 10 percent, 50 percent, and 90 percent of a stated time period. A single number descriptor called the L_{eq} is also widely used. The L_{eq} is the average A-weighted noise level during a stated period of time.

Table 4.5-1
Definitions of Acoustical Terms Used in This Chapter

Term	Definitions
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, Leq	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: *Illingworth & Rodkin, 2008.*

Table 4.5-2
Typical Noise Levels in the Environment

Common Outdoor Noise Source	Noise Level (dBA)	Common Indoor Noise Source
	120 dBA	
Jet fly-over at 300 meters		Rock concert
	110 dBA	
Pile driver at 20 meters	100 dBA	
		Night club with live music
	90 dBA	
Large truck pass by at 15 meters		
	80 dBA	Noisy restaurant
		Garbage disposal at 1 meter
Gas lawn mower at 30 meters	70 dBA	Vacuum cleaner at 3 meters
Commercial/Urban area daytime		Normal speech at 1 meter
Suburban expressway at 90 meters	60 dBA	
Suburban daytime		Active office environment
	50 dBA	
Urban area nighttime		Quiet office environment
	40 dBA	
Suburban nighttime		
Quiet rural areas	30 dBA	Library
		Quiet bedroom at night
Wilderness area	20 dBA	
Most quiet remote areas	10 dBA	Quiet recording studio
Threshold of human hearing	0 dBA	Threshold of human hearing

Source: *Illingworth & Rodkin, 2008.*

In determining the daily level of environmental noise, accounting for the difference in individual response to daytime and nighttime noises is important. During the nighttime, exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noise becomes very noticeable. Further, most people sleep at night and are very sensitive to noise intrusion. To account for human sensitivity to nighttime noise levels, a descriptor, DNL (day/night average sound level), was developed. The DNL divides the 24-hour day into the daytime of 7:00 AM to 10:00 PM and the nighttime of 10:00 PM to 7:00 AM. The nighttime noise level is weighted 10 dB higher than the daytime noise level. The Community Noise Equivalent Level (CNEL) is another 24-hour average, which includes both an evening and nighttime weighting.

Existing Noise Environment

Currently, lands to the north, south, and east of the proposed project site are used for agricultural purposes. Cypress Grove residential development, west of the project, is consistent with development of the proposed project. Scattered existing residential homes are also present along Cypress Road and Sellers Avenue. The major existing noise sources in the area are traffic on Cypress Road, Sellers Avenue, and Knightsen Avenue. Other roadways in the area carry minimal traffic and are not significant noise sources. The noise measurements that contributed to the noise studies were made at locations on, and in the vicinity of, the project site.

A continuous 24-hour noise measurement was conducted on Cypress Road near Machado Lane from 1:00 pm on December 15, 2004 until 1:00 pm on December 16, 2004 (Site LT-1). The 24-hour average L_{dn} at this location was measured to be 71 dBA. In addition, a 24-hour noise measurement was conducted on Sellers Avenue south of Cypress Road at a distance of 65 feet from the centerline of the roadway between November 19 and November 22, 2004 (Site LT-2). The L_{dn} at this location was measured to be 68 dBA

A spot measurement was made on Knightsen Avenue south of Cypress Road at a distance of 50 feet from the centerline of Knightsen Avenue, typical of the existing setback of residences along Knightsen Avenue. The mid-afternoon average noise level was measured at 65 dBA and the L_{dn} is estimated to be 67 dBA at this distance.

Farther from the major streets, noise levels decrease significantly. Noise levels drop off at a rate of three to 4.5 decibels per every doubling of distance from the roadway. The City's goal for noise levels not in excess of an L_{dn} of 65 dB at outdoor use areas in new residential development is currently met at a distance of 220 feet from the center of Cypress Road, 120 feet from the centerline of Sellers Avenue, and 80 feet from the center of Knightsen Avenue. A number of homes exist within these distances along Cypress Road, Sellers Avenue, and Knightsen Avenue. Table 4.5-3 below identifies the existing noise level contour distances from roadway centers in the project area.

Table 4.5-3 Existing Noise Level Contour Distances from Roadway Center			
Roadway	**70 L_{dn}**	**65 L_{dn}**	**60 L_{dn}**
Cypress Road	100 ft.	220 ft.	475 ft.
Sellers Avenue	--[1]	120 ft.	260 ft.
Knightsen Avenue	--	80 ft.	185 ft.

[1] Noise contour within roadway right-of-way.
Source: *Illingworth & Rodkin, 2008.*

REGULATORY CONTEXT

In order to limit population exposure to physically and/or psychologically damaging noise levels, the State of California, various county governments, and most municipalities in the State have established standards and ordinances to control noise. The City of Oakley General Plan Noise Element and CEQA provide regulations regarding noise levels for uses relevant to the proposed project. The following provides a general overview of the existing regulations established by the State and City.

Local

City of Oakley General Plan

The City of Oakley establishes guidelines and policies regarding environmental noise in the General Plan. The Noise Element of the General Plan is designed to provide direction with regard to compatible development, reduce the potential for noise and land use compatibility conflicts, and reduce the effects of noise resulting from a proposed project on surrounding land uses. The following policies are applicable to the proposed project:

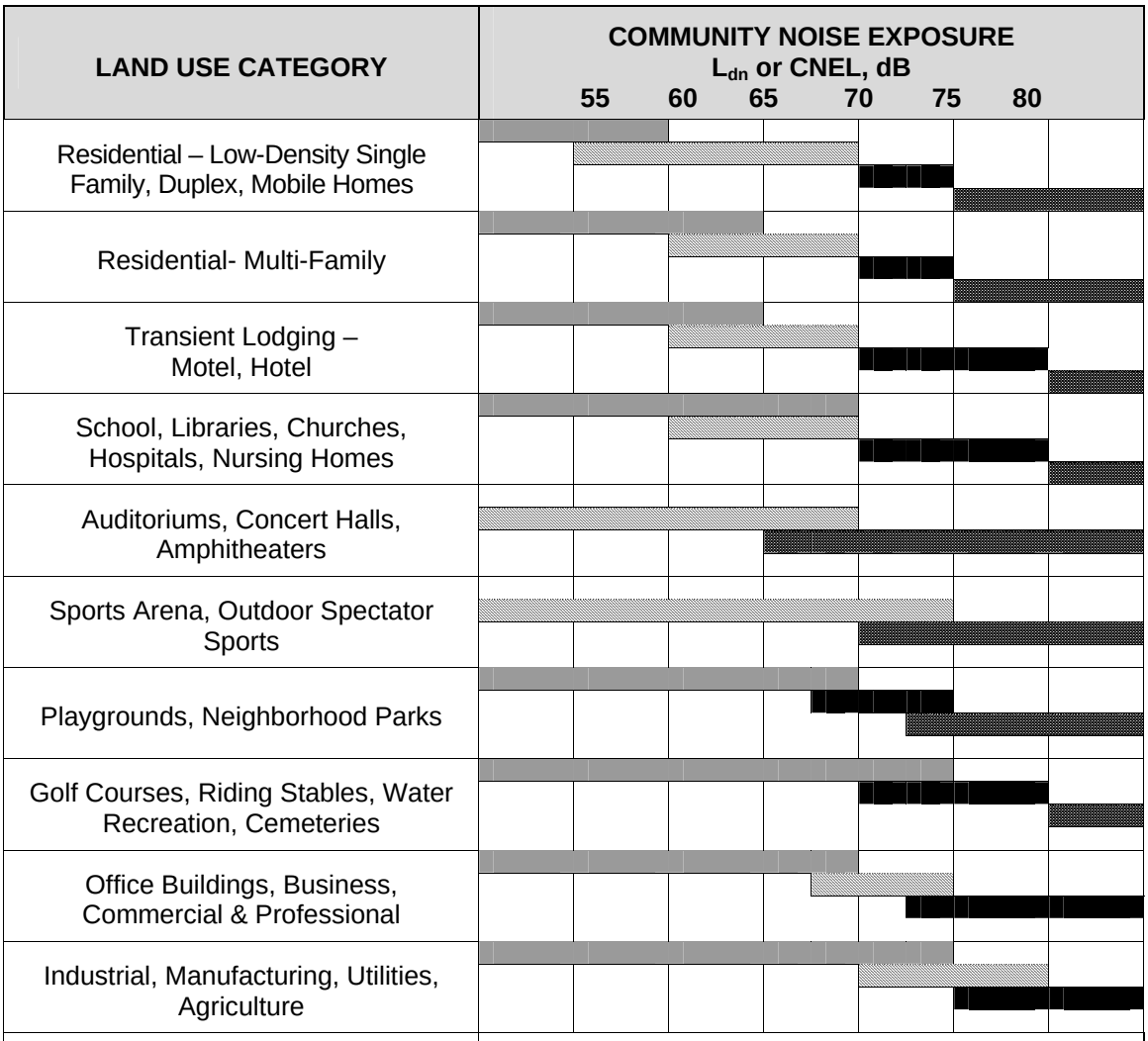
Noise Element

Goal 9.1 Protect residents from harmful and annoying effects of exposure to excessive noise.

Policy 9.1.1 New development shall use the land use compatibility table shown in Figure 9.1 (See Figure 4.5-1) and the standards contained within Tables 9.1 and 9.3 (See Tables 4.5-4 and 4.5-5) for determining noise compatibility.

Policy 9.1.3 Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 9-1 (See Table 4.5-5) as measured immediately within the property line of lands designated for noise-sensitive uses.

Figure 4.5-1
Land Compatibility for Community Noise Environments



Source: Oakley 2020 General Plan, 2002.

Table 4.5-4
Noise Level Performance Standards for New Projects Affected by or Including Non-Transportation Noise Sources

Noise Level Descriptor	Daytime (7:00 AM To 10:00 PM)	Nighttime (10:00 PM To 7:00 AM)
Hourly L_{eq}, dB	**55**	**45**

Notes:

1. Each of the noise levels specified above shall be lowered five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises (e.g., humming sounds, outdoor speaks systems). These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).
2. The City can impose noise level standards that are more restrictive than those specified above based upon determination of existing low ambient noise levels.
3. Fixed noise sources which are typically of concern include, but are not limited to, the following:

HVAC Systems	Cooling Towers/Evaporative Condensers
Pump Stations	Lift Stations
Emergency Generators	Boilers
Steam Valves	Steam Turbines
Generators	Fans
Air Compressors	Heavy Equipment
Conveyor Systems	Transformers
Pile Drivers	Grinders
Drill Rigs	Gas or Diesel Motors
Welders	Cutting Equipment
Outdoor Speakers	Blowers

4. The types of uses that may typically produce the noise sources described above include but are not limited to industrial facilities including pump stations, trucking operations, tire shops, auto maintenance shops, metal fabricating shops, shopping centers, drive-up windows, car washes, loading docks, public works projects, batch plants, bottling and canning plants, recycling centers, electric generating stations, race tracks, landfills, sand and gravel operations, and athletic fields.

Source: Oakley 2020 General Plan, 2002.

Policy 9.1.5 Noise created by new transportation noise sources shall be mitigated so as not to exceed the levels specified in Table 9-3 (See Table 4.5-6) at outdoor activity areas or interior spaces of existing noise-sensitive land uses.

Policy 9.1.6 It is anticipated that roadway improvement projects will be needed to accommodate build-out of the general plan. Therefore, existing noise-sensitive uses may be exposed to increased noise levels due to roadway improvement projects as a result of increased roadway capacity, increases in travel speeds, etc. It may not be practical to reduce increased traffic noise levels consistent with those contained in Table 9-3 (See Table 4.5-6). Therefore, as an alternative, the following criteria may be used as a test of significance for roadway improvement projects:

Table 4.5-5
Maximum Allowable Noise Exposure – Transportation Noise Sources

Land Use	Outdoor Activity Areas[1] L_{dn}/CNEL, dB	Interior Spaces	
		L_{dn}/CNEL, dB	L_{eq}/dB[2]
Residences	65	45	--
Transient Lodging	65[3]	45	--
Hospitals, Nursing Homes	65	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meetings Halls	65	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

[1] Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.
[2] As determined for a typical worst-case hour during periods of use.
[3] In the case of hotel/motel facilities or other transient lodging, outdoor activity areas such as pool areas may not be included in the project design. In these cases, only the interior noise level criterion will apply.

Source: Oakley 2020 General Plan, 2002.

- Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant;
- Where existing traffic noise levels range between 60 and 65 dB L_{dn}, at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and
- Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas, a +1.5 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant.

Policy 9.1.7 Where noise mitigation measures are required to achieve the standards of Tables 9-1 and 9-3 (See Table 4.5-4 and Table 4.5-5), the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

Policy 9.1.8 Obtrusive, discretionary noise generated from residences, automobiles, commercial establishments, and/or industrial facilities should be minimized or prohibited.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

Generally, a project that substantially increases the ambient noise levels for adjoining areas or exposes people to severe noise levels would have a significant effect on the environment. In practice, more specific professional standards have been developed. These standards state that a noise impact that generates noise conflicting with local planning criteria or ordinances, or substantially increase noise levels at noise-sensitive land uses may be considered significant.

For the purposes of this assessment, noise levels resulting from the project are assessed against the existing noise conditions. Traffic noise impacts would occur where noise levels would exceed 65 dBA L_{dn} at outdoor activity areas (i.e., rear yards) or where interior noise levels would exceed 45 dBA L_{dn}.

Method of Analysis

To generally quantify the existing ambient noise environment in the project vicinity, short-term ambient noise level measurement surveys were conducted in the project area between November and December 2004. Because the proposed project area has not experienced unplanned development, the 2004 noise measurements for the proposed project area are considered to be adequate for the proposed project.

A continuous 24-hour noise measurement was conducted on Cypress Road near Machado Lane from 1:00 pm on December 15, 2004 until 1:00 pm on December 16, 2004. The measurement was conducted at a distance of 75 feet from the centerline of Cypress Road.

A continuous 24-hour noise measurement was also conducted on Sellers Avenue south of Cypress Road. The measurement was conducted at a distance of 65 feet from the centerline of the roadway. The measurement was conducted between November 19 and November 22, 2004.

A spot measurement was made on Knightsen Avenue south of Cypress Road at a distance of 50 feet from the centerline of Knightsen Avenue, typical of the existing setback of residences along Knightsen Avenue.

Traffic Noise Modeling Methodology

To describe existing and projected noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was

developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict traffic noise levels in terms of $L_{dn,}$ adjusting the input volume is necessary to account for the day/night distribution of traffic.

Noise Impact Assessment

The analysis in this chapter uses information obtained from sources listed in the introduction to this chapter and compares the existing noise levels and the effects of the proposed project upon the surrounding noise levels. Conclusions are drawn using the significance criteria listed above.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project.

4.5-1 Noise impacts related to land use compatibility of the proposed project and surrounding properties.

The proposed project includes development of residential properties along Cypress Road and Sellers Avenue. To accommodate future development in the Oakley area, Cypress Road would be widened to six lanes east of Sellers Avenue and four lanes west of Sellers Avenue. Sellers Avenue would be four lanes.

Traffic noise modeling indicates that at a distance of 55 feet from the edge-of-pavement (typical of the closest yards proposed along Cypress Road), the L_{dn} would reach 74 dB. The L_{dn} at the same distance from the edge-of-pavement of Sellers Avenue north of Cypress Road would reach 63 dB. Without mitigation, noise levels outside of the residences closest to Cypress Road could exceed the City standard of 65 dB. In addition future noise levels along Cypress Road and Sellers Avenue would be high enough to cause interior noise levels in the homes adjacent these roads to exceed an L_{dn} of 45 dB. Therefore, interior noise levels could also potentially exceed the guidelines contained in the Noise Element of the City of Oakley's General Plan.

The City of Oakley's General Plan requires a project-specific acoustical analysis to demonstrate how interior noise levels would be kept below 45 dB and how outdoor noise levels for residential areas would be kept below 65 dB. Alternative techniques are available to meet these criteria. The Noise Element of the City of Oakley General Plan encourages the use of site planning and setbacks to achieve compliance with the standards. In order to reduce noise levels to below the City standards, a 200-foot setback would be required along Cypress Road. Alternatively, soundwalls could be built to reduce noise levels in the yards adjacent to the homes. The soundwalls would also reduce noise levels inside the first floor of the homes.

Preliminary traffic noise modeling was conducted assuming level terrain between Cypress Road and adjacent receivers. Receivers were assumed to be in the center of the rear yard adjacent to the roadway, approximately 20 feet from the noise barrier. The result of this modeling indicates that soundwalls nine feet high would be required along

Cypress Road to reduce noise levels in rear yards to 65 dB L_{dn}. Table 4.5-6 summarizes the results of the traffic noise modeling and barrier insertion loss calculations. A preliminary barrier design is shown in Figure 4.5-2.

Table 4.5-6
Future Exterior L_{dn} Noise Levels (dBA) With Mitigation

Roadway	No Barrier	6-Foot Barrier	7-Foot Barrier	8-Foot Barrier	9-Foot Barrier	10-Foot Barrier	11-Foot Barrier
Cypress Road	74	68	67	66	65	64	63

Source: Illingworth & Rodkin, 2008.

Noise barriers would not shield upper level facades of the proposed units. Typically, standard construction with a forced-air mechanical ventilation unit (allowing the occupant to control noise by maintaining the windows shut) provides at least 20 dBA of noise reduction in interior spaces. Exterior noise levels at unshielded facades of residential units nearest Cypress Road would be expected to be approximately 74 L_{dn}. Interior noise levels are approximately 15 decibels lower than exterior noise levels assuming standard residential construction methods and the windows partially open for ventilation.

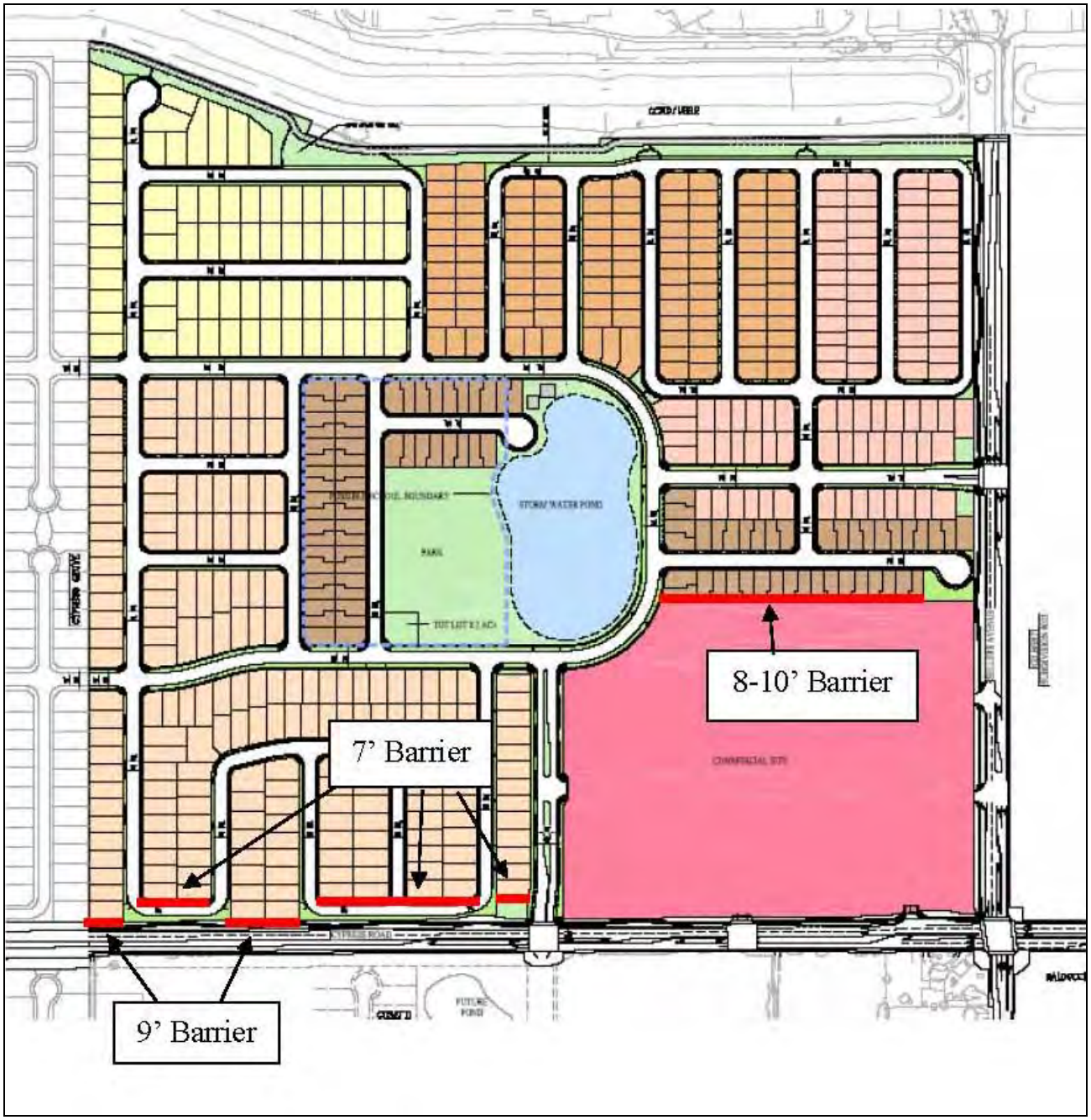
By incorporating some form of forced air mechanical ventilation system into the design of the unit, interior average noise levels would be expected to be about 20 to 25 dBA lower assuming the windows are closed to control noise. Even with forced-air mechanical ventilation and all windows closed, interior average noise levels would exceed 45 L_{dn}. However, if the soundwalls were constructed, noise levels inside of the first floor of homes could be maintained at an L_{dn} of 45 dB or less assuming that the windows are kept closed.

Because soundwalls would not block transmission of sound waves to upper floors, sound rated windows would be necessary for the upper floor of units adjacent to Cypress Road. Assuming an exterior noise level of 74 L_{dn} at the façade of the residential unit, stucco exterior siding, and a 30 percent window to wall ratio of the exterior wall facing Cypress Road, windows with sound transmission class ratings (STC) of 33 to 36 would be required to maintain interior average noise levels below 45 L_{dn} with an adequate margin of safety. Sound-rated windows are readily available and would adequately reduce interior noise levels to acceptable levels.

Assuming standard residential construction methods, residential units along Sellers Avenue would require a forced-air mechanical ventilation unit to allow the occupant to control noise by maintaining the windows shut. Interior average noise levels with the windows closed would be less than 45 L_{dn}.

Because proposed residences on the project site would be impacted by noise both in exterior spaces and at the second floor, the project would result in a ***potentially significant*** impact.

Figure 4.5-2
Soundwall Locations



Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.5-1(a) *Prior to occupancy, the applicant shall construct noise barriers to reduce noise at exterior use residential areas adjacent to Cypress Road to 65 dB L_{dn} or lower. An acoustical analysis shall be conducted using the final detailed design of the project to ensure that the noise barriers reduce the noise levels to 65 dBA L_{dn}, or lower, for the review and approval of the City Engineer. The final detailed design of the heights and limits of the barriers shall be confirmed by the Community Development Director at the time the final grading plan is submitted. The applicant/developer shall include soundwalls that conform to the following standards on the Improvement Plans to be approved by the City Engineer prior to the approval of the Improvement Plans:*

- *Barriers shall be constructed solidly over the entire surface and at the base. Openings or gaps between barrier materials or the ground decrease the noise reduction provided by a noise barrier; and*
- *Suitable materials for barrier construction shall have a minimum surface weight of 3 lbs./ft^2 (such as one-inch thick wood, masonry block, concrete, or metal).*

4.5-1(b) *Project-specific acoustical analyses shall be conducted during final detailed design of the project when building elevations and floor plans are available in order to determine how interior noise levels can be reduced to 45 dBA L_{dn} or lower, for the review and approval of the City Engineer. The future noise environment at the project site shall require sound rated construction methods and the provision of forced-air mechanical ventilation so that windows could be kept closed at the occupants' discretion to control noise. Noise insulation features include sound-rated windows, sound-rated doors, and careful attention to exterior wall detailing (including caulking and possible sound insulating upgrades such as resilient channels, or stucco exterior siding). In addition the final design shall include a 30 percent window-to-wall ratio of the exteriors facing Cypress Road. The final detailed design of noise insulation features necessary to maintain interior noise levels at acceptable levels shall be completed at the time that the final plans are available and prior to the issuance of a building permit.*

4.5-2 Impacts related to permanent noise increases at existing residences.

The traffic generated by this project alone would result in a one to two dBA L_{dn} increase in daily traffic noise levels along Cypress Road. The project would not result in a measurable increase in traffic noise along Sellers Avenue south of the project site.

Project-generated traffic noise levels were calculated by comparing existing plus project traffic volumes to existing traffic volumes along area roadways. Based on this comparison, traffic noise levels are anticipated to increase by approximately one to two dBA L_{dn} along Cypress Road as a result of the project. Noise levels along Sellers Avenue are not anticipated to measurably increase along Sellers Avenue, south of Cypress Road. Project-generated traffic is not anticipated to increase noise levels beyond the three dBA threshold of significance along either Sellers Avenue or Cypress Road. Therefore, the project-specific increases in ambient noise levels would result in a ***less-than-significant*** impact.

Mitigation Measure(s)
None required.

4.5-3 Impacts related to construction noise.

The construction of the proposed project would temporarily increase noise levels in the area. Noise levels generated by specific pieces of construction equipment at a distance of 50 feet are presented in Table 4.5-7. Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment, the timing and duration of noise-generating activities, as well as the distance between the construction noise sources and the noise sensitive receptors.

Existing residences nearest to the proposed project site are located south of Cypress Road, and are currently exposed to high levels of traffic noise. Construction on the project site is not anticipated to generate noise levels in excess of traffic noise resulting from Cypress Road. During the period of time that construction is taking place very close to Cypress Road, construction activity could reach the noise levels generated by trucks on Cypress Road. However, during the majority of the time, noise levels generated by construction would be far lower than current noise levels. As the new homes are developed on the proposed project site, some of these homes may be located very close to continued construction and, therefore, they may be impacted by the construction noise that would exceed standards acceptable for residential land uses. This would result in a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the impact to a *less-than-significant* level.

4.5-3(a) *Noise-generating activities at the construction site or in areas adjacent to the construction site associated with the project in any way shall be restricted to the hours of 7 a.m. to 6 p.m., Monday through Friday and 8 a.m. to 5 p.m. on Saturdays. Construction is prohibited on Sundays and City holidays unless prior authorization from the Community Development Director is obtained.*

Table 4.5-7
Construction Equipment – 50-Foot Noise Level Limits

Equipment Category	L_{max} Level (dBA)[1, 2]	Impact/Continuous
Arc Welder	73	Continuous
Auger Drill Rig	85	Continuous
Backhoe	80	Continuous
Bar Bender	80	Continuous
Boring Jack Power Unit	80	Continuous
Chain Saw	85	Continuous
Compressor[3]	70	Continuous
Compressor (other)	80	Continuous
Concrete Mixer	85	Continuous
Concrete Pump	82	Continuous
Concrete Saw	90	Continuous
Concrete Vibrator	80	Continuous
Crane	85	Continuous
Dozer	85	Continuous
Excavator	85	Continuous
Front End Loader	80	Continuous
Generator	82	Continuous
Generator (25 KVA or less)	70	Continuous
Gradall	85	Continuous
Grader	85	Continuous
Grinder Saw	85	Continuous
Horizontal Boring Hydro Jack	80	Continuous
Hydra Break Ram	90	Impact
Impact Pile Driver	95	Impact
Insitu Soil Sampling Rig	84	Continuous
Jackhammer	85	Impact
Mounted Impact Hammer (hoe ram)	90	Impact
Paver	85	Continuous
Pneumatic Tools	85	Continuous
Pumps	77	Continuous
Rock Drill	85	Continuous
Scraper	85	Continuous
Slurry Trenching Machine	82	Continuous
Soil Mix Drill Rig	80	Continuous
Street Sweeper	80	Continuous
Tractor	84	Continuous
Truck (dump, delivery)	84	Continuous
Vacuum Excavator Truck (vac-truck)	85	Continuous
Vibratory Compactor	80	Continuous
Vibratory Pile Driver	95	Continuous

[1] Measured at 50 feet from the construction equipment, with a "slow" (1 sec.) time constant.
[2] Noise limits apply to total noise emitted from equipment and associated components operating at full power while engaged in its intended operation.
[3] Portable Air Compressor rated at 75 cfm or greater and that operates at greater than 50 psi.

Source: Illingworth & Rodkin, 2008.

4.5-3(b) *The applicant/developer shall include the following mitigation measures on the Improvement Plans to be approved by the City Engineer prior to the approval of the Improvement Plans or initiation of any grading or construction activity:*

- *Equip all equipment driven by internal combustion engines with intake and exhaust mufflers that are in good condition and appropriate to the equipment. Unnecessary idling of internal combustion engines should be strictly prohibited;*
- *Stationary noise-generating equipment, such as air compressors or portable power generators, must be located the greatest distance applicable from sensitive receptors. Construct temporary noise barriers to screen stationary noise-generating equipment when located near adjoining sensitive land uses;*
- *Utilize "quiet" air compressors and other stationary noise sources where technology exists;*
- *Designate a "disturbance coordinator" who would be responsible for responding to any local complaints regarding construction noise. The disturbance coordinator will determine the cause of the noise complaints (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented; and*
- *Notify prospective residents within the adjacent subdivision that the development of the commercial portion of the site would generate noise levels during construction that may be considered excessive or annoying.*

4.5-4 Operational noise impacts to residences within the proposed project.

The proposed project includes a 23.74-acre commercial development, which is adjacent to proposed residential development on the north and west. The noise sources associated with the commercial development may adversely affect the adjacent development. The sources would include medium duty and heavy duty truck deliveries to the major retail stores and shops, parking lot activity (including engine starts, door slams, and vehicular circulation on site), rooftop mechanical equipment, and parking lot cleaning activities. Noise levels were calculated based on data collected by Illingworth & Rodkin, Inc. during studies of similar shopping centers. Noise levels generated by typical activities were calculated at the common property line between the nearest residential land uses and the proposed noise-generating land uses.

Truck Circulation

The highest noise levels generated on site would result from medium duty and heavy duty trucks circulating along the west and north boundaries of the site. The shopping center is expected to receive several large truck and independent vendor-owned smaller parcel trucks daily (e.g., soda, chips, etc.). Early morning deliveries are common, although

delivery schedules for such retail operations are also typically dictated by locally-imposed loading time restrictions. Trucks would access the site from the signalized intersection at Cypress Road, turn left and continue along the west property boundary of the site to the rear of the market. Noise levels generated during deliveries would be dependent on the speed of trucks, but typical maximum noise levels generated by heavy duty trucks would be approximately 70 to 80 dBA at the common property line (approximately 30 feet from the center of the driveway). Medium duty trucks would generate maximum noise levels of approximately 60 to 70 dBA at the property line.

Loading Dock Activity

Trucks would proceed along the west property line of the site and turn right to enter the loading dock area. Heavy duty trucks would back up to rubberized gasket loading bays, with all unloading done directly into the building. The rubberized gasket type of loading bay provides a tight connection between the truck and the building specifically for noise abatement purposes. Field visits to similar facilities have indicated that minimal loading noise escapes into the community from this loading dock type; however, occasional banging within the truck is audible. Medium duty trucks would typically park near the loading dock area and unloading activities would occur directly out of the truck, at approximately 60 to 80 feet from the residential property lines north of the market. Generally, vendors use wheeled carts, hand-trucks or pallet-jacks to deliver products to the stores. Noise is generated as truck doors are opened and closed and as products are loaded onto carts and transported into the store. Typical maximum noise levels generated by these activities at the nearest receiving property lines would be approximately 58 to 68 dBA. Hourly average noise levels would typically range from 51 to 61 dBA at the residential property line depending on the number of trucks and intensity of deliveries during a given hour.

Mechanical Equipment

Roof-top mechanical equipment typically includes heating, ventilating, air conditioning, and refrigeration equipment. Noise typically generated by rooftop mounted mechanical equipment varies significantly depending upon the equipment type and size. Project mechanical equipment specifics have not been determined at this preliminary development plan phase. The precise noise impacts of project mechanical equipment cannot be determined without detailed system design specifications regarding location, type, size, capacity, enclosure design, etc. – details which are typically provided during later phases of the project design and development review along with other more detailed project engineering specifications. However, based on noise measurements made at other similar commercial centers and large supermarkets, noise levels of 60 to 70 dBA at 15 feet from external mechanical systems can be anticipated from the project. Noise generated by project mechanical equipment could range from 44 to 54 dBA at the nearest residential properties and would exceed the daytime and nighttime hourly standards without mitigation. Other pieces of mechanical equipment that could be a source of concern could include trash compactors. Trash compactors typically generate maximum noise levels of 50 to 60 dBA L_{max} at 50 feet.

Parking Lot Activity

Noise generated by normal activities within the parking lot would be introduced to the noise environment at the nearest residential receptors with the operation of the commercial portion of the project. Noise would be generated by vehicles circulating within the lot, engine starts, door slams, and by the sound of human voices. The sound of a passing car at 15 mph typically ranges from 55 dBA to 65 dBA at 25 feet. The noise of an engine start is similar. Door slams create noise levels lower than engine starts. The hourly average noise level resulting from all of these noise-generating activities in a busy shopping center parking lot could range from 40 dBA to 50 dBA at the property line.

Gas Station

A gas station would be located at the southwest corner of the proposed project commercial site adjacent to Cypress Road. Sounds generated by the gas station would be similar to those described for the parking lot. Noise is generated as vehicles circulate and idle and when engines are started and doors are open and closed. Noise levels generated by the gas station are calculated to be approximately 58 dBA L_{eq} at the nearest proposed receivers. Noise levels generated by the gas station would be well below noise levels generated by traffic along Cypress Avenue.

Parking Lot Cleaning

The parking area surface at the proposed shopping center would be periodically cleaned using small mechanical parking lot sweepers and hand-held, back-mounted leaf blowers. Noise generated by parking lot cleaning activities would be approximately 70-75 dBA at a distance of 50 feet, but these noise levels would generally occur over short periods of time when cleaning occurs near the project perimeter. In addition, it should be noted that although the parking lot would be adjacent to the proposed residential development to the north, the commercial buildings and the noise barrier that would be constructed along the northern boundary would be expected to reduce noise levels associated with parking lot cleaning. However, parking lot cleaning activities within the portion of the parking lot behind the commercial buildings could expose the adjacent residences to noise levels that exceed the City's thresholds.

Conclusion

Noise levels generated by the operation of the project would exceed the standards established in the Oakley General Plan. Truck circulation, operation of mechanical equipment, and parking lot cleaners would create noise above the threshold of significance; therefore, a ***potentially significant*** impact to residences adjacent to the commercial portion of the proposed project would result.

Mitigation Measure(s)

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

4.5-4(a) The applicant shall construct a noise barrier along the northern boundary of the commercial site. To be effective, the barriers should be constructed solidly over the entire surface and at the base. Openings or gaps between barrier materials or the ground decrease the reduction provided by a noise barrier. Suitable materials for barrier construction should have a minimum surface weight of 3 lbs./ft^2. (such as one-inch thick wood, masonry block, concrete, or metal). An acoustical analysis shall be conducted using the final detailed design of the project to ensure that the noise barrier reduces operational noise levels by at least 8 dBA or more, for the review and approval of the City Engineer. The final detailed design of the height and limit of the barrier shall be confirmed by the Community Development Director at the time the final grading plan is submitted.

4.5-4(b) Deliveries shall be limited to daytime hours (7:30 a.m. to 9:00 p.m.) and the posted speed limit should not exceed 15 mph along the truck circulation route. These limits shall be clearly posted to advise delivery personnel as to the time and speed restrictions.

4.5-4(c) Prior to final approval, the selection and location of mechanical equipment shall be submitted for the review and approval of the Community Development Director during the design phase of the project. Once the selection of the type of equipment and the placement of the equipment has been designed, the project plans should be reviewed by an acoustical specialist to verify that daytime and nighttime hourly noise standards are not exceeded at the property line. Potential mitigation for rooftop units could include rooftop unit placement, orientation, screens, or parapet walls.

4.5-4(d) Parking lot cleaning activities behind the on-site commercial buildings proposed along the northern end of the commercial site shall be limited to 7:30 a.m. to 9:00 p.m.

Cumulative Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region.

4.5-5 Cumulative impacts related to permanent noise increases at existing residences.

Under cumulative conditions, which would include buildout of the neighboring Gilbert and Burroughs properties, noise levels in the project vicinity are expected to increase by as much as eight dB L_{dn} along Cypress Road and eight to 10 dB L_{dn} along Sellers Avenue. The character of the noise environment is anticipated to permanently change from rural to a noise environment represented by a more suburban setting. Cumulative traffic noise levels are anticipated to increase by five to seven dBA L_{dn} under cumulative plus project conditions along Cypress Road between Main Street and Sellers Avenue.

The project's predicted incremental contribution to the cumulative increase is approximately one dB. Traffic noise modeling indicates that at a distance of 55 feet from the edge-of-pavement (typical of the closest yards proposed along Cypress Road), the L_{dn} would reach 74 dB. The L_{dn} at the same distance from the edge-of-pavement of Sellers Avenue north of Cypress Road would reach 63 dB.

The adjacent Cypress Grove project includes a noise barrier along Cypress Road; however, two residences exist south of Cypress Road between Sellers Avenue and Main Street that do not currently include any noise attenuation measures. The cumulative noise levels at these sensitive receptors would be approximately 74 dB, which is in excess of the City's threshold of 65 dB at outdoor activity areas. Therefore, the proposed project directly contributes to the cumulative noise impact at the existing residences south of Cypress Road, resulting in a ***significant*** impact. However, it should be noted that the adjacent areas containing the two impacted residences are designated as Commercial and Multi-Family High in the City of Oakley General Plan. Thus, the existing uses are inconsistent with the planned uses. Any potential future development would be consistent with City goals, policies, and regulations. In addition, future development of the areas to the south of Cypress Road would include the appropriate noise attenuation measures. Therefore, the impact would be temporary on a cumulative level based on buildout of the General Plan.

Mitigation Measure(s)

A combination of mitigation measures such as the construction of noise barriers, traffic calming, and sound insulation could be implemented to reduce the effects of cumulative plus project traffic noise at affected residential units in the vicinity of the project site.

Single-family residential receivers along Cypress Road could be provided with new noise barriers to provide the necessary noise attenuation in private outdoor use areas. Typically, increasing the height of an existing barrier results in approximately one dBA of attenuation per one foot of additional barrier height. The design of such noise barriers would require additional analysis.

Traffic calming could also be implemented along affected roadways to reduce noise levels expected under the cumulative plus project traffic scenario. Each five mph reduction in average speed provides approximately one dBA of noise reduction on an average basis (L_{eq}/ L_{dn}). Traffic calming measures that regulate speed improve the noise environment by smoothing out noise levels.

Affected residential receivers along the affected roadway, could be provided sound insulation treatments if further study finds that interior noise levels within the affected residential units would exceed 45 dBA L_{dn} assuming cumulative plus project traffic conditions. Treatments to the home could include the replacement of existing windows and doors with sound-rated windows and doors and the provision of a suitable form of forced-air mechanical ventilation to allow the occupants the option of controlling noise to by closing the windows. The specific treatments for each affected residential unit would be identified on a case-by-case basis.

However, each of the above listed measures involves other non-acoustical considerations. Noise barriers and sound insulation treatments must be done on private property necessitating agreements with each property owner. Therefore, implementation of the above outlined measures is not reasonable or feasible to reduce project-generated traffic noise at all affected receivers, as the implementation cannot be guaranteed by the applicant or the City. Therefore, the impact to cumulative noise levels would be considered *significant and unavoidable*.

Endnotes

[1] Illingworth & Rodkin, *Emerson Property Project Environmental Noise Assessment, Oakley, California*, June 10, 2008.
[2] City of Oakley, *Oakley 2020 General Plan*, August 30, 2002.

4.6 HAZARDS

4.6 HAZARDS

INTRODUCTION

The Hazards chapter of the EIR describes existing and potentially occurring hazards and hazardous materials on the proposed project site. The chapter discusses potential impacts posed by these hazards to the environment, as well as to workers, visitors, and residents within and adjacent to the project site. More specifically, the chapter describes potential effects on human health that could result from soil or groundwater contamination stemming from past uses of the site, or from exposure to hazardous materials used in adjacent agricultural operations. The Hazards section is based on the *City of Oakley General Plan*,[1] the *City of Oakley General Plan Draft Environmental Impact Report*,[2] the *Phase 1 Environmental Site Assessment, Emerson and Burroughs Properties* (See Appendix G of this Draft EIR),[3] the *Environmental Site Assessment Emerson Update* (See Appendix H of this Draft EIR),[4] and the *Clarification Regarding Environmental Site Assessment Update Findings* (See Appendix I of this Draft EIR).[5]

EXISTING ENVIRONMENTAL SETTING

The proposed project site (See Figure 3-1, Regional Location Map, and Figure 3-2, Project Location Map, in Chapter 3 of this Draft EIR) is situated north of Cypress Road, and directly east of the approved and the developed Cypress Grove project, Delta Vista Middle School, and Iron House Elementary School. Land uses to the south of the proposed project include agricultural land and rural single-family residences. Additionally, land uses to the southeast of the proposed project include a gasoline service station (Blue Star Gas Mart), a trucking company, and a welding shop. The project area is bounded by the Gilbert property to the east. The project is bounded on the north by the Contra Costa Water District Canal (CCWD/USBR Canal), which separates the project site from the open space acreage to the north. The open space acreage is currently owned by the State of California. A 55-acre portion of land immediately to the north of the CCWD/USBR canal and the project site at the end of Sellers Avenue is held in escrow, pursuant to a Memorandum of Understanding and Development Agreement, for future conveyance to the City of Oakley as a community park.

A Phase I Environmental Site Assessment (Phase I) was performed by ENGEO Inc. in 1999 for the 1,100-acre Emerson and Burroughs Properties. Additionally, ENGEO conducted a supplemental site reconnaissance visit on June 17, 2004 as part of an update to the Phase I, focusing on the 140-acre Emerson property. The supplemental site visit confirmed that the conditions on the property were still consistent with the 1999 findings.

According to the assessment update issued for this project, two single-family residences and a barn structure currently exist on the property. The majority of the parcel consists of undeveloped pastures, and a private water supply well and septic system are on-site to service the current residents.

Historical and Aerial Photographic Site Features

Aerial photographs of the project site area were reviewed as part of the Phase I. The photographs spanned the years of 1953 to 2000 and were reviewed in stereo, when available, to analyze three-dimensional features.

The review of aerial photographs and available historical records found that the subject property has remained relatively unchanged from at least 1953 to the present with the exception of minor site improvements. The 1999 site reconnaissance and records research did not find any documentation or physical evidence of soil or groundwater impairments associated with the use of the property, with the exception of surface soil impacts related to aboveground petroleum product storage tanks on the Emerson property.

Potential On-Site Hazards

The Phase I includes the results of a search of electronically compiled federal, State, County, and City databases. The database search includes regulatory agency lists of known or potential hazardous waste sites, landfills, hazardous waste generators, and disposal facilities, in addition to sites under investigation. The information provided in this Draft EIR was obtained from publicly available sources. The proposed project site was not identified during the regulatory database search.

Nitrate Impacts

Given the past and present dairy activities on the proposed project site, the possibility exists that site soils and groundwater may exhibit elevated nitrate levels.

Pesticides

The Emerson property includes an existing pesticide shed. Though the site does not contain any indications of past substance release, and soil impacts were not noted within the area of the pesticide shed, the possibility exists that soils may have been impacted as a result of past product spillage.

Aboveground and Underground Storage Tanks (ASTs/USTs)

On the Emerson site, ASTs are currently located within a concrete vault; however, the tanks were previously stored above ground. The possibility exists that impacts to soil or groundwater may have occurred in the past.

In addition, a waste oil tank is located on the Emerson property. Some soil staining was noted beneath the aboveground waste oil tank. The site visit revealed that spillage of motor oil has impacted near-surface soil. Mr. Emerson, the property owner, indicated that, at the time of the removal of the AST, evidence of fuel releases did not exist and, therefore, little chance of a significant impact exists.

Asbestos-Containing Building Materials

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" (PACM) unless proven otherwise through sampling in accordance with the standards of the Asbestos Hazard Emergency Response Act.

An asbestos survey was not conducted as part of the Phase I. Given the age of the structures, the possibility exists that asbestos-containing materials may have been used in construction of on-site structures.

Lead-Based Paint

In 1978, the Consumer Product Safety Commission banned the use of lead as an additive to paint. Currently, the U.S. EPA and the U.S. Department of Housing and Urban Development are proposing additional lead-based paint regulations. Based on the age of the buildings on the project site, lead-based paint may be present. If lead-based paint is still bonded to the building materials, the paint's removal is not required prior to demolition. If lead-based paint is peeling, flaking or blistering, any paint should be removed prior to demolition. Such paint may become separated from the building components during demolition activities; and must be managed and disposed of as a separate waste stream. Any debris or soil containing lead paint or coating must be disposed at landfills that are permitted to accept the waste being distributed.

Potential Off-Site Hazards

The Phase I also addresses the potential for hazards and the presence of hazardous materials in the vicinity of the project site. The Phase I includes a database search of regulatory agency lists of known or potential hazardous waste sites, landfills, hazardous waste generators, and disposal facilities in addition to sites under investigation. The information provided in this Draft EIR was obtained from publicly available sources.

Hazardous Substance and/or Petroleum Products

Tetra Tech EM, Inc. conducted an agency file review with the Division of Oil, Gas, and Geothermal Resources (DOGGR) for the purpose of ascertaining information related to gas wells on the neighboring Burroughs property.[6] One abandoned well was identified as Tract 5 5-5, and is located in the central portion of the Burroughs property. According to DOGGR records, the well was installed in November 1964 and was abandoned prior to 1985. The total depth of the well is 7,700 feet below ground surface level. According to the *Report of Well Plugging and Abandonment* from DOGGR, the well was properly closed and abandoned on March 18, 2004.

Lowney and Associates conducted a review of DOGGR files to evaluate the status and location of abandoned gas wells on the neighboring Gilbert Property site.[7] Based on the records reviewed, natural gas production well Tract 8 8-3 was drilled to a depth of approximately 7,700 feet in the

north-central area of the Gilbert site in 1964. This well was abandoned in 1978 under a permit obtained from the DOGGR. In 1964, gas well Tract 8 8-1 was drilled in the northeast area of the site to a depth of approximately 8,328 feet. This well was abandoned in 1966 under a permit obtained from the DOGGR.

The Contra Costa County hazardous materials list includes one "orphan" facility: Blue Star Gas at 1541 East Cypress Road southeast of the Emerson property, directly south of the Burroughs property to the east, which was identified in the site visit conducted by Lowney Associates. The Blue Star Gas facility is listed in the LUST database, though additional information was not supplied. The Phase I analysis conducted by Tetra Tech EM, Inc. for the Burroughs property notes that the Blue Star Gas facility is also identified as an Hazardous Waste Generator and an Hazardous Materials Management Plan site.

Contra Costa County Hazardous Site List

An inactive Contra Costa County Public Works facility underground storage tank (UST) is included on the Contra Costa County Site List. The UST is listed as being located at Cypress Road and Sellers Avenue in Oakley. The UST is listed as inactive by September 1994. The database report radius map shows the facility as being located on the Gilbert property. However, during a site visit by Lowney Associates, on-site features that were indicative of a former public works facility were not observed in the area indicated by the radius map. The Phase I for the Emerson property did not locate any indication that this UST is located on the Emerson property. Therefore, the reported UST appears to have been located off-site.

Aboveground and Underground Storage Tanks (ASTs/USTs)

The analysis of aerial photographs of the proposed project sites also indicates that there was a water tower on the proposed project site constructed prior to 1957. However, the aerial photographs show that the water tower and surrounding buildings were demolished prior to 1990.

Transformers Off-Site

Electrical transformers are devices used to transfer electricity from one circuit to another, usually through a change in voltage, current, phase, or other electric characteristic. Several pole-mounted transformers were observed on other sites around the periphery of the project site during the site inspection. Spills, staining, or leaks were not observed on or around the transformers. Based on the good condition of the equipment, the transformers are not expected to represent a significant environmental concern.

Typically, transformers are a health concern if they were installed prior to the late 1970s because they utilized Polychlorinated Biphenyls (PCBs). Transformers that contain 50 to 500 parts per million (ppm) PCBs are classified as PCB-contaminated. The management of potential PCB-containing transformers is the responsibility of the local utility or the transformer owner. Actual material samples need to be collected to determine if transformers are PCB-containing.

Natural Gas Pipelines

The environmental assessment performed by Tetra Tech EM Inc. for the nearby Burroughs property indicates that an active natural gas pipeline and a buried phone line run along the south edge of East Cypress Road.

Natural Gas Wells

Although natural gas wells are not located on the Emerson project site, natural gas production wells are located adjacent to the project site. Two abandoned natural gas wells exist on the neighboring Gilbert site directly to the east of the proposed project, and one additional abandoned well exists on the Burroughs property, which is located to the east of the Gilbert property. Two natural gas wells are located approximately 0.25 miles south of East Cypress Road between Franklin Road and Knightsen Avenue. An additional well is located approximately 0.125 miles south of the Burroughs property between Knightsen and Broadway Lane.

Monitoring Well

Based on information received from the owner of the neighboring Gilbert property, an on-site monitoring well was installed by the Department of Water Resources to evaluate ground water for nitrates. Regulatory agency staff was not able to locate files for the on-site well.

REGULATORY CONTEXT

The term hazardous substance refers to both hazardous materials and hazardous wastes. A material is defined as hazardous if it appears on a list of hazardous materials prepared by a federal, state or local regulatory agency or if the site has characteristics defined as hazardous by such an agency.

The California Environmental Protection Agency, Department of Toxic Substances Control (CAL-EPA, DTSC) defines hazardous waste, as found in the California Health and Safety Code Section 25141(b), as follows:

> […] its quantity, concentration, or physical, chemical, or infections characteristics: (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; (2) pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties, or persistence in the environment, when improperly treated, stored, transported, or disposed of, or otherwise managed.

Many agencies regulate hazardous substances. The following discussion contains a summary review of regulatory controls pertaining to hazardous substances, including federal, State, and local laws and ordinances.

Federal Regulations

Federal agencies that regulate hazardous materials include the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Department of Transportation (DOT), and the National Institute of Health (NIH). The following federal laws and guidelines govern hazardous materials:

- Federal Water Pollution Control;
- Clean Air Act;
- Occupational Safety and Health Act;
- Federal Insecticide, Fungicide, and Rodenticide Act;
- Comprehensive Environmental Response, Compensation, and Liability Act;
- Guidelines for Carcinogens and Biohazards;
- Superfund Amendments and Reauthorization Act Title III;
- Resource Conservation and Recovery Act;
- Safe Drinking Water Act; and
- Toxic Substances Control Act.

Prior to August 1992, the principal agency at the federal level regulating the generation, transport and disposal of hazardous waste was the EPA under the authority of the Resource Conservation and Recovery Act (RCRA). As of August 1, 1992, however, the California Department of Toxic Substance Control (DTSC) was authorized to implement the State's hazardous waste management program for the EPA. The federal EPA continues to regulate hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA).

State Regulations

The California Environmental Protection Agency (Cal-EPA) and the State Water Resources Control Board establish rules governing the use of hazardous materials and the management of hazardous waste. Applicable State and local laws include the following:

- Public Safety/Fire Regulations/Building Codes;
- Hazardous Waste Control Law;
- Hazardous Substances Information and Training Act;
- Air Toxics Hot Spots and Emissions Inventory Law;
- Underground Storage of Hazardous Substances Act; and
- Porter-Cologne Water Quality Control Act.

Within Cal-EPA, DTSC has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the State agency, for the management of hazardous materials and the generation, transport, and disposal of hazardous waste under the authority of the Hazardous Waste Control Law (HWCL).

Local Regulations

The following are the local government environmental goals and policies relevant to the CEQA review process.

City of Oakley General Plan

The following are applicable goals and policies from the Oakley 2020 General Plan Health and Safety Element:

Hazardous Materials

Goal 8.3 Provide protection from hazards associated with the use, transport, treatment, and disposal of hazardous substances.

Policy 8.3.1 Hazardous waste releases from both private companies and public agencies shall be identified and eliminated.

Policy 8.3.2 Storage of hazardous materials and wastes shall be strictly regulated.

Policy 8.3.3 Secondary contaminant and periodic examination shall be required for all storage of toxic materials.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

In accordance with CEQA, the effects of a project are evaluated to determine if they would result in a significant adverse impact on the environment. An EIR is required to focus on these effects and offer mitigation measures to reduce or avoid any significant impacts that are identified. The criteria, or standards, used to determine the significance of impacts may vary depending on the nature of the project. For the purposes of this EIR, an impact is considered significant if the proposed project would:

- Create potential health risks due to siting of urban uses over oil and gas fields or wells;
- Create a hazard to the public or the environment due to agriculture-related pesticide contamination;
- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- 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;

- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school; 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 create a significant hazard to the public or the environment;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to the risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Method of Analysis

Site conditions and impact assessments for this chapter are based on the Phase I and the update to the Phase I that were prepared for the proposed project site.

ENGEO Inc. completed the Phase I update on June 2004. The update included a supplemental site reconnaissance on June 17, 2004, as well as a review of applicable records and other off-site sources.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project.

4.6-1 Presence of pesticide and/or herbicide residues on the project site.

The site visit of the property performed by ENGEO Inc. indicated that a shed used for pesticide storage is located on the Emerson property. Further study by ENGEO Inc. found that substance release or soil impacts near or around the shed do not exist.

Additional site reconnaissance was performed on the proposed project site, and the Phase I concludes that, although pesticide and herbicide residues are present on-site, the contaminants are below Environmental Screening Level (ESL) standards for residential uses. Therefore, because the contaminant levels were found to be within allowable levels for residential development, the presence of pesticides and herbicides on the proposed project area would have a ***less-than-significant*** impact.

Mitigation Measure(s)
None required.

4.6-2 Impacts to the off-site pipeline from project construction activities.

A natural gas pipeline is located south of the site along East Cypress Road. The pipeline operates as a gathering line and serves natural gas production wells in the area. Although pipelines do not exist on the project site, construction-related activities such as heavy

equipment operation adjacent to the project site could damage the pipelines and result in the release of natural gas, exposing workers or nearby existing residents to the dangers associated with such a release. Exposure to this hazardous material, although unlikely, would result in a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measures would mitigate potential impacts to a *less-than-significant* level.

4.6-2 *Prior to approval of Improvement Plans, the construction contractor, the developer, the pipeline owner, and a representative from the City's Engineering Department shall meet on the project site and prepare site-specific safety guidelines for construction in the field to the satisfaction of the City Engineer. The safety guidelines shall be noted on the improvement plans and be included in all construction contracts involving the project site.*

4.6-3 Impacts involving possible oil spillage from past site uses.

The Phase I update and follow-up site visit, performed in 2005 by ENGEO Inc., did not find obvious indications of soil impacts associated with petroleum product storage on-site. However, some soil discoloration was noted at the eastern side of the shed located on the site to the north. The cause of the discoloration is unknown, but this discoloration is possibly a result of past oil spills in the oil house.

According to the 2007 memorandum from ENGEO Inc., which seeks to clarify the findings of the Phase I update performed in 2005, the update determined that recognized environmental conditions do not exist on the proposed 140-acre project site. Although the Phase I update references soil discoloration, as well as underground petroleum storage tanks related to the proposed project site, these environmental concerns are not located on-site; therefore, impacts related to possible oil spillage from past uses on the project site would be ***less-than-significant***.

Mitigation Measure(s)
None required.

4.6.4 Impacts related to the presence of asbestos and lead particles on the project site.

The Phase I for the proposed project area found several structures on the site, including a barn, shed, and a single-family residence. A review of aerial photographs show that a number of these structures were constructed prior to the mid 1970's, and could contain asbestos containing materials (ACMs) in the structures. The building materials associated with asbestos include, but are not limited to, resilient floor coverings, drywall joint compounds, acoustic ceiling tiles, piping insulation, electrical insulation, and fireproofing materials.

In addition, lead-based paints could be present in the existing structures. Typically, exposure to lead from older vintage paint is possible when the paint is in poor condition or is being removed. In construction settings, workers could be exposed to airborne lead during renovation, maintenance or demolition work. Lead-based paints were phased out of production in the early 1970s. The on-site buildings were constructed prior to the ban on lead-based paints and, therefore, may contain these materials.

Long-term exposure to friable asbestos and lead particles could prove hazardous. Prior to construction, the structures would be removed from the site. During the demolition activities, workers would be potentially exposed to hazardous levels of asbestos and lead particles. Therefore, the introduction of people to the site as a result of the development of the proposed project and the exposure of these people to asbestos and lead materials on the project site would be considered a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce potential impacts to a *less-than-significant* level.

4.6-4 *Prior to issuance of a demolition permit by the City for any on-site structures, the project proponent shall provide a site assessment that determines whether any structures to be demolished contain asbestos and/or lead paint. If structures do not contain asbestos or lead-based paint, further mitigation is not required. If any structures contain asbestos, the application for the demolition permit shall include an asbestos abatement plan consistent with local, state, and federal standards, subject to approval by the City Engineer. If lead-based paint is found, all loose and peeling paint shall be removed and disposed of by a licensed and certified lead paint removal contractor, in accordance with local, state, and federal regulations. The demolition contractor shall be informed that all paint on the buildings shall be considered as containing lead. The contractor shall take appropriate precautions to protect his/her workers, the surrounding community, and to dispose of construction waste containing lead paint in accordance with local, state, and federal regulations subject to approval of the City Engineer.*

4.6-5 Exposure of residents to safety hazards due to the construction of additional residences near the Contra Costa Canal and the stormwater detention pond.

Development of the proposed project would position additional residents near the Contra Costa Canal. Residents could be attracted to the canal, and access to the canal could present a drowning hazard. The canal is bordered, in some places, with public trails along the tops of levees. However, a six-foot fence exists along the Canal within the Contra Costa Canal District's right-of-way and two fences exist along the northern boundary of the Cypress Grove development. The proposed project would continue these fences to prohibit access to the Contra Costa Canal. Therefore, construction of new residences near the Contra Costa Canal would not be considered a substantial adverse impact. In addition,

it should be noted that the Contra Costa Canal is currently planned to be placed underground in a pipe, which would eliminate any drowning hazards.

The proposed project would include the construction of a stormwater detention basin in the central portion of the project site. In addition to playing a key role in the stormwater management strategy for the project site, the detention basin would serve as a visual and recreational amenity. The normal water surface elevation of the pond is two feet, and the maximum allowable water surface elevation is six feet. The likelihood exists that, because the water surface elevation of the basin would exceed the normal surface elevation of two feet during storm events, the potential public safety impacts related to the design of the detention basin would be ***potentially significant***.

Mitigation Measure(s)
Implementation of the following mitigation measure would mitigate potential impacts related to the public safety effects of the proposed detention basin to a *less-than-significant* level.

4.6-5 *The project applicant/engineer shall submit a safety program for the proposed detention basin for the review and approval of the City Engineer prior to the approval of the improvement plans. The safety program shall address the public safety concerns associated with the development of the basins including but not limited to bank stabilization and restricting public access to the basin.*

4.6-6 Exposure of proposed residences to wildland fires.

Although the urbanized areas of the City of Oakley are in areas of low wildfire hazard, wildfire is a serious hazard in undeveloped areas and on large lots with extensive areas of unirrigated vegetation because natural vegetation and dry-farmed grain areas are extremely flammable during the late summer and early fall.

The City of Oakley is within the boundaries of critical Fire Weather Class 3, which correlates to 9.5 or more days per year of moderate, high, and extreme fire hazard. Grassland fires are easily ignited, particularly in dry seasons. Although the development would decrease the amount of vegetation in the area and all new residences are required to include a fire sprinkler system pursuant to the City's Fire Sprinkler Ordinance (22-06), the project would also place structures and residents in close proximity with remaining vegetation, resulting in a ***potentially significant*** impact regarding to the increased risk of wildland fires.

Mitigation Measure(s)
Implementation of Mitigation Measures 4.11-4(a) and 4.11-4(b) in Chapter 4.13, Public Services and Facilities, of this Draft EIR would reduce the magnitude of impacts related to wildland fires. Implementation of the following mitigation measures would further reduce impacts related to wildland fires to a *less-than-significant* level.

4.6-6(a) *When residential structures are developed, an approved fire apparatus access shall be provided to within 150 feet of all portions of the first floor as measured by an approved route around the exterior of the building.*

4.6-6(b) *The East Contra Costa Fire Prevention Department shall, as necessary, ensure the installation of radio repeater towers within the proposed project area. The location and design of any radio repeater towers shall be subject to the review and approval of the City Engineer and Community Development Department.*

4.6-6(c) *Development of the site should be carried out in accordance with East Contra Costa Fire Prevention Department rules and regulations and the Uniform Building Code regulations adopted by the East Contra Costa Fire Prevention Department.*

4.6-6(d) *Prior to approval of design review for residential structures, the applicant shall show that all roofs shall be Class A type.*

4.6-7 Impacts related to the underground storage tanks at the Blue Star Gas station southeast of the project site.

The Phase I prepared by Lowney and Associates for the neighboring Gilbert property site identified the Blue Star Gas station at 1431 East Cypress Road southeast of the proposed project area as a site of environmental concern. The Blue Star Gas station is listed in the Leaking Underground Storage Tank (LUST) database for having a leaking underground fuel tank.

Based on the Phase I prepared by Lowney and Associates, groundwater flows in the area are believed to be to the north/northeast from the Blue Star Gas station, through the Gilbert property and into the Contra Costa Canal. As a result, the report notes that the leak at the Blue Star Gas site could have impacted the groundwater beneath the neighboring property area and suggests additional review to evaluate potential impacts.

In June 2005, Tetra Tech EM, Inc. performed a Phase I for the Burroughs property, which is located to the east of the proposed project site. The Blue Star Gas station is located due south of the neighboring Burroughs property. The Tetra Tech EM, Inc. Phase I addressed the concerns regarding the leak at the Blue Star Gas station. To investigate the impacts that the leak could have on the Burroughs property, Tetra Tech EM, Inc. performed a limited soil sampling of the project site just north of the Blue Star Gas station. Both soil and groundwater samples were analyzed for pollutants. The results of the tests were below laboratory reporting limits. The tests were conducted on the Burroughs property in close proximity to the Blue Star Gas station and were determined to be within acceptable levels. The Emerson property, which is located to the west of the Burroughs testing site, is even further removed from the USTs and would, therefore, be expected to have lower levels of pollutants than the Burroughs site. Therefore, because the contaminant levels were found to be within allowable levels for residential

development, the presence of contaminated soil and groundwater in the project area from the leaking underground fuel tank at the Blue Star Gas Station would have a ***less-than-significant*** impact.

Mitigation Measure(s)
None required.

4.6-8 Potential hazards associated with the future gas station on the project site.

The proposed project includes the construction of a gas station located in the southern portion of the proposed commercial site, adjacent to the proposed entrance off Cypress Road. Common hazardous substances associated with gas stations include toxic air contaminants (TACs), such as the fuel oxygenate Methyl Tertiary Butyl Ether (MTBE). MTBE is a clear, colorless, low-viscosity, flammable liquid with a distinctive, ether-like odor. The principal use of MTBE is as an additive to automotive fuels.

The State of California has concluded that MTBE is not a human carcinogen and does not cause birth defects or infertility. In addition, in 1995, the World Health Organization concluded that it is "unlikely that MTBE alone induces adverse acute health effects in the general population under common exposure conditions."[8]

In 1998 the International Association of Research on Cancer (IARC), which is a part of the World Health Organization, classified MTBE in category 3. The scale is from 1 to 4. A substance in Group 3 is "not classifiable as to its carcinogenicity to humans." This means that there is not sufficient data to claim a possible cancer risk to man from exposure to MTBE.[9]

However, the possibility exists that MTBE could cause other adverse health effects on humans. Drinking water containing small quantities of MTBE does not cause any adverse health effects. In any case, should MTBE reach drinking water, MTBE would attract public attention to a gasoline leak or spill because, like all ethers, MTBE has a strong taste and odor, and is detectable at very low levels of concentration. In view of this, the U.S. EPA has recommended an MTBE concentration in drinking water within the range of 20 to 40 ppb or below. These quantities are 20,000 to 100,000 times lower than the lowest concentration that has caused observable health effects in animals, thus ensuring not only consumer acceptance, but also an exceptionally large margin of safety from any possible toxic effects.

Although unlikely, the possibility exists that MTBE could cause adverse health effects on humans primarily related to groundwater contamination. The proposed gas station would comply with all federal, State, and local regulations regarding leaks or spills, which would ensure that any potential hazards associated with the station would not have adverse impacts to human health.

With the acquisition of necessary permits and compliance with federal, State, and local regulations, hazardous materials impacts from future planned land uses would be ***less-than-significant***.

Mitigation Measure(s)
None Required.

Cumulative Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region.

4.6-9 Long-term hazards-related impacts from the proposed project in combination with existing and future developments in the Oakley area.

Impacts associated with hazardous materials are site-specific and generally do not affect or are not affected by cumulative development. Cumulative effects could be of concern if the project was, for example, part of a larger development in which industrial processes that would use hazardous materials were proposed. However, this is not the case with this project, and project-specific impacts were found to be less-than-significant with the implementation of the recommended mitigation measures; therefore, the proposed project's incremental contribution to cumulative hazardous conditions was not found to be significant.

In addition, surrounding development would be subject to the same federal, State, and local hazardous materials management requirements as would the proposed project, which would minimize potential risks associated with increased hazardous materials use in the community, including potential effects, if any, on the proposed project. Therefore, implementation of the proposed project would have a ***less-than-significant*** cumulative impact associated with hazardous materials use.

Mitigation Measure(s)
None required.

Endnotes

[1] City of Oakley, *Oakley 2020 General Plan*, August 30, 2002.
[2] City of Oakley, *Oakley 2020 General Plan Draft Environmental Impact Report*, September 2002.
[3] ENGEO Inc., *Phase 1 Environmental Site Assessment, Emerson and Burroughs Properties*, August 23, 1999.
[4] ENGEO Inc., *Environmental Site Assessment Update, Southern 140 Acres, Emerson Property*, June 21, 2004.
[5] ENGEO Inc., *Clarification Regarding Environmental Site Assessment Update Findings*, July 5, 2007.
[6] Tetra Tech EM, Inc., *Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment*, June 23, 2005.
[7] Lowney Associates, *Phase I Environmental Site Assessment and Limited Soil Quality Evaluation*, September 3, 2004.
[8] The European Fuel Oxygenates Association, www.efoa.org, September 2004.
[9] Ibid.

4.7 BIOLOGICAL RESOURCES

4.7 BIOLOGICAL RESOURCES

INTRODUCTION

The Biological Resources chapter of the EIR evaluates the biological resources known to occur and potentially occur on the proposed project site. This chapter describes potential impacts to those resources, and identifies measures to eliminate or substantially reduce those impacts to less-than-significant levels. Existing plant communities, wetlands, wildlife habitats, and potential for special-status species and communities are discussed for the project site.

The information contained in this analysis is based on the *Biological Resources Section*[1] prepared by Sycamore Associates (See Appendix J of this Draft EIR), whose evaluation is based on a review of regional biological resource databases and other biological studies conducted in the vicinity, as well as focused habitat assessments and biological surveys conducted on the proposed project site according to accepted protocols and guidelines (See Method of Analysis section in this chapter for a complete list of references).

EXISTING ENVIRONMENTAL SETTING

The project area consists of low-lying, relatively level land situated along and on the north side of Cypress Road, and the west side of Sellers Avenue, east of State Route 4 (SR 4). Current land uses within the project area include rural residential and agricultural. The project site is currently being used for agricultural activities. Adjacent land uses consist of agricultural activities to the north, south, and east, including farming and livestock grazing, and residential uses to the west.

The Emerson property is an approximately 140-acre farmed and grazed field. Dutch Slough marks the site's western boundary, while the Contra Costa Canal abuts the northern. The site is predominantly the level plain of a formerly irrigated pasture and has been recently disked for farm uses.

Vegetation Communities and Wildlife Habitats

A majority of the site consists of cultivated lands that are either currently or have recently been used for hay production. These areas consist of altered lands on which the naturally occurring vegetation has been mostly or entirely removed by grading, levee construction, draining, irrigating, and cultivation. At the time of the site reconnaissance, only a small portion of the project site was cultivated in hay; however, much of the site had been recently disked. Disturbed lands are those on which the native vegetation has been completely removed by human activities and that are not used for cultivation. Disturbed areas on-site include dirt roadways, levees and berms, and the areas around development such as the house, barns, and corrals. Such areas do not generally support any natural vegetation, although ruderal native and non-native plant species

frequently colonize disturbed sites. Figure 4.7-1, Habitat Map, identifies the locations of the various habitat types on the Emerson property.

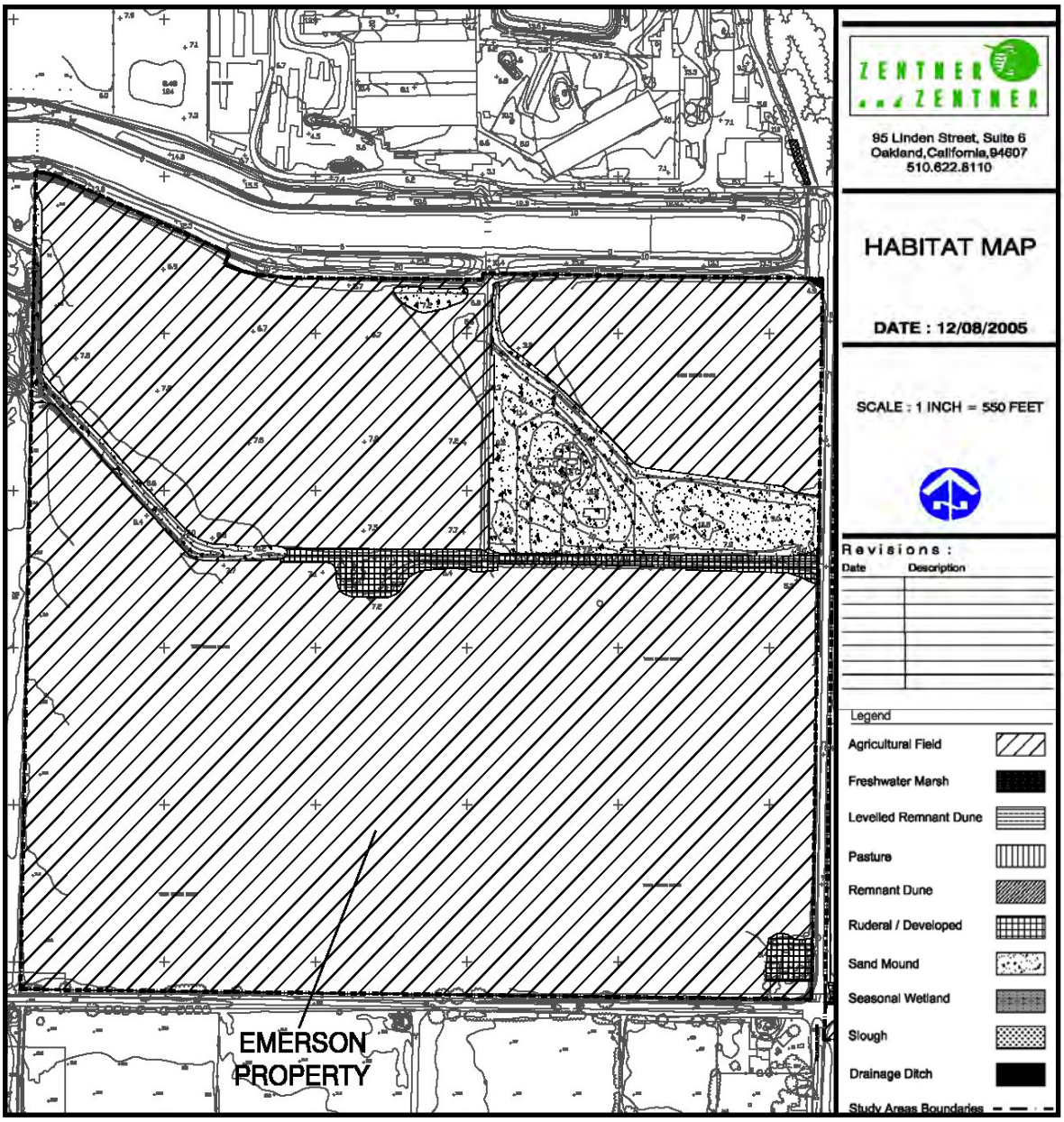
Cultivated areas that are left fallow and disturbed areas eventually become colonized by weedy non-native and native vegetation. Non-native species detected on-site include Russian thistle (*Salsola tragus*), cheeseweed (*Malva parviflora*), Italian ryegrass (*Lolium multiflorum*), field bindweed (*Convolvulus arvensis*), fiddle dock (*Rumex pulcher*), prickly lettuce (*Lactuca serriola*), ripgut brome (*Bromus diandrus*), hoary mustard (*Hirschfeldia incana*), tall fescue, common knotweed (*Polygonum arenastrum*), bristly ox-tongue (*Picris echioides*), and yellow star-thistle (*Centaurea solstitialis*). Native species present on-site include spearscale (*Atriplex triangularis*), saltgrass (*Distichlis spicata*), and alkali weed (*Cressa truxillensis*), all of which are common species of disturbed habitats. Planted ornamental and shade trees such as California fan palm (*Washingtonia filifera*), California sycamore (*Platanus racemosa*), Eucalyptus (*Eucalyptus* spp.), white mulberry (*Morus alba*), and Northern California black walnut (*Juglans californica* ssp. *hindsii*) are also present on-site.

Agricultural fields, which generally consist of mono-crops of a uniform height, such as hay, provide more valuable habitat for birds than for mammals, reptiles, or amphibians. Birds are often more mobile and are able to forage or nest off-site if the agricultural lands do not provide suitable habitat for foraging and nesting activities. Agricultural lands provide limited habitat values for mammals, reptiles, and amphibians, due to the lack of prey base resulting from the use of pesticides. The requirements of large herbivorous mammals for food and cover from predators and the elements in their territory, as well as those for suitable courting and pairing habitats, are generally not met by agricultural land uses. Large herbivores are likely to use agricultural fields along their travel corridors from one natural community to another, although supportive studies are lacking.

Wildlife species generally associated with disturbed lands include raccoon (*Procyon lotor*), opossum (*Didelphus virginianus*), European starling (*Sturnus vulgaris*), and mourning dove (*Zenaida macroura*). Killdeer (*Charadrius vociferus*) are also often associated with open disturbed substrates. Wildlife species that feed on seeds or other parts of the vegetation, including finches, goldfinches, sparrows, and a variety of rodents, occur in this habitat type. Insects present in disturbed habitats provide food for species such as western meadowlark (*Sturnella neglecta*), blackbirds, loggerhead shrike (*Lanius ludovicianus*), and western fence lizard (*Sceloporus occidentalis*). This community can support a variety of predators, including snakes, various raptors, and red fox (*Vulpes vulpes*).

Raptors such as the red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), northern harrier (*Circus cyaneus*), western burrowing owl (*Athene hypugea cunilaria*), American kestrel (*Falco sparverius*), merlin (*Falco columbarius*), prairie falcon (*Falco mexicanus*), white-tailed kite (*Elanus leucurus*), rough-legged hawk (*Buteo lagopus*), ferruginous hawk (*Buteo regalis*), Swainson's hawk (*Buteo swainsoni*), short-eared owl (*Asio flammeus*), and golden eagle (*Aquila chrysaetos*) have the potential to forage in cultivated and disturbed lands.

Figure 4.7-1
Habitat Map



Other birds associated with cultivated and disturbed lands include Brewer's blackbird (*Euphagus cyanocephalus*), red-winged blackbird (*Agelaius phoeiceus*), western meadowlark, horned lark (*Eremophila alpestris*), long-billed curlew (*Numenius americanus*), killdeer, and various sparrows.

Cultivated and disturbed lands as they occur on-site are not specifically described by Sawyer and Keeler-Wolf (1995) and would be classified as upland following Cowardin *et al*. (1979).

Sand Mounds

Within the region, interior sand dunes, which occur at low elevations in the vicinity of the Sacramento-San Joaquin Delta, can support a distinct vegetative community characterized by plant species that favor growth in sandy soils. This vegetation type occupies generally isolated deposits of sand or pockets of sandy soils formed from windblown stream deposits, on mounds and ridges that have become more prominent as the surrounding organic soils have subsided. These areas are on locations often referred to as "sand mounds," and are usually mapped as Delhi sand, Piper sand, and Piper fine sandy loam (USDA 1977). Typically, interior dunes support an open, primarily perennial, winter- and spring-growing herbaceous community, often with scattered low shrubs or live oaks. Shrubs are generally less than waist high and widely spaced. Annual forbs and grasses form a discontinuous ground canopy interspersed with an open ground layer.

Within the site, sand mounds occur along the northern edge of the property, and are six to ten feet higher in elevation than the adjacent field. The sand mounds are highly disturbed and dominated by both native and non-native weedy species. Non-native plant species present on-site include Italian thistle (*Cardus pycnocephalus*), Harding grass (*Phalaris aquatica*), Bermuda grass (*Cynodon dactylon*), lamb's quarters (*Chenopodium album*), milk thistle (*Silybum marianum*), common knotweed, ripgut brome, hare barley (*Hordeum murinum* spp. *leporinum*), hoary mustard, common sow thistle (*Sonchus oleraceus*), Italian ryegrass, prickly lettuce, and red-stemmed filaree (*Erodium cictarium*). Native plant species present on the sand mounds include Fitch's spikeweed (*Centromadia fitchii*), salt heliotrope (*Heliotropium curassavicum*), wild licorice (*Glycyrrhiza lepidota*), telegraph weed (*Heterotheca grandiflora*), California poppy (*Eschscholzia californica*), and saltgrass. Despite the high level of disturbance, soils within sand mound areas have at least a low potential to support certain special-status plant species.

Sand mounds provide habitat for a variety of wildlife species, including many of the same species found in cultivated and disturbed habitats, as well as species found only in sandy soils, such as silvery legless lizard (*Anniella pulchra pulchra*) and a variety of dune invertebrate species. Sand mounds also support species that feed on seeds or other parts of the vegetation associated with sandy soils, including a variety of small birds and rodents. Additionally, insects present in sand mound habitats provide food for species such as western meadowlark, loggerhead shrike, and western fence lizard.

Beechey (California) ground squirrels (*Spermophilus beecheyi*) are often found in this habitat and provide habitat, in the form of their burrows, for species such as the burrowing owl. This community can also support a variety of predators, including snakes and various raptors. Raptors

that can be found foraging in this habitat type include red-tailed hawk, red-shouldered hawk, Cooper's hawk, sharp-shinned hawk, northern harrier, American kestrel, merlin, prairie falcon, white-tailed kite, rough-legged hawk, ferruginous hawk, Swainson's hawk, short-eared owl, and golden eagle.

Sand mounds as they occur on-site support vegetation similar to that described for disturbed lands. Such vegetation is not specifically described by Sawyer and Keeler-Wolf (1995) and would be classified as upland following Cowardin et al. (1979).

Valley Freshwater Marsh

Valley freshwater marsh typically occurs in low-lying sites that are permanently flooded with fresh water and lack significant flow. This vegetation community is found on nutrient-rich mineral soils that are saturated for all or most of the year, and is most extensive where surface flow is slow or stagnant or where the water table is so close to the surface as to saturate the soil from below. Valley freshwater marsh is most extensive in the upper portion of the Sacramento-San Joaquin River Delta and is common in the Sacramento and San Joaquin valleys in river oxbows and other areas on the flood plain, and occasionally along the Colorado River on the California-Arizona border. This vegetation community is now much reduced in area throughout its range (Holland 1986).

Valley freshwater marsh characteristically forms a dense vegetative cover dominated by perennial, emergent monocots one to 15 feet high that reproduce by underground rhizomes. A small patch of valley freshwater marsh is found along the eastern end of the irrigation ditch on the northern end of the site. Plant species found in the freshwater marsh on-site include water smartweed (*Polygonum punctatum)*, common tule (*Scirpus acutus* var *occidentalis*), Johnson grass (*Sorghum halapense*), brass buttons (*Cotula coronopifolia*), common duckweed (*Lemna minor*), cocklebur (*Xanthium strumarium*), tall fescue, Bermuda grass, and broad-leaf cattail (*Typha latifolia*).

Valley freshwater marsh vegetation is also found in the portion of Emerson Slough where the single outfall is located; water will be pretreated in a basin before entering Emerson Slough. The dominant species is common tule. Wetland margins also support a small amount of stickseed (*Bidens frondosa*), common nut-sedge (*Cyperus eragrostis*), and a few scattered arroyo willows (*Salix lasiolepsis*). Steep banks, approximately eight feet tall, confine the channel at this location. Vegetation found along the immediately adjacent upland banks includes Fremont cottonwood (*Populus fremontii*), Canary Island palm (*Phoenix canariensis*), California sycamore (*Platanus racemosa*), Himalayan blackberry (*Rubus discolor*), Bermuda grass, hoary nettle (*Urtica dioica ssp. holosericea*), saltgrass, lamb's quarters (*Chaenopodium album*), almond (*Prunus dulcis*), ornamental elm (*Ulmus* sp.), and Valley oak (*Quercus lobata)*, among others. Northern California black walnut, not native to the site, is also present.

Valley freshwater marsh and aquatic habitats are some of the most productive habitats for wildlife because they offer water, food, and cover for a variety of species. Reptiles and amphibians commonly found in this habitat include western aquatic garter snake (*Thamnophis couchii*), tree frog (*Hyla regilla*), and bullfrog (*Rana catesbeiana*). Northern harrier, red-winged

blackbird and killdeer may use these areas for foraging and nesting. Snowy egret (*Leocophoyx thula*), green-backed heron (*Butorides striatus*), black-crowned night heron (*Nycticorax nycticorax*), and mallard (*Anas platyrhynchos*) also forage in this habitat, feeding on small fish, amphibians and reptiles. Mammals common in valley freshwater marsh are meadow vole (*Microtus californicus*), found along the edges of the marsh area, and raccoon, which may forage on eggs and invertebrates. Striped skunk (*Mephitis mephitis*) and gray fox (*Urocyon cinereoargenteus*) may also forage in this habitat. This habitat provides important foraging and drinking areas for aerial and ground feeding insectivorous bats, such as *Myotis* species and pallid bat (*Antrozous pallidus*).

Valley freshwater marsh on-site most closely corresponds to the bulrush-cattail series following Sawyer and Keeler-Wolf (1995). Following Cowardin *et al.* (1979), this plant community is classified as palustrine, semi-permanently flooded, emergent wetland.

Orchard

Although intense maintenance and harvesting associated with active orchards may reduce orchards' overall habitat value and even though orchard trees are thought to be a "second choice" for most wildlife, some wildlife species utilize orchards. Furthermore, in areas characterized by intense agricultural practices, nesting trees outside of cultivated fields may be very limited, resulting in the use of orchard trees by nesting birds. Small mammals such as rabbits and rodents may forage on the leaves and grasses within orchards and, in turn, may attract predators such as hawks or feral cats. Other mammalian species known to use such agricultural areas include coyote (*Canis latrans*), raccoon, striped skunk, and opossum (*Didelphis virginianus*). Fallow orchards that are not actively disturbed by people provide nesting habitat for passerines (perching birds), nonpasserine land birds (*i.e.* doves), and raptors (birds of prey). Species sufficiently accustomed to human habitation, such as western scrub jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), mourning dove, and acorn woodpecker (*Melanerpes formicivorus*), among others, may use orchard trees for nesting. Within the project area, orchard trees consisting of cherry plum (*Prunus cerasifera*) are located along Sellers Avenue.

Wetlands and Jurisdictional Waters

As shown in Figure 4.7-2, Wetlands/Section 404 Jurisdictional Delineation Map, the proposed project site does not include any wetland or seasonal wetland areas that would fall under the jurisdiction of the U.S. Army Corps of Engineers.

HCP Land Cover Types

The HCP designates the areas located within the HCP using various land cover types, including the following: grassland, chaparral and scrub, oak savannah, oak woodland, mixed evergreen forest, riparian woodland/scrub, wetland, aquatic, rock outcrop, irrigated agriculture, and developed. In addition, the HCP designates the areas located within the HCP as one of the three following Development Fee Zones: Fee Zone I: Cultivated and Disturbed Lands, Fee Zone II: Natural Areas, or Fee Zone III: Small Vacant Lots (See Figure 4.7-3).

Figure 4.7-2
Wetlands/Section 404 Jurisdictional Delineation Map

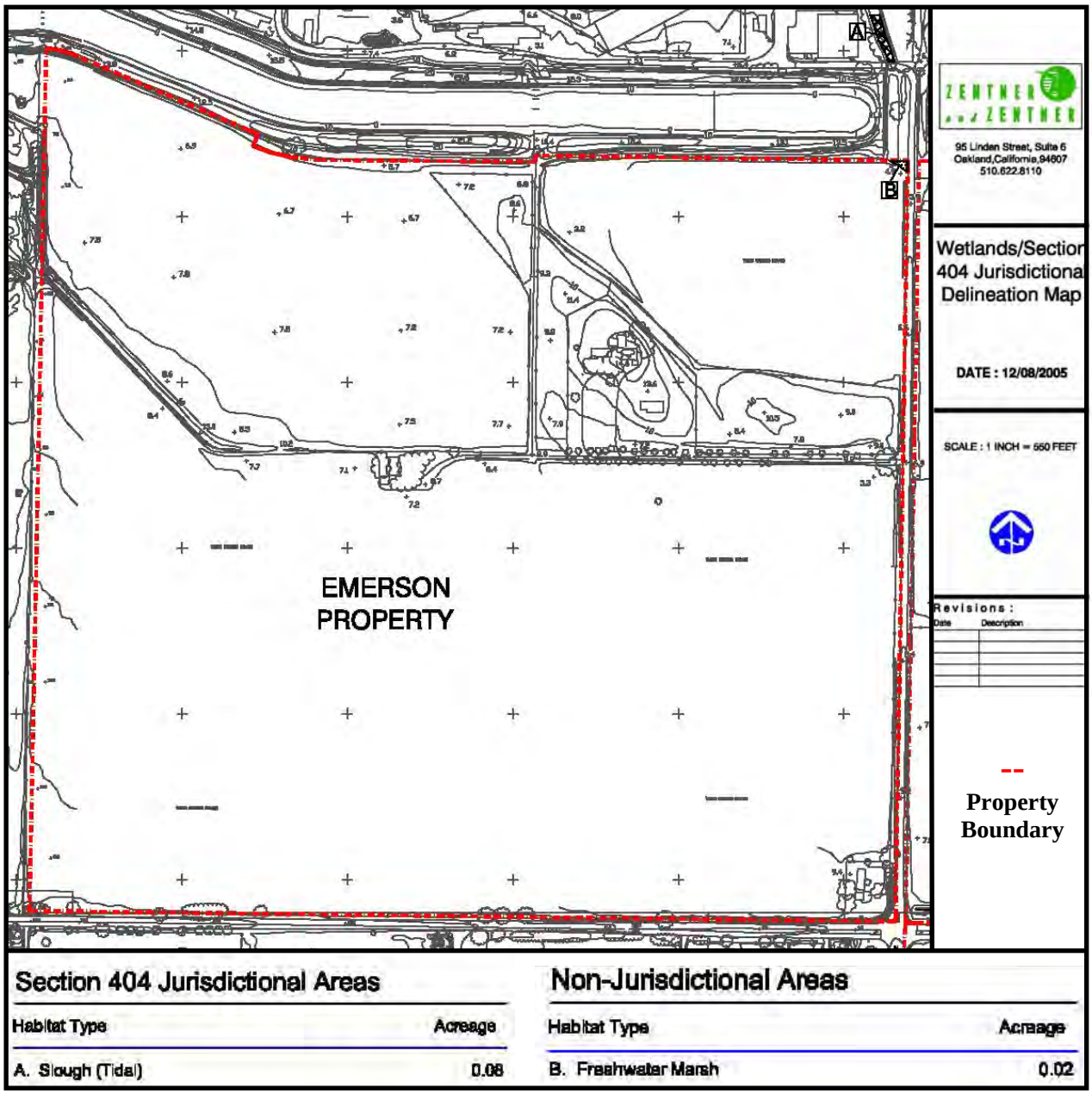
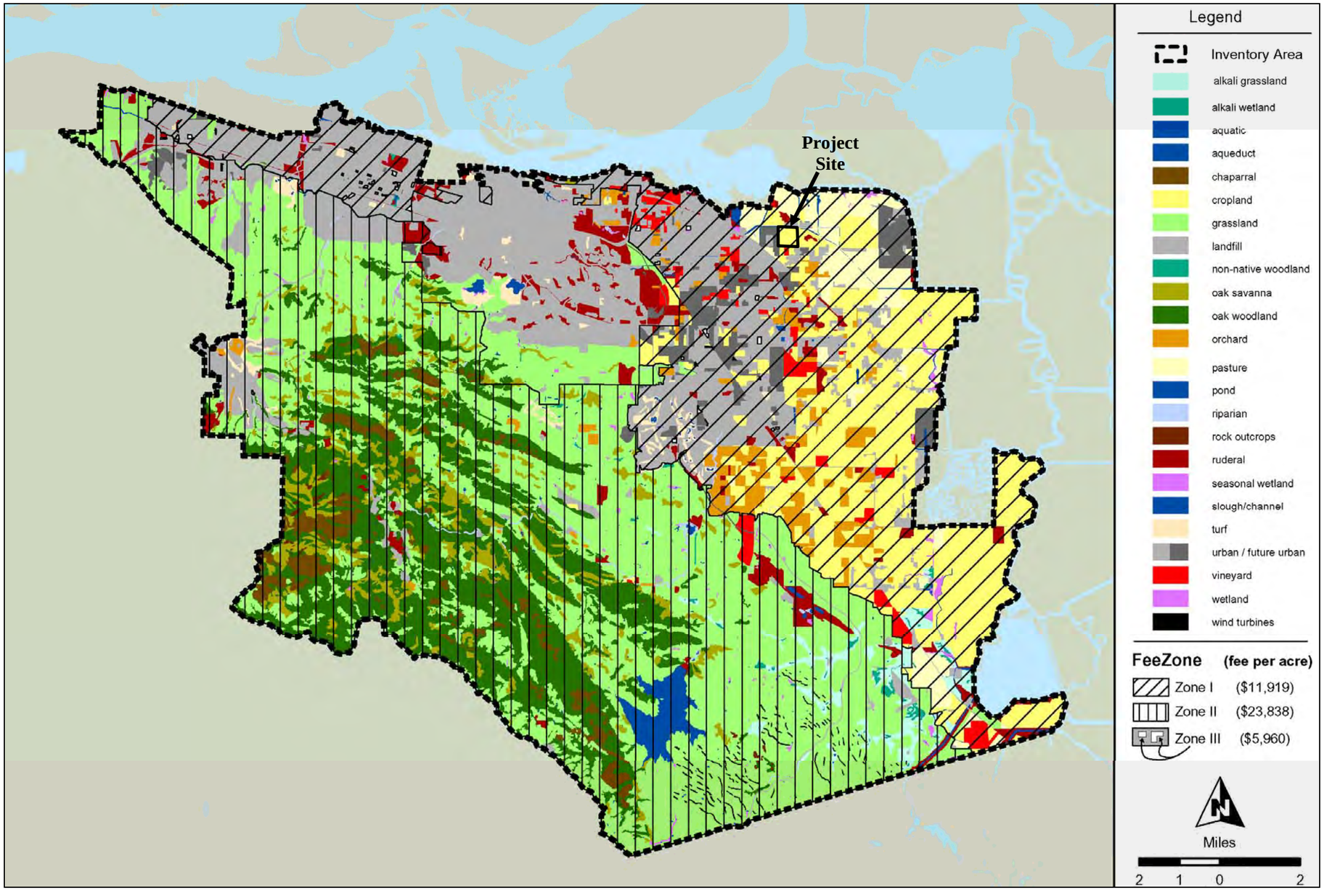


Figure 4.7-3
HCP Development Fee Zones



The proposed project is located within Fee Zone I: Cultivated and Disturbed Lands. Land within this zone is generally dominated by cultivated agriculture but also includes undeveloped areas within the existing urban area of Pittsburg, Brentwood, and Oakley. The fee in Development Zone I is approximately $12,000 per acre.

Special-Status Species

Special-status species are defined as plants and wildlife that may meet one or more of the following:

- Legally protected under the Federal Endangered Species Act (FESA) and California Endangered Species Act (CESA) or under other regulations;
- Considered sufficiently rare by the scientific community to qualify for such listing; or
- Considered sensitive because they are unique, declining regionally or locally, or at the extent of their natural range.

It should be noted that plants listed in Dianne Lake's *Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties* are not considered special-status plants by the California Department of Fish and Game (CDFG) or the lead agency unless the plants also meet one of the criteria below. Special-status plant species may meet one or more of the following:

- Plants listed or proposed for listing as threatened or endangered under the FESA (50 CFR 17.12 for listed plants and various notices in the Federal Register for proposed species);
- Plants that are candidates for possible future listing as threatened or endangered under the FESA (64 FR 205, October 25, 1999; 57533-57547);
- Plants that meet the definitions of rare or endangered species under the California Environmental Quality Act (CEQA) (CEQA Guidelines, Section 15380);
- Plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered" in California (Lists 1B and 2 species in CNPS [2001]);
- Locally important occurrences of plants listed by CNPS as plants for which more information is needed and plants of limited distribution (Lists 3 and 4, respectively, species in CNPS [2001]);
- Plants listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 CCR 670.5);
- Plants listed under the California Native Plant Protection Act (California Fish and Game Code 1900 et seq.). Plants considered sensitive by other federal agencies (i.e., U.S. Forest Service, Bureau of Land Management) or state and local agencies or jurisdictions; or
- Plants considered sensitive or unique by the scientific community or occurring at the limits of its natural range (CEQA Guidelines, Appendix G).

Special-status wildlife species may meet one or more of the following:

- Wildlife listed or proposed for listing as threatened or endangered under the FESA (50 CFR 17.11 for listed wildlife and various notices in the Federal Register for proposed species);
- Wildlife that are candidates for possible future listing as threatened or endangered under the FESA (54 CFR 554);
- Wildlife that meet the definitions of rare or endangered species under CEQA (CEQA Guidelines, Section 15380);
- Wildlife listed or proposed for listing by the State of California as threatened and endangered under the CESA (14 CCR 670.5);
- Wildlife species of special concern to the California Department of Fish and Game (Remsen [1978] for birds; Williams [1986] for mammals); or
- Wildlife species that are fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

Several species of plants and animals within the State of California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described below, state and federal laws have provided the CDFG and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as "candidates" for such listing. Still others have been designated as "species of special concern" by the CDFG. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened or endangered (CNPS 2001). Collectively, these plants and animals are referred to as "special-status species."

For the special-status species table that follows, definitions of species' potential for occurrence on the site are:

- **Present**: Species known to occur on the site, based on the California Natural Diversity Database (CNDDB) records, and/or was observed to occur on-site during the field survey(s).
- **High**: Species known to occur on or near the site (based on CNDDB records within five miles, and/or based on professional expertise specific to the site or species) and suitable habitat exists on-site.
- **Moderate:** Species known to occur in the vicinity of the site, and suitable nesting and foraging habitat is present.
- **Low**: Species known to occur in the vicinity of the site, and marginal habitat exists on the site or, species are not known to occur in the vicinity of the site, but suitable habitat exists on-site.

- **None**: Species are not known to occur on or in the vicinity of the site and suitable habitat for the species does not exist on the site. Or, species were surveyed for during the appropriate season with negative results for the species occurrence on the site.

Only those species that are known to be present in the project area, have a low to high potential for occurrence, or have been noted as present on the project site will be discussed further following the species table below.

Special-Status Plant Species

Special-status plant species that could occur on the project site were found not to have potential to occur on the specific conditions of the project site.

Figure 4.7-4, Special-Status Vegetation Occurrence Map, shows the locations of special-status vegetation occurrence within a five-mile radius of the project area. Table 4.7-1 shows the special-status plant species that were evaluated for occurrence on the project site.

Special-Status Wildlife Species

Special-status animal species include those listed by the U. S. Fish and Wildlife Service under the Federal Endangered Species Act (1996a, 1997, 2001), by the National Oceanographic and Atmospheric Administration (NOAA) Fisheries, and by the CDFG under the California Endangered Species Act (2004c,d). The USFWS officially lists species as either Threatened, Endangered, or as Candidates for listing. Additional species receive federal protection under the Bald Eagle Protection Act (e.g., bald eagle, golden eagle), the Migratory Bird Treaty Act and state protection under CEQA Section 15380(d). All birds, except European starlings, English house sparrows, and rock doves (pigeons), are protected under the Migratory Bird Treaty Act. In addition, many other species are considered by the CDFG to be California Species of Special Concern; these are listed in Remsen (1978), Williams (1986), and the CDFG (2004b). Although such species are not afforded official legal status, they may receive special consideration during the CEQA review process.

The CDFG further classifies some species under the following categories: Fully Protected, Protected birds (CDFG Code Section 3511), Protected mammals (CDFG Code Section 4700), Protected amphibian (CDFG Code Section 5050 and Chapter 5, Section 41), Protected reptile (CDFG Code Section 5050 and Chapter 5, Section 42), and Protected fish (CDFG Code Section 5515). The designation Protected indicates that a species may not be taken or possessed except under special permit from CDFG; Fully Protected indicates that a species can be taken for scientific purposes by permit only (CDFG 2004d). The CDFG Code Sections 3503, 3505, and 3800 prohibits the take, destruction or possession of any bird, nest or egg of any bird except English house sparrows and European starlings unless express authorization is obtained from the CDFG.

Figure 4.7-4
Vegetation Occurrence Map

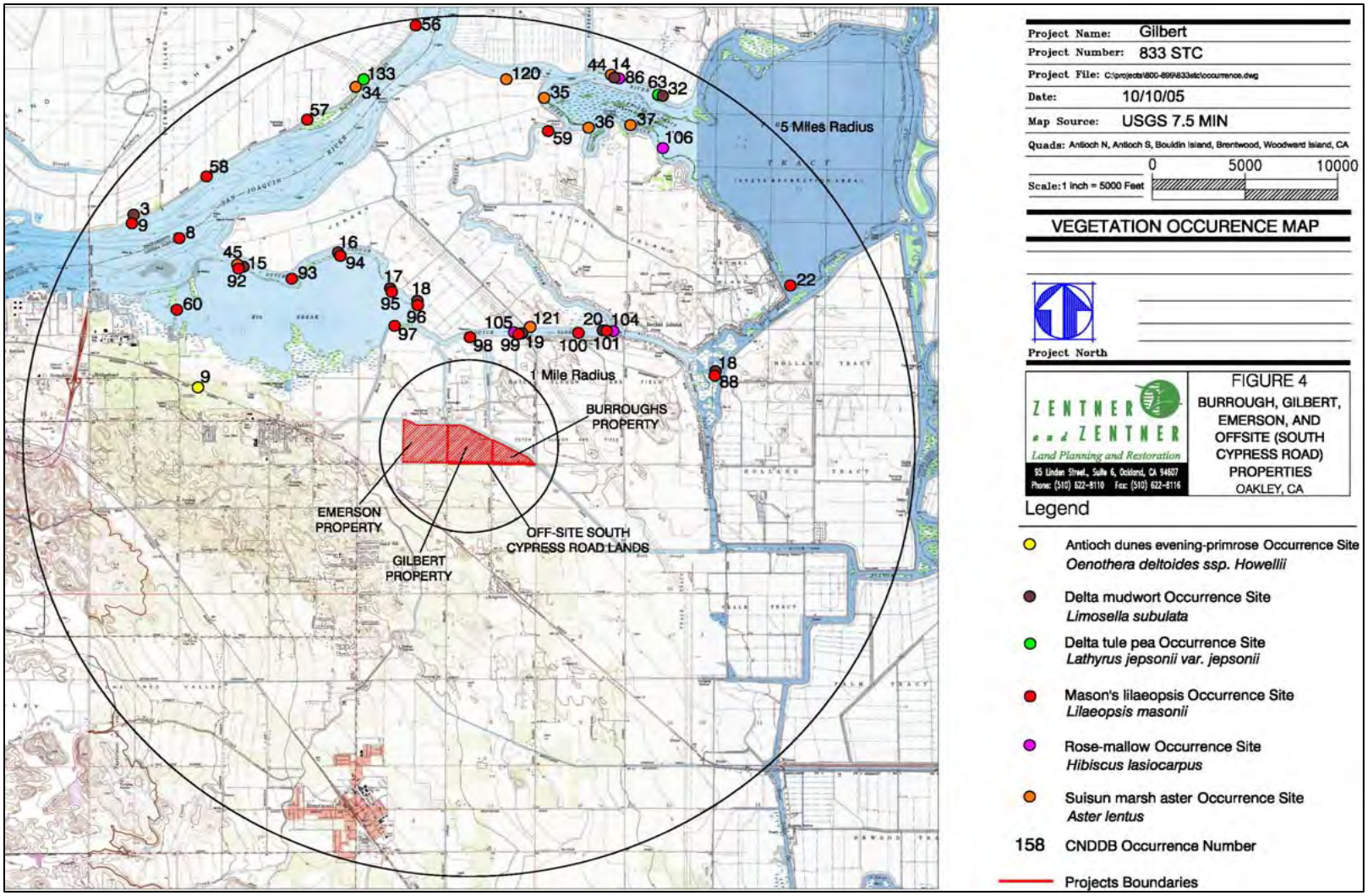


Table 4.7-1
Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Apiaceae – Parsley Family				
Eryngium racemosum Delta button-celery	Federal: SC State: SE CNPS 1B:2-2-3	Riparian scrub, vernally mesic clay depressions. Recorded from Merced, San Joaquin, and Stanislaus counties.	June-August annual/perennial	None: marginally suitable habitat present. Would have been detectable.
Lilaeopsis masonii Mason's lilaeopsis	Federal: SC State: CR CNPS 1B:2-3-3	Intertidal brackish and freshwater marshes along streambanks. Recorded in the San Joaquin and Sacramento River Delta and lower Napa River channel.	April-October perennial herb	None: no suitable habitat present.
Perideridia gairdneri ssp.gairdneri Gairdner's yampa	Federal: SC State: none CNPS 4:1-2-3	Mesic sites in broadleafed upland forest, chaparral, coastal prairie, valley/foothill grassland, vernal pools. Found from the Bay Area and San Joaquin Valley to the Oregon border. Endangered in the southern portion of its range.	June-October perennial herb	None: no suitable habitat present.
Asteraceae – Sunflower Family				
Aster lentus Suisun Marsh aster	Federal: SC State: CEQA CNPS 1B:2-2-3	Freshwater and brackish marshes. Known from the Napa River and San Joaquin/Sacramento River Delta.	May-November perennial herb	None: marginally suitable habitat present. Would have been detectable.
Blepharizonia plumosa Big tarweed	Federal: none State: CEQA CNPS 1B:3-3-3	Valley/foothill grasslands, on dry sites. Extant in Alameda, Contra Costa, and San Joaquin counties. Believed extirpated in Stanislaus and Solano counties.	July-October annual herb	None: no suitable habitat present.
Centromadia parryi ssp. congdonii Congdon's tarplant (formerly Hemizonia parryi ssp. congdonii)	Federal: SC State: CEQA CNPS 1B:3-3-3	Valley/foothill grasslands on alkaline soils. Restricted to San Luis Obispo, Monterey, Alameda, Contra Costa, and Santa Clara counties; presumed extirpated in Santa Cruz and Solano counties.	June-November annual herb	None: no suitable habitat present.
Cirsium crassicaule Slough thistle	Federal: SC State: CEQA CNPS 1B:3-2-3	Chenopod scrub, marshes and swamps, sloughs and riparian scrub. Recorded from Kings, Kern, and Sacramento counties.	May-August annual/perennial	None: marginally suitable habitat present. Would have been detectable.

Table 4.7-1 (continued)
Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Cirsium hydrophilum var. hydrophilum Suisun thistle	Federal: FE State: CEQA CNPS 1B:3-3-3	Salt marshes. Known from two occurrences on Grizzly Island in Suisun Marsh, Solano County.	July-September perennial herb	None: no suitable habitat present.
Helianthella castanea Diablo helianthella	Federal: SC State: CEQA CNPS 1B:2-2-3	Broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley/foothill grassland. Occurs in Alameda, Contra Costa and San Mateo counties; presumed extirpated in Marin and San Francisco counties.	April-June perennial herb	None: no suitable habitat present.
Isocoma arguta Carquinez goldenbush	Federal: SC State: CEQA CNPS 1B:3-3-3	Valley/foothill grasslands, on alkaline sites. Restricted to Contra Costa and Solano counties in the vicinity of the Carquinez Straits.	August-December perennial shrub	None: no suitable habitat present.
Lasthenia conjugens Contra Costa goldfields	Federal: FE State: CEQA CNPS 1B:3-3-3	Mesic sites in valley/foothill grassland, vernal pools. Known from Napa and Solano counties and recently rediscovered in Contra Costa County. Presumed extirpated in Alameda, Mendocino, Santa Barbara and Santa Clara counties.	March-June annual herb	Low: marginally suitable habitat present.
Madia radiata showy madia	Federal: none State: CEQA CNPS 1B:2-3-3	Valley/foothill grasslands below 250 feet, and cismontane woodland. Occurs throughout the Central Coast and Central Valley. Presumed extirpated in Contra Costa County.	March-May annual herb	Low: marginally suitable habitat present.
Psilocarphus brevissimus var.multiflorus delta woolly-marbles	Federal: none State: none CNPS 4:1-2-3	Vernal pools. Recorded from Alameda, Napa, Santa Clara, San Joaquin, Solano, Stanislaus and Yolo counties.	May-June annual herb	None: no suitable habitat present.
Senecio aphanactis rayless ragwort	Federal: none State: CEQA CNPS 2:3-2-1	Coastal scrub and cismontane woodland on alkaline soils. Known from the South Coast, Central Coast, Central Valley and San Francisco Bay Area. Recently documented from Corral Hollow in Alameda county.	January-April annual herb	None: no suitable habitat present.
Boraginaceae-Borage Family				
Amsinckia grandiflora large-flowered fiddleneck	Federal: FE State: CE CNPS 1B:3-3-3	Cismontane woodland, valley/foothill grassland. Known from only three natural occurrences in Alameda and San Joaquin counties. Also known historically from Contra Costa County, where it has been recently re-introduced.	April-May annual herb	Low: marginally suitable habitat present.

Table 4.7-1 (continued)
Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Cryptantha hooveri Hoover's cryptantha	Federal: none State: none CNPS 1B:2-2-3	Valley/foothill grassland, on sandy soils. Known from Alameda, Contra Costa, Madera, Merced, Stanislaus, and San Joaquin counties.	April-May annual herb	Low: suitable habitat present.
Plagiobothrys hystriculus bearded popcorn - flower	Federal: none State: CEQA CNPS 1A	Vernal pools and mesic valley/foothill grassland. Presumed extinct. Endemic to Solano County.	April-May annual herb	None: no suitable habitat present.
Brassicaceae-Mustard Family				
Erysimum capitatum ssp. angustatum Contra Costa wallflower	Federal: FE State: CE CNPS 1B:3-3-3	Stabilized interior dunes. Known from only two occurrences on the dunes east of Antioch, along the San Joaquin River.	March-July perennial herb	Low: marginally suitable habitat present.
Tropidocarpum capparideum caper-fruited tropidocarpum	Federal: SC State: CEQA CNPS 1A	Valley/foothill grasslands, on alkaline hills. Known historically from Alameda, Contra Costa, Glenn, Monterey, Santa Clara and San Joaquin counties; presumed extinct. Last seen in 1957.	March-April annual herb	None: no suitable habitat present.
Campanulaceae-Bellflower Family				
Downingia pusilla dwarf downingia	Federal: none State: CEQA CNPS 2:1-2-1	Mesic sites in valley/foothill grassland and vernal pools. Occurs from Sonoma and Napa counties through the Sacramento valley and Sierra foothills.	March-May annual herb	Low: marginally suitable habitat present.
Caprifoliaceae-Honeysuckle Family				
Viburnum ellipticum oval-leaved viburnum	Federal: none State: CEQA CNPS 2:2-1-1	Chaparral, cismontane woodland, lower montane coniferous forests. Distributed from the Central Valley and the Sierra Nevada to the North Coast, Oregon and Washington.	May-June shrub (deciduous)	None: no suitable habitat present.
Chenopodiaceae-Goosefoot Family				
Atriplex cordulata heartscale	Federal: SC State: CEQA CNPS 1B:2-2-3	Chenopod scrub, valley/foothill grassland, on somewhat alkaline or saline hard packed soils. Recorded from Alameda County throughout the Central Valley from Glenn to Kern counties. Presumed extirpated in Contra Costa and San Joaquin counties.	May-October annual herb	Low: marginally suitable habitat present.

Table 4.7-1 (continued)
Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Atriplex coronata var. coronata crownscale	Federal: none State: none CNPS 4:1-2-3	Chenopod scrub, valley/foothill grassland on alkaline soils. Known from the northern San Joaquin Valley, Central Coast, and eastern San Francisco Bay.	April-October annual herb	None: no suitable habitat present. Would have been detectable.
Atriplex depressa brittlescale	Federal: none State: CEQA CNPS 1B:2-2-3	Chenopod scrub, playas and valley/foothill grassland on alkaline and clay soils. Occurs from Solano County throughout the Sacramento and San Joaquin Valleys. Presumed extirpated in Stanislaus County.	May-October annual herb	None: no suitable habitat present.
Atriplex joaquiniana San Joaquin spearscale	Federal: SC State: CEQA CNPS 1B:2-2-3	Chenopod scrub, valley/foothill grassland and alkali meadows. Occurs from Solano County throughout the Sacramento and San Joaquin valleys. Presumed extirpated in Santa Clara, San Joaquin and Tulare counties.	April-September annual herb	None: no suitable habitat present.
Convolvulaceae-Morning-glory Family				
Convolvulus simulans small-flowered morning glory	Federal: none State: none CNPS 4:1-2-2	Chaparral (openings), coastal scrub, valley/foothill grassland, in clay and serpentine seeps. Known from the Bay Area and San Joaquin Valley, Central Coast and Channel Islands to San Diego County.	March-June annual herb	None: no suitable habitat present.
Ericaceae-Heath Family				
Arctostaphylos auriculata Mount Diablo manzanita	Federal: none State: CEQA CNPS 1B:3-1-3	Chaparral, in canyons and on slopes, on sandstone. Known only from Mt. Diablo area in Contra Costa County.	January-March evergreen shrub	None: no suitable habitat present. Would have been detectable.
Arctostaphylos manaznita ssp.laevigata Contra Costa manzanita	Federal: none State: CEQA CNPS 1B:3-2-3	Chaparral, on rocky slopes between 500 and 1100 meters in elevation. Endemic to Contra Costa county.	January-February evergreen shrub	None: no suitable habitat present. Would have been detectable.
Fabaceae-Pea Family				
Astragalus tener var.tener alkali milk-vetch	Federal: none State: CEQA CNPS 1B:3-2-3	Playas, valley/foothill grasslands, on adobe clay and alkaline vernal pools. Extant in Merced, Solano, and Yolo counties. Extirpated throughout the Bay Area and San Joaquin Valley.	March-June annual herb	None: no suitable habitat present.

Table 4.7-1 (continued)
Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Lathyrus jepsonii var. jepsonii Delta tule pea	Federal: SC State: CEQA CNPS 1B:2-2-3	Freshwater and brackish marshes. Occurs throughout the Sacramento San Joaquin River delta, San Francisco Bay and Central Valley.	May-September perennial herb	None: marginally suitable habitat present. Would have been detectable.
Geraniaceae-Geranium Family				
Erodium macrophyllum round-leaved filaree	Federal: none State: CEQA CNPS 2:2-3-1	Cismontane woodland, valley and foothill grasslands, on clay soil. Widespread throughout California, Baja California, Oregon, Utah, and other states.	March-May annual herb	Low: marginally suitable habitat present.
Juglandaceae-Walnut Family				
Juglans californica var.hindsii Northern California black walnut	Federal: SC State: CEQA CNPS 1B:3-3-3	Riparian scrub and riparian woodland. Known from Contra Costa, Napa, Sacramento, Solano, and Yolo counties.	April-May tree (deciduous)	None: no naturally occurring stands present
Lamiaceae-Mint Family				
Monardella antonina ssp.antonina San Antonio Hills monardella	Federal: none State: none CNPS 3:?-?-3	Chaparral and cismontane woodland. Recorded from Monterey County; possible also in Alameda, Contra Costa, San Benito and Santa Clara counties.	June-August perennial herb (rhizomatous)	None: no suitable habitat present.
Pogogyne douglasii ssp.parviflora Douglas's pogogyne	Federal: none State: none CNPS 3:1-2-3	Chaparral (serpentinite), marsh and swale (vernal freshwater), valley and foothill grassland, vernal pools. Known from Lake, Mendocino, Napa, and Sonoma counties. Not clear if it occurs in Butte and Sacramento counties.	May-June annual herb	None: no suitable habitat present.
Scutellaria galericulata marsh skullcap	Federal: none State: CEQA CNPS 2:2-2-1	Lower montane coniferous forest, meadows and seeps (mesic), marshes, and swamps. Known from El Dorado, Lassen, Modoc, Nevada, Placer, Plumas, Shasta, San Joaquin counties, Oregon and elsewhere	June-September perennial herb (rhizomatous)	None: marginally suitable habitat present. Would have been detectable.
Scutellaria lateriflora blue skullcap	Federal: none State: CEQA CNPS 2:3-2-1	Mesic meadows, marshes and swamps. Reported from Inyo and San Joaquin counties, to New Mexico and Oregon. Known from only two occurrences in California.	July-September perennial herb (rhizomatous)	None: marginally suitable habitat present. Would have been detectable.

Table 4.7-1 (continued)
Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Linaceae-Flax Family				
Hesperolinon breweri Brewer's western flax	Federal: SC State: CEQA CNPS 1B:2-2-3	Chaparral, cismontane woodlands, valley/foothill grassland, mostly on serpentinite. Found in Napa, Solano, and Contra Costa counties.	May-July annual herb	None: no suitable habitat present.
Malvaceae-Mallow Family				
Hibiscus lasiocarpus rose-mallow	Federal: none State: CEQA CNPS 2:2-2-1	Freshwater marshes. Restricted to the Sacramento-San Joaquin River Delta.	June-September perennial herb (rhizomatous)	None: marginally suitable habitat present. Would have been detectable.
Malacothamnus hallii Hall's bush mallow	Federal: none State: CEQA CNPS 1B:3-2-3	Chaparral. Restricted to Contra Costa, Merced and Santa Clara Counties; possibly also in Alameda County.	May-September shrub (evergreen)	None: no suitable habitat present.
Onagraceae-Evening Primrose Family				
Oenothera deltoides ssp. howellii Anitoch Dunes evening primrose	Federal: FE State: CE CNPS 1B:3-3-3	Remnant river bluffs and interior sand dunes. Known from seven occurrences among the dunes east of Antioch.	March-September perennial herb	None: marginally suitable habitat present. Would have been detectable.
Papaveraceae-Poppy Family				
Eschscholzia rhombipetala diamond-petaled California poppy	Federal: SC State: CEQA CNPS 1B:3-3-3	Valley/foothill grassland on clay soils. Was presumed extinct before recent rediscovery in Corral Hollow in Alameda County, and in San Luis Obispo County. Also known historically from Contra Costa, Colusa, and Stanislaus counties.	March-April annual herb	Low: marginally suitable habitat present.
Polygonaceae-Buckweat Family				
Eriogonum truncatum Mount Diablo buckwheat	Federal: none State: CEQA CNPS 1A	Chaparral, coastal scrub, valley/foothill grassland on sandy soils. Presumed extinct. Known historically from Alameda, Contra Costa and Solano counties. Last seen in 1940.	April-September annual herb	None: no suitable habitat present.
Ranunculaceae-Buttercup Family				
Delphinium recurvatum recurved larkspur	Federal: SC State: CEQA CNPS 1B:2-2-3	Chenopod scrub, cismontane woodland and Valley/foothill grassland, in alkaline places. Restricted to the Central Valley from Colusa to Kern counties, San Luis Obispo.	March-May perennial herb	None: no suitable habitat present.

Table 4.7-1 (continued)
Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Myosurus minimus ssp.apus little mousetail	Federal: SC State: CEQA CNPS 3:2-3-2	Alkaline vernal pools. Recorded throughout the Central Valley.	March-June annual herb	None: no suitable habitat present.
Ranunculus lobbii Lobb's aquatic buttercup	Federal: none State: none CNPS 4:1-2-3	Mesic sites in cismontane woodland, valley/foothill grassland, North Coast coniferous forest and vernal pools. Known from the San Francisco Bay Area to Mendocino and Napa counties.	March-May annual herb (aquatic)	Low: marginally suitable habitat present.
Scrophularlaceae-Figwort Family				
Cordylanthus mollis ssp.mollis soft bird's-beak	Federal: FE State: CR CNPS 1B:3-2-3	Coastal saltmarsh. Known from fewer than 10 locations in Contra Costa, Napa, and Solano counties. Extirpated in Marin and Sonoma counties.	July-September annual herb (hemiparasite)	None: no suitable habitat present.
Limosella subulata Delta mudwort	Federal: none State: CEQA CNPS 2:2-3-1	Marshes and swamps, muddy or sandy intertidal flats. Limited to Sacramento and San Joaquin river deltas.	May-August perennial herb (stoloniferous)	None: no suitable habitat present.
Cyperaceae-Sedge Family				
Carex comosa bristly sedge	Federal: none State: CEQA CNPS 2:3-3-1	Marshes and swamps, lake margins. Believed extirpated in San Francisco, San Bernardino and Santa Cruz counties. Extant in Contra Costa, Lake, Shasta, San Joaquin and Sonoma counties.	May-September perennial herb (rhizomatous)	None: marginally suitable habitat present. Would have been detectable.
Liliaceae-Lily Family				
Calochortus pulchellus Mount Diablo fairy-lantern	Federal: none State: CEQA CNPS 1B:2-2-3	Chaparral, cismontane woodland, valley/foothill grassland. Known from Contra Costa and possibly Solano counties.	April-June perennial herb (bulbiferous)	None: no suitable habitat present.
Fritillaria liliacea fragrant fritillary	Federal: SC State: CEQA CNPS 1B:2-2-3	Coastal prairie, coastal scrub, valley/foothill grassland near the coast, on clay or serpentinite. Known from the Central Coast from Sonoma to Monterey counties and the San Francisco Bay Area.	February-April perennial herb (bulbiferous)	None: no suitable habitat present.
Poaceae-Grass Family				
Neostapfia colusana Colusa grass	Federal: FT State: CE CNPS 1B:2-3-3	Restricted to large, northern claypan vernal pools with alkaline soils that remain flooded until early summer. Known from Merced, Solano, Stanislaus and Yolo counties; presumed extirpated in Colusa County.	May-July annual herb	None: no suitable habitat present.

Table 4.7-1 (continued)
Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Potamogetoneceae-Pondweed Family				
Potamogeton zosteriformis eel-grass pondweed	Federal: none State: CEQA CNPS 2:2-2-1	Assorted freshwater marshes and swamps. Known from Contra Costa, Lake, Modoc, Lassen, and Shasta counties and Washington and Oregon.	June-July annual herb (aquatic)	None: marginally suitable habitat present. Would have been detectable.

[1] Definitions of acronyms used are presented on page 4.7-30 of this chapter.
Source: Zentner & Zentner, 2007.

Based on a literature review and a familiarity with the fauna within the project region, a total of 75 special-status animal species were considered to have at least some potential to occur within the region or have been recorded historically in the project vicinity. Of these, 32 species are not expected to occur on-site because of factors such as lack of suitable habitat, isolation from known habitats, and the site being out of the species' known range. The remaining 43 species have some potential to occur on-site or have been observed on-site and are discussed in more detail below. Special-status wildlife species associated with habitats not present on-site, or in the immediate vicinity, are not discussed in this chapter.

Figure 4.7-5, Special-Status Wildlife Occurrence Map, shows the locations of special-status wildlife occurrence within a five-mile radius of the project area. Table 4.7-2 identifies a full listing of all species considered in this analysis. Definitions of acronyms used in the table are presented on page 4.7-30.

Species that have potential to occur within the project area and/or are prominent in today's regulatory environment are discussed below. Of the species with some potential to occur on-site, one white-tailed kite, a California Fully Protected Species of Special Concern, was observed on the property during the course of the surveys. The survey determined that the western burrowing owl, a federal Species of Concern and a California Species of Special Concern, would have a high likelihood to occur on site.

Based on the available habitat and the surrounding area, the loggerhead shrike, a federal Species of Concern and a California Species of Special Concern; Swainson's hawk, a federal Species of Concern and State-listed Threatened species; Western pond turtle (*Clemmys marmorata*), a federal Species of Concern and a California Species of Special Concern; Silvery Legless Lizard, a Federal Species of Concern and California Species of Concern; and northern harrier, a California Species of Special Concern, have a moderate potential to occur on-site given the presence of suitable habitat. The other special-status species discussed below have a low potential or are not expected to occur on-site.

Several special-status wildlife species that are strictly associated with the northern coastal salt marsh habitat present in the Bay-Delta were not included as part of this assessment because salt marsh habitat is not present on the study site or immediately adjacent to the site. These species include California clapper rail (*Rallus longirostris obsoletus*), which is federally-listed Endangered and state-listed Endangered, saltmarsh yellowthroat (*Geothlypis trichas sinuosa*), a California Species of Special Concern; Suisun song sparrow (*Melospiza melodia maxillaris*), a California Species of Special Concern; San Pablo song sparrow (*Melospiza melodia samuelis*), a California Species of Special Concern; Suisun shrew (*Sorex ornatus sinuosus*), a California Species of Special Concern; salt marsh vagrant shrew (*Sorex vagrans halicoetes*), a California Species of Special Concern; ornate salt marsh shrew (*Sorex ornatus salicornicus*), a California Species of Special Concern; and salt marsh harvest mouse (*Reithrodontomys raviventris*), federally-listed Endangered and State-listed Endangered.

Figure 4.7-5
Special-Status Wildlife Occurrence Map

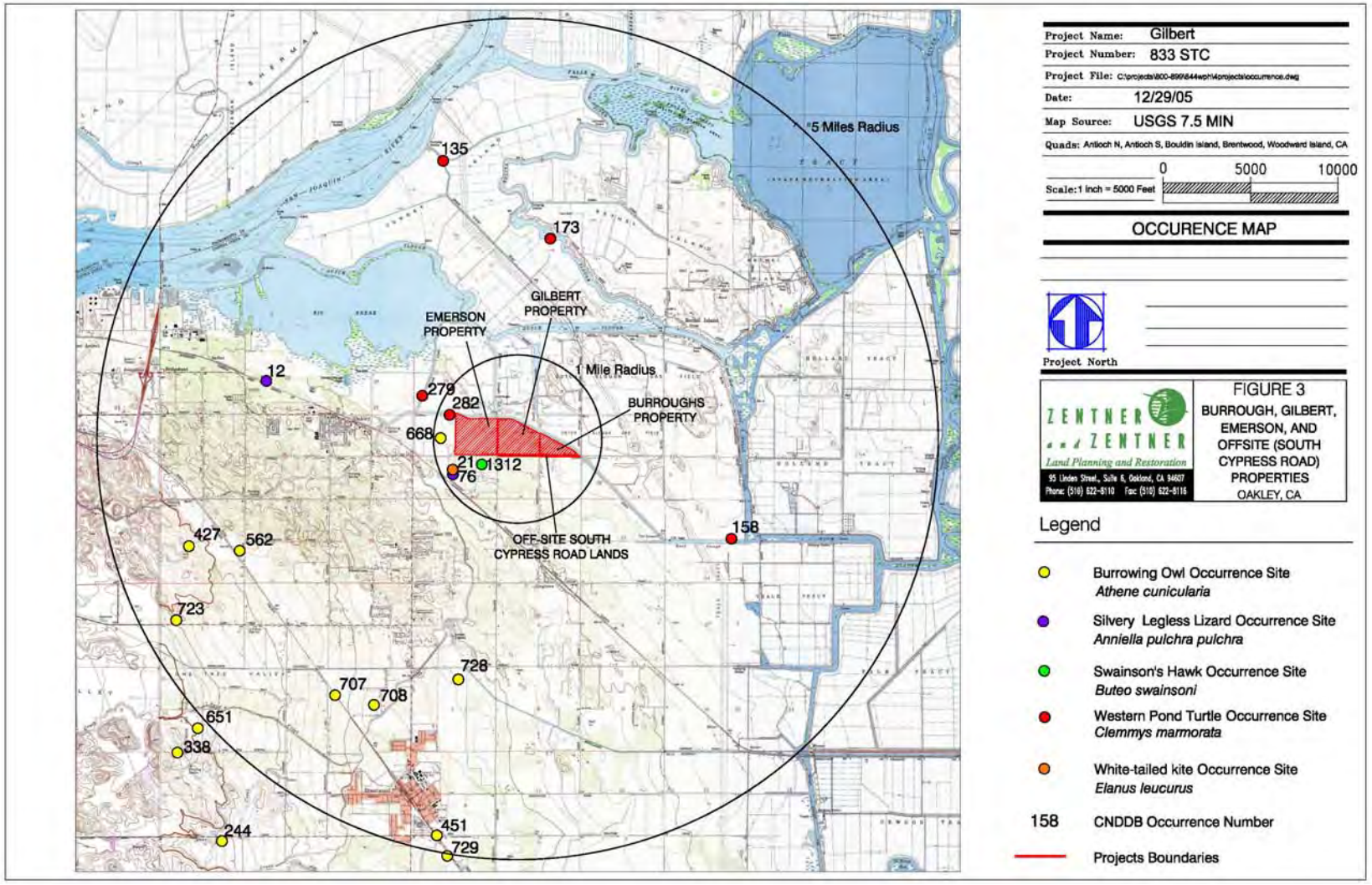


Table 4.7-2
Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On-Site
Invertebrates			
Aegialia concinna Ciervo Aegialian scarab beetle	Federal: FSC State:	Inhabit sandy substrates in close association with roots of shrubs and grasses. Only found in the Ciervo Hills-Monocline Ridge areas of Fresno County, Panoche Road area of San Benito County and the Antioch Dunes of Contra Costa County.	None: marginally suitable habitat present.
Anthicus sacramento Sacramento anthicid beetle	Federal: FSC State: None	Inhabits sandy substrate among willows in riparian habitats. Populations recently documented along the Sacramento, San Joaquin, and Feather rivers.	None: marginally suitable habitat present.
Anthius antiochensis Antioch Dunes anthicid beetle	Federal: FSC State:	Formerly inhabited sand dunes at the Antioch Dunes in Contra Costa County. Last seen in the early 1950's before industrialization of the surrounding area. New populations recently found on the Sacramento and Feather rivers.	None: marginally suitable habitat present.
Apodemia mormo langei Lange's metalmark butterfly	Federal: FE State: None	Inhabits stabilized dunes along the San Joaquin River. Endemic to Antioch Dunes, Contra Costa County. Primary host plant is Eriogonum nudum var.auriculatum; feeds on nectar of other wildflowers as well.	None: marginally suitable habitat present.
Branchinecta lynchi Vernal pool fairy shrimp	Federal: FT State: None	Inhabits vernal pools in grasslands in the Central Valley, Coast Ranges and South Coast mountains, specifically the Slanted Rocks Area, West of Byron Hot Springs, in Contra Costa County. Occur in small depressions in sandstone outcrops surrounded by foothill grasslands. Other common habitat is a swale, earth slump, or basalt-flow depression basin with a grassy or muddy bottom; found in unplowed grasslands. Occurrences are noted in the Central Valley, Coast Ranges, and South Coast mountains. Active between December and May.	None: no suitable habitat present.

Table 4.7-2 (continued)
Potentially Occurring Special-Status Wildlife Species

Scientific Name **Common Name**	**Status**	**Habitat Affinities and Reported Localities in the Project Area**	**Potential for Occurrence On Site**
Branchinecta mesovallensis Midvalley fairy shrimp	Federal: FSC State: None	Inhabits small, grass-bottomed vernal pools in only a handful of counties within the Great Central Valley, including Sacramento, Solano, Merced, Madera, San Joaquin, Fresno, and Contra Costa counties.	None: no suitable habitat present.
Coelus gracilis San Joaquin dune beetle	Federal: FSC State: None	Inhabits foredunes and sand hummocks, burrowing beneath the sand surface; frequent among vegetation. Collected at the Antioch Dunes prior to 1950. Known from limited localities in Kings and Fresno counties.	Low: marginally suitable habitat present.
Cophura hurdi Antioch cophuran robberfly	Federal: FSC State:	Found in the Antioch Dunes in 1937.	None: marginally suitable habitat present.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	Federal: FT State: None	Inhabits riparian and oak savanna habitats in the Central Valley. Requires elderberry (*Sambucus spp.*) as host plant for all stages of the beetle's life-cycle. Typically inhabits streamsides in riparian forests in the Central Valley below 3,000 feet elevation.	None: no suitable habitat present.
Efferia antiochi Antioch efferian robberfly	Federal: FSC State: None	Habitat not well understood. Recorded only from Antioch in 1939.	Low: marginally suitable habitat present.
Eucerceris ruficeps Redheaded sphecid wasp	Federal: FSC State:	Nests in sandy substrate in the Delta and foothills of the Central Valley.	None: marginally suitable habitat present.
Helminthoglypta nickliniana bridgesii Bridges' Coast Range shoulderband snail	Federal: FSC State: None	Known from Contra Costa and Alameda counties from Berkeley and San Pablo to the eastern base of Mount Diablo. Typically found in moist, often riparian areas under rocks, logs, woody debris, or accumulations of leaf mould.	None: no suitable habitat present.
Hygrotus curvipes Curved-foot hygrotus diving beetle	Federal: FSC State: None	Inhabits small, drying, mineralized pools formed by winter rains, small ponds, and pools in intermittent streams fringed by salt and salt-tolerant vegetation like salt grass (*Distichlis spicata*). Has been found in stock ponds that are near mineralized pools or intermittent streams. Possible habitat in vernal pools and other wetland habitat in the Sacramento River Delta. In Contra Costa County they have been seen in Oakley, south of Brentwood, near Brushy Peak, near Byron Hot Springs, and near Brushy Creek.	None: no suitable habitat present.

Table 4.7-2 (continued)
Potentially Occurring Special-Status Wildlife Species

Scientific Name **Common Name**	**Status**	**Habitat Affinities and Reported Localities in the Project Area**	**Potential for Occurrence On Site**
Idiostatus middlekaufi Middlekauf's shieldback katydid	Federal: FSC State: None	Inhabits sandy dunes. Recorded only from Antioch Dunes, Contra Costa County, in 1965.	Low: marginally suitable habitat present.
Linderiella occidentalis California linderiella (California fairy shrimp)	Federal: FSC State: None	Usually inhabits large, fairly clear vernal pools and lakes; sometimes found in small pools located in grasslands in the Central Valley, Coast Ranges, and South Coast mountains.	None: no suitable habitat present.
Lytta molesta Molestan blister beetle	Federal: FSC State: None	Found in small, drying mineralized pools formed by the winter rains, small pools fringed by salt crusts, and intermittent streams. Most of the sites have halophytic vegetation. Adults congregate on food plants that typically grow in valley grassland and vernal pool habitats. Larvae are parasitic on wild, ground-nesting bees. Known from the Brentwood area.	None: marginally suitable habitat present.
Metapogon hurdi Hurd's metapogon robberfly	Federal: FSC State:	Inhabits sandy substrate. Found in Fresno County and the Antioch Dunes in Contra Costa County.	None: marginally suitable habitat present.
Myrmosula pacifica Antioch mutillid wasp	Federal: FSC State: None	Inhabits sandy dunes. Recorded only from Antioch Dunes, Contra Costa County, in 1938.	None: marginally suitable habitat present.
Neduba extincta Shieldback katydid	Federal: FSC State:	Found in 1937 at the Antioch Dunes in Contra Costa County.	None: marginally suitable habitat present.
Perdita hirticeps luteocincta Yellow-banded andrenid bee	Federal: FSC State:	Inhabit sandy substrates. Recorded only in the Antioch Dunes in Contra Costa County, in 1936.	None: marginally suitable habitat present.
Perdita scituta antiochensis Antioch andrenid bee	Federal: FSC State: None	Inhabits sandy dunes. Recorded only from Antioch Dunes and Oakley, Contra Costa County. Observed visiting flowers of California matchweed (*Gutierrezla californica*).	None: marginally suitable habitat present.
Philanthus nasalis Antioch sphecid wasp	Federal: FSC State:	Inhabits sandy dunes. Recorded only from Antioch dunes in 1948 and 1959. May be extirpated from dunes.	None: marginally suitable habitat present.
Polyphlla stellata Delta june beetle	Federal: FSC State:	Inhabits sandy areas in riverine habitats. Occurs in the Sacramento and San Joaquin River Delta.	None: marginally suitable habitat present.
Fish			
Archoplites interruptus Sacramento perch	Federal: FSC State: CSC	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefer warm water. Aquatic vegetation is essential for young. Tolerant of wide ranges of physio-chemical water conditions.	None: marginally suitable habitat present.

Table 4.7-2 (continued)
Potentially Occurring Special-Status Wildlife Species

Scientific Name **Common Name**	**Status**	**Habitat Affinities and Reported Localities in the Project Area**	**Potential for Occurrence On Site**
Hypomesus transpacificus Delta smelt	Federal: FT State: ST	Historically found throughout the lower and middle reaches of the Sacramento-San Joaquin Delta. Spawning takes place between December-April in side channels and sloughs in the middle reaches of the Delta.	Low: marginally suitable habitat present.
Oncorhynchus mykiss Steelhead (Central Valley, California ESU)	Federal: FT State: None	The ESU includes all naturally spawned populations of steelhead (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries. Excluded are steelhead from San Francisco and San Pablo Bays and their tributaries. Little historical data exists for the San Joaquin River Basin. McEwan and Jackson (1996) reported a small remnant run in the Stanislaus River. Steelhead reported in Tuolumne River in 1983 and in Merced River. May have historically been in many of the San Joaquin River tributaries, especially during wet years.	Very low: marginally suitable habitat present.
Oncorhynchus tshawytscha Chinook salmon (Central Valley fall/late fall-run ESU)	Federal: FC State: CSC	The ESU includes all naturally spawned populations of fall-run Chinook salmon in the Sacramento and San Joaquin River Basins and their tributaries, east of Carquinez Strait, California. The following California counties contain major river basins with critical spawning and rearing habitat: Alameda, Butte, Calaveras, Colusa, Contra Costa, Glenn, Mariposa, Merced, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Santa Clara, Shasta, Solano, Stanislaus, Sutter, Tehama, Trinity, Tuolumne, Yolo, and Yuba.	Very low: marginally suitable habitat present.
Oncorhynchus tshawytscha Chinook salmon (Central Valley spring-run ESU)	Federal: FT State: ST	The ESU includes all naturally spawned populations of spring-run chinook salmon in the Sacramento River and its tributaries in California. These salmon are anadromous, inhabiting open ocean and coastal streams. Adults move upstream March-July and begin spawning in August.	None: marginally suitable habitat present.
Oncorhynchus tshawytscha Chinook salmon (winter-run)	Federal: FE State: SE	This salmon is anadromous, inhabiting open ocean and coastal streams. Adults move upstream January-June and begin spawning in April. Downstream migrant smolts move past Red Bluff August-October.	None: marginally suitable habitat present.

Table 4.7-2 (continued)
Potentially Occurring Special-Status Wildlife Species

Scientific Name **Common Name**	**Status**	**Habitat Affinities and Reported Localities in the Project Area**	**Potential for Occurrence On Site**
Pogonichthys macrolepidotus Sacramento splittail	Federal: FSC State: CSC	Lower Delta minnow of the backwater slough areas. Believed to spawn over shoreline vegetation or over gravel in creek tributaries of large rivers during spring high water levels.	Low: marginally suitable habitat present.
Amphibians			
Ambystoma californiense California tiger salamander	Federal: FT State: CSC	Breeds in temporary or semi-permanent pools. Seeks cover in rodent burrows in grasslands and oak woodlands. Inhabits the Coast Ranges from Santa Barbara to Sonoma counties along the coast and inland to Colusa, Yolo and Tulare counties.	None: no suitable breeding habitat; marginally aestivation suitable habitat present.
Rana (=aurora draytonii) draytonii California red-legged frog	Federal: FT State: CSC	Prefers semi-permanent and permanent stream pools, ponds, and creeks with emergent and/or riparian vegetation. Will occupy upland areas during the wet winter months.	None: no suitable habitat present.
Reptiles			
Anniella pulchra pulchra Silver legless lizard	Federal: FSC State: CSC	Inhabits sparsely vegetated areas on beaches and in chaparral, oak woodlands, and riparian areas. Needs loose soils for burrowing (sand, loam, or humus). Burrows in washes, dune sand, and loose soils at the base of slopes or in intermittent streams. Must have moist soil.	Moderate: suitable habitat present.
Clemmys marmorata Western pond turtle	Federal: FSC State: CSC	Prefers permanent, slow-moving creeks, streams, ponds, rivers, marshes, and irrigation ditches with basking sites and a vegetated shoreline. Needs upland sites for egg laying. Occurs from the Oregon border to the San Francisco Bay, inland throughout the Sacramento Valley, and south along the coastal zone to San Diego County.	Moderate: suitable habitat present.
Phrynosoma coronatum frontale California horned lizard	Federal: FSC State: CSC	Occurs in scrub and grassland on sandy soils; active above ground between April and October. Preys primarily on native ant species. The species is thought to be extinct in this region based on museum specimens.	None: marginally suitable habitat present.

Table 4.7-2 (continued)
Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Thamnophis gigas Giant garter snake	Federal: FT State: ST	Inhabits the edges of marshes, sloughs, ponds, small lakes, low gradient streams, and agricultural wetlands such as irrigation and drainage canals and rice fields. Requires high ground for basking and escape during winter flooding. Known in the Central valley from Fresno north to the Sutter Buttes. Recently recorded from Sherman Island. Distribution in Contra Costa County unknown.	None: marginally suitable refugia habitat present.
Birds			
Asio flammeus Short-eared owl (nesting only)	Federal: MB State: CSC	Found in salt and freshwater swamps, lowland meadows and grasslands, irrigated alfalfa fields. Nests in tules and tall grasslands. Needs daytime seclusion. Nests on dry ground in depressions concealed by vegetation. Primarily hunts at dawn and dusk (crepuscular).	Low: marginally suitable habitat present.
Athene cunicularia hypugea Burrowing owl (burrow sites)	Federal: FSC State: CSC	Open, dry grasslands, deserts, prairies, farmland and scrublands with abundant active and abandoned mammal burrows. Occurs in lowlands throughout California.	High: suitable habitat present.
Branta Canadensis leucopareia Aleutian Canada goose	Federal: MB FSC State: None	One of eleven recognized subspecies. Winters in wetlands, grasslands, and cultivated fields. Known to commute daily between Delta islands and the San Joaquin River areas near Modesto.	None: marginally suitable habitat present.
Buteo swainsoni Swainson's hawk (nesting only)	Federal: FSC State: ST	Nests in a variety of tree species often in or near riparian habitat. Forages in grasslands and agricultural fields. Highest nesting densities are in Yolo County. Relatively common throughout the lower Sacramento and San Joaquin Valleys from March-September. Winters in pampas of South America. Forages on small rodents during breeding season and insects during the non-breeding season.	Moderate: suitable habitat present.
Circus cyaneus Northern harrier (nesting)	Federal: MB State: CSC	Nests and forages in grasslands and agricultural fields. Nests on ground in shrubby vegetation, dense grass, or crops such as wheat and barley, often at the edge of marshes.	Moderate: suitable habitat present.
Dendroica petechia brewsteri California yellow warbler	Federal: MB State: CSC	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders, and in mature chaparral. May also inhabit oak and coniferous woodlands and urban areas near stream courses.	Low: marginally suitable habitat present.

Table 4.7-2 (continued)
Potentially Occurring Special-Status Wildlife Species

Scientific Name **Common Name**	**Status**	**Habitat Affinities and Reported Localities in the Project Area**	**Potential for Occurrence On Site**
Elanus leucurus White-tailed kite (nesting sites)	Federal: FSC State: CFP	Inhabits agricultural areas, low rolling foothills, valley margins with scattered oaks and river bottomlands, or marshes adjacent to deciduous woodlands. Prefers open grasslands, meadows, marshes, and agricultural fields for foraging.	Detected: suitable habitat present.
Eremophila alpestris actia California horned lark	Federal: MB State: CSC	Nests and forages on ground in open grassland. Often found in agricultural areas. Will nest on bare ground or among sparse vegetation. Known from vicinity of San Francisco Bay.	Low: marginally suitable habitat present.
Falco columbarius Merlin (wintering)	Federal: MB State: CSC	Winters in open grasslands and woodlands, often along coast near concentrations of shorebirds, which it feeds on in addition to small mammals and insects. Does not breed in California.	Low: marginally suitable habitat present.
Geothlypis trichas sinuosa Salt marsh common yellowthroat	Federal: FSC State: CSC	Nests in freshwater marshes in the spring and summer and moves into tidal sloughs and channels during the winter. Requires contiguous freshwater and salt water marsh habitats.	None: no suitable habitat present.
Lanius ludovicianus Loggerhead shrike	Federal: FSC State: CSC	Nests in woodland and scrub habitats at margins of open grasslands. Often uses lookout perches such as fence posts. Resident and winter visitor in lowlands and foothills throughout California.	Moderate: suitable habitat present.
Melospiza melodia maxillaris Suisun song sparrow	Federal: None State: CSC	Inhabits marshes of the Suisun Bay area from Martinez eastward along the south bayshore of Suisun Bay to Pittsburg, then north of Suisun Bay throughout the extensive Suisun marshlands. The only remaining wetlands supporting these birds in the Carquinez Strait apparently is at the north end of Southampton Bay (Benicia Marsh).	None: no suitable habitat present.
Melospiza melodia samuelis San Pablo song sparrow	Federal: None State: CSC	Distributed in marshes around San Pablo Bay continuously from Gallinas Creek in the west, along the northern San Pablo bayshore, and throughout the extensive marshes along the Petaluma, Sonoma and Napa Rivers. All along the southeast shoreline of San Pablo Bay, isolated populations occur in small marshes between Wilson Point and Pinole Point, and at the mouths of San Pablo Creek and Wildcat Creek.	None: no suitable habitat present.

Table 4.7-2 (continued)
Potentially Occurring Special-Status Wildlife Species

Scientific Name **Common Name**	**Status**	**Habitat Affinities and Reported Localities in the Project Area**	**Potential for Occurrence On Site**
Rallus longirostris obsoletus California clapper rail	Federal: FE State: SE	Inhabits tidal salt marshes of the greater San Francisco Bay, although some individuals use brackish marshes during the spring breeding season. It formerly occurred at Humboldt Bay in Humboldt County, Elkhorn Slough in Monterey County, and Morro Bay in San Luis Obispo County.	None: no suitable habitat present.
Mammals			
Antrozous pallidus Pallid bat	Federal: None State: CSC	Inhabits open, dry habitats such as deserts, grasslands, and shrublands with rocky areas for roosting. Roosts in caves, mine tunnels, crevices in rocks, buildings, and trees. Forages in open habitats.	Low: marginally suitable habitat present.
Corynorhinus (=Plecotus) townsendii townsendii Townsend's western big-eared bat	Federal: FSC State: CSC	Roosting sites include caves, mine tunnels, abandoned buildings, and other structures. Inhabits a variety of plant communities including coastal conifer and broad-leaf forests, oak and conifer woodlands, arid grasslands, and deserts. Most commonly associated with mesic sites. Highly sensitive to human disturbances; a single visit by humans can cause bats to abandon roosts.	Low: marginally suitable habitat present.
Reithrodontomys raviventris Salt marsh harvest mouse	Federal: FE State: SE CFP	Restricted to saline emergent wetlands of San Francisco Bay and its tributaries. Habitat consists primarily of pickleweed. Does not burrow; builds loose nests. Requires high ground to escape high tides and floods.	None: no suitable habitat present.
Sorex ornatus salicornicus Ornate saltmarsh shrew	Federal: State: CSC	Inhabits northern coastal salt marsh habitat.	None: no suitable habitat present.

[1] Definitions of acronyms used are presented on page 4.7-30 of this chapter.

Source: Zentner & Zentner, 2007.

Table 4.7-2 (continued)
Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site

California Native Plant Society Designations

List 1: Plants of highest priority
List 1A: Plants presumed extinct in California
List 1B: Plants rare and endangered in California and elsewhere
List 2: Plants rare and endangered in California but more common elsewhere
List 3: Plants about which additional data are needed
List 4: Plants of limited distribution

CNPS R-E-D Codes

R (Rarity)
1 = Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.
2 = Occurrence confined to several populations or to one extended population.
3 = Occurrence limited to one or a few highly restricted populations, or present in such low numbers that it is seldom reported.
? = More data are needed

E (Endangerment)
1 = Not endangered
2 = Endangered in a portion of its range
3 = Endangered throughout its range
? = More data are needed

D (Distribution)
1 = More or less widespread outside California
2 = Rare outside California
3 = Endemic to California
? = More data are needed

Note: currently, all CNPS list 1B and 2 taxa are considered "Special Plants" by the CDFG.

Table 4.7-2 (continued)
Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site

U.S. Fish and Wildlife Service Designations

FE = listed as Endangered by the Federal Government
FT = listed as Threatened by the Federal Government
FPE= proposed as Endangered by the Federal Government
FPT= proposed as Threatened by the Federal Government
FSS= federal sensitive species, as listed by Bureau of Land Management and USFWS
C[1] = Candidate; taxa for which USFWS has sufficient biological information to support a proposal to list as Endangered or Threatened.
SC[1]= Species of Concern
MB= migratory non-game birds of management concern to the USFWS; protected under the Migratory Bird Treaty Act.

[1]As of Feb. 28, 1996, all Category 1 candidate taxa are now regarded merely as Candidates.

California Department of Fish and Game Designations

CE = Listed as Endangered by the State of California
CR = Listed as Rare by the State of California
CT = Listed as Threatened by the State of California
CPE= Proposed for listing as Endangered
CSC= California Species of Special Concern
* = Taxa that are restricted in distribution, declining throughout their range, or associated with habitats that are declining in California.
CFP= Fully protected under the Cal. Fish and Game Code.
CP = Protected Species under Cal. Code of Regulations.
CEQA= Taxa which are considered to meet the criteria for listing as Endangered, Threatened or Rare by the CDFG; impacts to such taxa must be addressed in CEQA documents.
CEQA=Taxa that might be locally significant; should be evaluated for consideration during preparation of CEQA documents, as recommended by the CDFG.

Invertebrates

The project site supports a few habitat types, with a variety of native and non-native vegetative species that could potentially harbor special-status invertebrate species. Entomologist Dick Arnold conducted a habitat assessment for special-status invertebrates on the neighboring Cypress Grove residential development site (Entomological Consulting Services 2002) and on-sites in the East Cypress Corridor Specific Plan area (Entomological Consulting Services 2005) to address, in particular, the interior dune communities located on Cypress Grove, a portion of which is contiguous with the sand mound on the 140-acre Emerson property. Twenty-one invertebrate species were considered as part of the Cypress Grove analysis. Invertebrate species were not considered to have a moderate or high potential to occur on-site; however, three insect species associated with sand dunes in the region were considered to have a low potential to occur on-site, including San Joaquin dune beetle (*Coelus gracilis*), a federal Species of Concern, Antioch efferian robberfly (*Efferia antiochi*), a federal Species of Concern, and Middlekauf's shieldback katydid (*Idiostatus middlekaufi*), a federal Species of Concern. The remaining 18 invertebrate species are not expected to occur on-site.

Invertebrate species that are prominent in today's regulatory environment are addressed below in further detail.

Lange's Metalmark Butterfly

The Lange's metalmark butterfly (*Apodemia mormo langei*), federally-listed Endangered, is known only from the Antioch dunes in Contra Costa County, approximately seven miles west of the project area. This butterfly is associated only with the larval host plant naked-stem buckwheat (*Eriogonum nudum* var. *auriculatum*). Although marginally suitable habitat for naked-stem buckwheat is present in sandy soils on-site, this plant species was not detected during the reconnaissance site visit, and is presumed absent. Based on an absence of the larval host plant, the restricted range of the butterfly, and the entomological report for the adjacent Cypress Grove site (Entomological Consulting Services 2002), which suggested that the butterfly was not likely to occur, the Lange's metalmark butterfly is not expected to occur on-site.

Valley Elderberry Longhorn Beetle

The Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), federally-listed Threatened, is believed to be restricted to the Central Valley wherever the beetle's food plant, the blue elderberry shrub (*Sambucus mexicana*) occur, primarily along riparian areas. The historical range of the beetle may have included the entire Sacramento and San Joaquin Valley riparian zone. Today less than four percent of the historical 400,000 acres of riparian forest remain (Barr 1991).

Elderberry shrubs do not occur on-site. Due to the lack of on-site habitat and the negative findings for the neighboring Cypress Grove site (Entomological Consulting Services 2002), which also indicated that the area is within the range of the unprotected beetle *Desmocerus californicus californicus*, (which occupies the same habitat as the valley

elderberry longhorn beetle) the Valley elderberry longhorn beetle is not expected to occur on-site.

Vernal Pool Fairy Shrimp

Fairy shrimp are aquatic crustaceans associated with vernal pools, grassy swales, and other temporarily ponded bodies of water in California, such as seasonal wetlands. As a taxonomic group, they are referred to as branchiopods. Most branchiopods are small freshwater organisms with limited specialization of their appendages as compared to other crustacean groups.

Vernal pools and seasonal wetlands form in regions with Mediterranean climates where shallow depressions fill with water during fall and winter rains, which evaporate in the spring. Fairy shrimp are ecologically dependent upon these seasonal fluctuations in their environment. After pools become inundated with water, these crustaceans hatch from eggs that have been dormant in the soil from previous wet seasons. The eggs are highly tolerant of heat, cold, and prolonged desiccation. In general, two to three weeks of inundation are required for eggs to hatch and for completion of development, although this time period varies by species. When the pool dries, the eggs survive as cysts among the soil and detritus at the bottom of the pool. Generally, one generation occurs per rainy season, but in some locations and in some years, depending on weather patterns and rainfall amounts, conditions may permit two or more generations to complete their development. Egg cysts are dispersed from one pool to another via wind, water, or animals such as birds that may ingest them, or cattle that may pick them up on their hooves.

Fairy shrimp are found in vernal pools, seasonal wetlands, and swales of various sizes ranging from small puddles to large water bodies. The water chemistry characteristics (pH, turbidity, total dissolved solids, conductivity, and alkalinity) of these habitats vary widely as well (Eng *et al.* 1990 qtd. in Zentner and Zentner). Generally, fairy shrimp have a broad tolerance range for physical and chemical attributes. The Emerson site does not support suitable habitat that would be required to support this species.

Midvalley fairy shrimp

Midvalley fairy shrimp (*Branchinecta mesovallensis*), a federal Species of Concern, is a small (0.28 to 0.79 inches long) freshwater crustacean. This species is found in shallow ephemeral pools, shallow vernal pools, vernal swales and artificial ephemeral wetland habitats. Midvalley fairy shrimp has also been observed in puddles, scrapes, and ditches (Belk and Fugate 2000) and is found in the mid portion of the Central Valley in Sacramento, Solano, Contra Costa, San Joaquin, Madera, Merced and Fresno counties (Belk and Fugate 2000). Because this species is normally found in quick drying pools, the Midvalley fairy shrimp can mature within about eight days when hatching in small pools. However, average maturing is approximately 26 days, or longer in larger pools. The Emerson site does not support suitable habitat that would be required to support this species.

California linderiella fairy shrimp

California fairy shrimp (*Linderiella occidentalis*), a federal Species of Concern, is a small (approximately 0.4 inches long) aquatic crustacean. This shrimp is most commonly found in large, moderately clear vernal pools and lakes, although it has been found in very small pools and in clear to turbid water with pH from 6.1 to 8.5. California fairy shrimp can live in water temperatures ranging between 41 degrees to 85 degrees Fahrenheit. On average they mature in 45 days. Adult linderiella shrimp have been collected from late December to early May. Linderiella fairy shrimp are the most common fairy shrimp in the Central Valley and have been observed in most locations that support vernal pools (USFWS 2003). The Emerson site does not support suitable habitat that would be required to support this species.

Longhorn fairy shrimp

Longhorn fairy shrimp (*Branchinecta longiantenna*), federally-listed Endangered, is a small (0.5 to 0.8 inches long) aquatic crustacean. The longhorn fairy shrimp occupies clear to turbid vernal pools including clear-water depressions in sandstone outcroppings near Tracy, grass-bottomed pools in Merced County and claypan pools around Soda Lake in San Luis Obispo County (USFWS 2003). This species has been collected from late December to late April (Eriksen and Belk 1999). On average, longhorn fairy shrimp take 43 days to mature. This species has been recorded in scattered populations along the eastern margin of the Central Coast Range from Concord in Contra Costa County south to Soda Lake in San Luis Obispo County (USFWS 2003). The Emerson site does not support suitable habitat that would be required to support this species.

Vernal pool tadpole shrimp

Vernal pool tadpole shrimp (*Lepidurus packardi*), federally-listed Endangered, is a small (up to two inches long) aquatic crustacean. This shrimp is found in vernal pools with clear to highly turbid water. Vernal pool tadpole shrimp has been observed in pools ranging in size from 54 square feet to 89 acres. Eighteen known populations exist in the Central Valley, ranging from east of Redding south to the San Luis National Wildlife Refuge in Merced County. This species is also known from a single vernal pool complex in the San Francisco Bay National Wildlife Refuge in Alameda County (USFWS 2003). The Emerson site does not support suitable habitat that would be required to support this species.

Antioch Dune insects

Several special-status invertebrate species are known from sandy substrates at the Antioch Dunes, situated approximately seven miles northwest of the project site. These include Antioch dunes anthicid beetle (*Anthicus antiochensis*), a federal Species of Concern; Molestan blister beetle (*Lytta molesta*), a federal Species of Concern; San Joaquin dune beetle, a federal Species of Concern; Antioch efferian robberfly, a federal Species of Concern; Middlekauf's shieldback katydid, a federal Species of Concern;

Antioch multilid wasp (*Myrmosula pacifica*), a federal Species of Concern; yellow-banded andrenid bee (*Perdita hirticeps luteocincta*), a federal Species of Concern; Antioch andrenid bee (*Perdita scituta antiochensis*) a federal Species of Concern; Antioch specid wasp (*Philanthus nasalis*), a federal Species of Concern; Sacramento anthicid beetle (*Anthicus sacramento*), a federal Species of Concern; and Ciervo Aegialian scarab beetle (*Aegialia concinna),* a federal Species of Concern.

The degraded sand mounds located on the project site provide potential habitat for these species; however, most are not expected to occur as past and current land use practices have converted native plant communities to grazing lands or substantially degraded their habitat value. In addition, many of these species were documented at the Antioch Dunes over 25 years ago and recent occurrences in the region have not been reported. In 2002, special-status insect and invertebrate surveys for 21 species, including those species described herein, were conducted on the Cypress Grove property, adjacent to the Emerson property and sharing one remnant sand dune area (Entomological Consulting Services 2002); however, special-status insect or invertebrate species were not observed.

The yellow-banded andrenid bee and Antioch andrenid bee are native bees found in sand dunes and are known to visit the flowers of California matchweed (*Gutierrezia californica)*. The Antioch andrenid bee is also known to visit the flowers of buckwheat (*Eriogonum* sp.), telegraph weed, and lessingia (*Lessingia* sp.). Potential habitat for the andrenid bee exists on the Emerson property in the degraded remnant dune community due to the presence of telegraph weed; however, because this plant is fairly common in the Oakley area and thrives in disturbed habitats, and given that the dune habitat is otherwise degraded and does not contain California matchweed or other host plants, the habitat value is marginal (Zentner and Zentner 2007). This species was also not observed during site surveys on the Emerson property in September and November 2004, when the species should have been visible. Therefore, this species is unlikely to occur on-site.

The anthicid beetle is unlikely to occur on the Emerson property. The remnant sand dune communities on this property are heavily vegetated and therefore not preferred habitat (Zentner and Zentner 2007).

Fish

Several special-status fish species have been considered as part of the biological studies completed for the single planned outfall structure at Emerson Slough. The sloughs may provide habitat for several special-status fish species.

Sacramento perch (*Archoplites interruptus*), a federal Species of Concern and a California Species of Special Concern, Delta smelt (*Hypomesus transpacificus*), federally- and State-listed Threatened, and Sacramento splittail (*Pogonichthys macrolepidotus*), a California Species of Special Concern, have been documented within the waters of Big Break as recently as 1994, but are considered to have a very low to low potential to occur in Emerson Slough and Marsh Creek (Hanson personal communication 2001, Urquhart personal communication 2001, CDFG 2004a). However, recent fish sampling (2004-2005) conducted along the Contra Costa Canal, adjacent to

the project site and in Rock Slough, approximately 1.5 miles to the east, positively identified both Delta smelt and Sacramento splittail (Tenera Environmental 2005).

Longfin smelt (*Spirinchus thaleichthys*), a federal Species of Concern and a California Species of Special Concern, have some potential to occur within the sloughs during their spawning period, December to February, and were positively identified during fish sampling conducted along the adjacent Contra Costa Canal and in Rock Slough in 1994 and 1995 (Tenera Environmental 2005).

Pacific lamprey (*Lampetra tridentate*), a federal Species of Concern, is an anadromous species that spawns in early spring. Pacific lamprey were positively identified during fish sampling in Rock Slough 1994, 1995, and 1996, and therefore, are believed to have a low potential to occur within Emerson and Dutch Sloughs.

Green sturgeon (*Acipenser medirostris*), a federal Species of Concern and a California Species of Special Concern, is not likely to occur within Dutch Slough due to the sturgeon's large size and the relatively low availability of water within Dutch Slough.

River lamprey (*Lampetra ayresi*), a federal Species of Concern and a California Species of Special Concern, have not been recorded in the vicinity of the proposed project and are not expected to occur within Dutch Slough (Zentner and Zentner 2005d,e).

Because of the potential for presence of the above-listed species, NOAA Fisheries and USFWS were contacted to determine which species needed to be addressed as a result of the Emerson Slough outfall. NOAA Fisheries confirmed that Dutch Slough, which connects Emerson Slough to the rest of the Delta, is considered Essential Fish Habitat for Chinook (Pacific) salmon (Sycamore *et al*. 2003).

The USFWS was also contacted regarding potential for special-status species in Emerson Slough. The USFWS believes that Sacramento perch are not present in the sloughs of the Delta. However, both Sacramento splittail (recently federally de-listed) and Delta smelt have some potential to be present within Dutch and Emerson Slough. It should be noted that the CDFG also has jurisdiction over Delta smelt.

The following species do not spawn within the Delta (Sycamore *et al*. 2003): Steelhead (*Oncorhynchus mykiss*), federally-listed Threatened, and Chinook salmon (*Oncorhynchus tshawytscha*, winter-run, federally- and State-listed Endangered; Central Valley fall/late fall-run Chinook salmon, a federal Candidate species and California Species of Special Concern; and spring-run, federally- and state-listed Threatened. Central Valley fall/late fall-run Chinook salmon may rear in Emerson Slough, although habitat is marginal (NOAA Fisheries 2003). Central Valley fall/late fall-run Chinook salmon is considered to have a low potential to occur in Emerson Slough.

An Essential Fish Habitat Assessment for the adjacent Cypress Grove development, which evaluated the effects of four outfalls into Emerson Slough, concluded that adverse effects to protected fish species and their habitats would not occur because of design features for water

quality treatment and flood attenuation (NOAA Fisheries 2003, Sycamore *et al*. 2003). The Assessment evaluated the outfall added in conjunction with this project; therefore, the proposed project is not expected to create adverse impacts on protected fisheries. The approved outfall at Emerson Slough is similar in function and design as the four Cypress Grove outfalls with respect to water quality treatment prior to releasing into the slough.

Amphibians

Amphibian species that are prominent in today's regulatory environment are addressed below in further detail.

California red-legged frog

Optimal habitat for the federally-listed Threatened and California Species of Special Concern California red-legged frog (*Rana aurora draytonii*) includes ponds, stream courses, permanent pools (Storer 1925) and intermittent streams fed by drainage areas not larger than 300 km^2 (Hayes and Jennings 1988) between sea level and 1,500 meters (5,000 feet) in elevation (Bulger *et al.* 2003). Habitat characteristics include water depth of at least 0.7 meters (2.5 feet), largely intact emergent or shoreline vegetation, *e.g.* cattails (*Typha* spp.), tules (*Scirpus* spp.) or willows, and absence of competitors/predators such as bullfrogs and largemouth bass (*Micropterus salmoides*) (Hayes and Jennings 1988). However, according to Jennings (personal communication 2003), California red-legged frog will use a wide variety of habitats, including temporary pools and streams, permanent watercourses, wells, and ponds. Outside of an ideal habitat, California red-legged frog have been found in concrete-lined pools, isolated wells, stock ponds absent of shoreline vegetation, and in refuse piles near ponds. In order to survive, permanent ponds must be nearby, and neighboring aquatic habitat that lasts for at least six months a year. Less optimal habitat is most likely used during wet periods, but a permanent water source is essential to the survival of the population.

Adults are highly aquatic and are most active at night (Storer 1925). However, California red-legged frogs do make use of terrestrial habitat, especially after precipitation events, for non-migratory forays into upland habitats and migratory overland movements between aquatic sites. California red-legged frogs typically remain within 16 feet of aquatic habitat during dry periods, but will move into upland habitat as far as 426 feet during summer rains (Bulger *et al.* 2003). In a study conducted by Bulger *et al.* (2003) at a coastal site in northern Santa Cruz County, 90 percent of non-migratory California red-legged frog remained within 196 feet of aquatic habitat following the onset of winter rains.

Bulger *et al*. (2003) demonstrated that California red-legged frog migrations to breeding ponds were often precipitated by rain events in excess of approximately one inch. Migratory routes were often highly oriented toward the nearest pond and were typically traversed in direct, point to point movements without preference or avoidance toward topography or habitat. Migratory activity was conducted over a few to several days,

followed by several sedentary days. California red-legged frogs were documented to migrate between aquatic sites at distances up to approximately two miles.

Breeding typically begins between November and mid-December and lasts through April in most years, but is dictated by winter rainfall (Stebbins 2003, Jennings and Hayes 1994, Bulger *et al*. 2003). As spawning occurs, California red-legged frogs cease using terrestrial uplands farther than 20 feet from the water (Bulger *et al.* 2003). At the breeding sites, males call in groups of three to seven individuals to attract females (Jennings and Hayes 1994). During amplexus, females deposit an egg mass on emergent vegetation (Storer 1925, Jennings and Hayes 1994). Larvae hatch in six to 14 days and metamorphosis is completed in four to five months (Jennings and Hayes 1994). Males and females attain sexual maturity at two and three years, respectively (Jennings and Hayes 1994). In some cases, tadpoles overwinter and metamorphose the following spring (Storer 1925).

The California red-legged frog is known to occur within a ten mile radius of the project site as recently as May 1999, however, based on the most recent data available (CDFG 2004a, Swaim Biological Consulting 2002, Sycamore 2003c), their presence has not been documented within a five-mile radius of the project site. In addition, the site is located outside federally proposed designated Critical Habitat and the site does not offer suitable breeding habitat.

A California red-legged frog site assessment was conducted for the adjacent Cypress Grove project (Sycamore 2003c) which identified marginally suitable dispersal and aestivation habitat within 300-feet of Marsh Creek and the Contra Costa Canal. Marginally suitable dispersal habitat was also identified within Emerson Slough, which was measured to have a salinity level of 2.0 parts per trillion (ppt) during low tide (Sycamore 2003c), within the range of tolerance for California red-legged frog. However, decreases in freshwater outflow and increases in saltwater intrusion during the summer likely cause salinity levels in Emerson Slough to approach or exceed California red-legged frog tolerances for certain life history stages during that time.

Breeding would likely not occur within Marsh Creek and the Contra Costa Canal, due to the high water flows during the California red-legged frog breeding season (Swaim Biological Consulting 2002). Additionally, connectivity to known populations, while possible via Marsh Creek, is unlikely due to the degraded nature of the creek, which has been channelized within the City of Brentwood and northward, including the reach near the site.

The U.S. Fish and Wildlife Service personnel agreed during discussions with Sycamore Associates, and during site visits on the adjacent Cypress Grove property, that California red-legged frogs were very unlikely to occur (Sycamore 2003c). Furthermore, as part of the formal Section 7 Endangered Species Act consultation for the adjacent Cypress Grove project, which resulted in issuance of a Biological Opinion dated July 2, 2004, the U.S. Fish and Wildlife Service determined that the proposed Cypress Grove project was not likely to adversely affect the California red-legged frog due to a lack of suitable habitat

and distance to known sightings. The *Special Status Species Assessment for the Gilbert Property* (Zentner and Zentner 2007) concluded that although potentially suitable habitat on Dutch Slough and in drainage ditches is located on those properties, California red-legged frog were not likely to occur on-site. The determination that the red-legged frog is not expected on the site was based on the lack of occurrences and connectivity to other sightings for this species (nearest sighting being over six miles at Sand Creek) coupled with the both the Site Assessment and the USFWS findings for Cypress Grove.

Due to the lack of reported occurrences in the vicinity, lack of connectivity to known populations in the region, and the presence of breeding bullfrogs within Marsh Creek and the adjacent Contra Costa Canal (Swaim Biological Consulting 2004), and U.S. the Fish and Wildlife concurrence with these assertions, California red-legged frog is not expected to occur on the project site.

California tiger salamander

The California tiger salamander (*Ambystoma californiense*), federally-listed Threatened and a California Species of Special Concern, is a relatively large, terrestrial salamander that inhabits grasslands and oak savanna habitats in the valleys and low hills of central and northern California (Storer 1925, Stebbins 2003, Barry and Shaffer 1994). California tiger salamanders have been recorded from all of the nine Bay Area Counties at elevations ranging from approximately 10 to 3,500 feet above mean sea level (Shaffer and Fisher 1991). California tiger salamanders appear to be in the initial stages of habitat fragmentation and decline (Fisher and Shaffer 1996). California tiger salamanders require vernal pools, ponds (natural or man-made), or semi-permanent calm waters (where ponded water is present for a minimum of three to four months) for breeding and larval maturation, and adjacent upland areas that contain small mammal burrows or other suitable refugia for aestivation.

Adult California tiger salamanders spend most of their lives underground in small mammal burrows typically those of Beechey (California) ground squirrels (Loredo *et al*. 1996). Adults emerge from underground retreats to feed, court, and breed during warm winter rains typically from November through March. Adults may migrate long distances, up to a kilometer or more, to reach pools for breeding and egg laying (Jennings and Hayes 1994). The eggs are attached singly or in small groups of two to four to vegetation under water or directly on the bottom of the pool if emergent vegetation is sparse or nonexistent (Storer 1925, Jennings and Hayes 1994). After hatching in about 10-14 days the larvae continue to develop in the pools for several months until they metamorphose, which takes a minimum of 10 weeks (Anderson 1968, Feaver 1971).

Following metamorphosis, juvenile salamanders seek refugia, typically mammal burrows, traveling distances of one mile or more from their breeding sites (Austin and Shaffer 1992) in which they may remain until they emerge during a subsequent breeding season. Trenham *et al.* (2000) found that most individuals did not reach sexual maturity for four to five years. After completion of breeding, adult California tiger salamanders retreat to underground burrows. During some years in which the conditions are sub-

optimal, adult females have been known to forego reproduction completely (Loredo *et al*. 1996, Trenham *et al*. 2000). California tiger salamander populations and breeding are vitally influenced by environmental conditions including seasonal rainfall and pond duration (Loredo *et al*. 1996). California tiger salamanders are dependent on the integrity of both breeding ponds and adjacent upland habitat, especially long-lasting seasonal pool and pond complexes (Jennings and Hayes 1994). The alteration of either habitat component through the introduction of exotic predators or the construction of barriers, such as roads, berms and certain types of fences that fragment habitat and reduce connectivity can be detrimental to the survival of California tiger salamander (Jennings and Hayes 1994).

Based on the most recent data available (CDFG 2004a, Swaim Biological Consulting 2002), California tiger salamander is not likely to occur on-site. California tiger salamander may have historically occurred in the vicinity of the project site but populations currently known to occur within the region are located approximately six and eight miles away, in the Sand Creek and Cowell Ranch State Park areas to the southwest and south respectively (CDFG 2004a). These known populations are separated from the project area by extensive urbanization and habitat modification. Suitable breeding habitat does not occur on the project site or in the immediate vicinity of the project site, including the seasonal wetlands located on the Gilbert property, because they do not pond water for a sufficient duration to support breeding (Zentner and Zentner 2005b,c). Accordingly, California tiger salamander is not expected to occur on the project site due to the site's highly disturbed nature, including recent disking, lack of breeding habitat, and geographic isolation from known populations.

Reptiles

Reptilian species that are prominent in today's regulatory environment are addressed below in further detail.

Giant garter snake

The giant garter snake (*Thamnophis gigas*), federally-listed Threatened and state-listed Threatened, historically occurred throughout the Central Valley of California, from Kern County in the south to Butte County in the north, within the boundaries of the Coastal and Sierra Nevada ranges (Hansen and Brode 1980). The current range of the giant garter snake is confined to the Sacramento Valley and isolated parts of the San Joaquin Valley (Stebbins 2003, USFWS 1999), with scattered sightings in the Sacramento-San Joaquin Delta. Currently the highest densities of giant garter snake are found in the Sacramento Valley within the American Basin, where the species persists largely in seasonally flooded agricultural fields, primarily rice, and irrigation ditches (CDFG 2000). Loss of habitat has occurred throughout the range as a result of urban expansion (USFWS 1993, Dickert 2003), agricultural practices such as intensive vegetation control along canal banks that potentially fragment available habitat and changes in crop composition, and livestock grazing at waters edge, which can degrade the habitat available to giant garter snakes.

The giant garter snake is highly aquatic and primarily feeds on fish, tadpoles, and frogs (Fitch 1941). Historically these prey items included thick-tailed chub (*Gila crassicuada*) and the Sacramento blackfish (*Orthodox microlepidus*), both of which have been extirpated from the giant garter snakes current range (Dickert 2003). The habitat requirements of the giant garter snake include wetland areas such as sloughs, streams and other waterways, ponds or small lakes, marshes, and agricultural wetlands, with sufficient emergent vegetation for cover, openings in vegetation for basking, relatively low water flow, and access to high ground with abandoned rodent burrows for shelter and winter periods of reduced activity (USFWS 1993). The giant garter snake has been found to use altered habitats such as irrigation ditches and rice fields (CDFG 2000) in addition to more natural waterways. Furthermore, giant garter snakes tend to be absent from larger rivers that support populations of invasive or introduced predatory fish as well as wetlands that have sand, gravel or rocky substrates (Hansen 1980). Giant garter snakes are less active (Wylie *et al.* 1997), or dormant from October until April when they emerge to breed and forage. They are viviparous, giving birth to as many as 10 to 46 young from late July through early September (Hansen and Hansen 1990). The giant garter snake is the largest member of its genus, reaching lengths of 120 cm (Stebbins 2003), and become sexually mature in three (males) to five (females) years (USFWS 1993). Giant garter snakes are vulnerable to predation from both native (raccoons, skunks, opossums, foxes, hawks, egrets and herons) and invasive (bullfrogs, catfish, large mouth bass, and feral cats) species (USFWS 1993, Carpenter *et al.* 2002). Additionally they face threats from parasites and contaminants. Giant garter snakes are found sympatrically with the western terrestrial garter snake (*Thamnophis elegans*) and the common garter snake (*Thamnophis sirtalis*).

Giant garter snakes have been observed approximately four miles northwest and six miles north of the project site, within the waterways of the Delta (CDFG 2004a, Swaim Biological Consulting 2002) in 2002 and 1998 respectively. These recent occurrences in the region suggest that individual giant garter snakes may use the site environs, if only occasionally, and the site's proximity to Marsh Creek and the Contra Costa Canal, as well as the presence of suitable escape and refugia habitat on-site in the form Beechey (California) ground squirrel burrows, indicate that the site could potentially be used by giant garter snakes. The perennial irrigation ditches within the properties and the adjacent Contra Costa Canal were determined to provide marginally suitable habitat given that giant garter snakes have been known to use similar ditches as movement corridors when they are inundated with water.

However, field surveys, including trapping, were conducted by Karen Swaim for the property. Giant garter snakes have not been found on-site or in proximity to the site. Swaim completed trapping and field surveys during 2003 for the Emerson property and the adjacent Cypress Grove project, and included the stretch of the Contra Costa Canal that runs adjacent to the Emerson property (Swaim Biological Consulting 2004a). These protocol surveys did not find evidence of giant garter snake presence within the Contra Costa Canal or on the adjacent Cypress Grove site. Based upon the findings of giant garter snake surveys, the presence of predatory game fish within the Contra Costa Canal, which have been known to prey upon giant garter snakes as well as compete with them

for food, and the disturbed nature of the site, giant garter snakes are not expected to be present. Furthermore, as part of the formal Section 7 Endangered Species Act consultation for the adjacent Cypress Grove project, which resulted in issuance of a Biological Opinion dated July 2, 2004, the U.S. Fish and Wildlife Service determined that the proposed Cypress Grove project was not likely to adversely affect the giant garter snake due to negative findings from protocol trapping surveys.

Surveys for giant garter snake were then conducted on the neighboring Gilbert and Burroughs properties during the summer of 2005 by Karen Swaim. The results of that survey were negative (Pers. comm. John Zentner November 4, 2005). Surveys for giant garter snake were conducted on the E. Cypress Specific Plan area, located just east of the project site. Findings in the East Cypress Specific Plan area were also negative (Swaim Biological Consulting 2006a,b,c,d.) Accordingly, giant garter snakes are not expected to occur on the project site, but could move through the area.

Western pond turtle

The western pond turtle, a Federal Species of Concern and a California Species of Special Concern, frequents slow-moving rivers and streams (e.g., in oxbows), lakes, reservoirs, permanent and ephemeral wetlands, and stock ponds. Western pond turtles regularly utilize upland terrestrial habitat for nesting (females), mate seeking (males), overwintering, a seasonal terrestrial habitat use, and overland dispersal (Reese 1996, Holland 1994). Female western pond turtles have been reported ranging as far as 1,640 feet from a watercourse to find suitable nesting habitat (Reese and Welsh 1997). Nest sites are most often situated on south or west-facing slopes, are sparsely vegetated with short grasses or forbs, have no overstory, and are scraped in hard-packed, dry silt or clay soils (Holland 1994, Rathbun *et al.* 1992, Reese and Welsh 1997), typically on low slopes of less than 25 degrees, but ranging from slopes of 0 to 60 degrees (Holte 1994). Western pond turtles exhibit high site fidelity, returning in sequential years to the same terrestrial site to nest or overwinter (Reese 1996). Most hatchlings appear to overwinter in the nest (Holland 1992, Jennings and Hayes 1994), and placing nests away from watercourses makes young less susceptible to death by flood events that commonly occur during the winter weather year (Rathbun *et al.* 1992). Additional explanations for placing nests away from watercourses include avoidance of predators such as raccoon and sex determination, which may be affected by temperature (Rathbun *et al.* 1992).

This medium-sized turtle ranges in size to just over eight inches with a low carapace that is generally olive, brownish or blackish (Stebbins 2003, Jennings and Hayes 1994). Western pond turtles may live for 40 years or more (Jennings and Hayes 1994), and are therefore sometimes found in degraded areas. Adults appear to be able to persist for several years in poor aquatic habitat without any successful recruitment. This failure in recruitment is presumably due to introduced predators or unsuitable conditions for egg deposition.

Suitable aquatic habitat for the western pond turtle exists near the project site within Marsh Creek and the Contra Costa Canal, which runs along the northern boundary of the

project site. Herpetologist Karen Swaim observed a western pond turtle on the northwest portion of the adjacent Emerson property within the Contra Costa Canal during a site visit to the adjacent Cypress Grove residential development site (Swaim Biological Consulting 2002). Additionally, much of the project site along the Contra Costa Canal contains potential nesting and overwintering habitat for hatchlings, despite the disturbed nature of the area due to current disking. Suitable Western pond turtle habitat also exists in Dutch Slough. A review of recent occurrences (CDFG 2004a, Swaim Biological Consulting 2002) identified four occurrences of western pond turtles within a five-mile radius of the project area and several others within the extended vicinity. Dutch Slough and the other aquatic habitats of the neighboring Gilbert property were specifically surveyed for the presence of western pond turtle and turtle nests with negative results (Zentner and Zentner 2005d, 2005e); however, evidence of a western pond turtle nest was observed in 2004 on the interior sand dune adjacent to the Emerson property, which borders the levy along the Contra Costa Canal. This interior sand dune is contiguous with the sand mound habitat on the Emerson property, and as such western pond turtles could use the sand mound habitat on the project site for nesting as well.

Silvery legless lizard

The silvery legless lizard, a federal Species of Concern and a California Species of Special Concern, is a limbless lizard approximately four to seven inches long with a seemingly polished skin typically silvery gray or beige in color and a yellow belly. This species is differentiated from snakes by its smaller size and the presence of eyelids and ears. The silvery legless lizard ranges from San Francisco to Baja, Mexico along coastal mountains and foothills. The Central Coast dunes, interior dunes and coastal scrub provide favorable habitat, which is typically characterized by shrubby vegetation and loose soils. This species is also associated with streamside growths of sycamores, cottonwoods, and oaks with plenty of ground litter. This species uses burrows in loose soil near the base of slopes and near temporary or permanent streams. A diurnal species (active during the day), the silvery legless lizard forages leaf litter under the overhang of trees and bushes on sunny slopes and under rocks and logs. Bush lupine (*Lupinus arboreus*) and mock heather (*Ericameria ericoides*) often grow in areas that are suitable for this lizard. A highly fragmented distribution and widespread threats, mainly habitat conversion, have made them vulnerable to localized extirpations.

A population of silvery legless lizards is known to occur approximately 1.5 miles west of the project site within the East Bay Regional Park Legless Lizard Preserve as recently as May 2000 (CDFG 2004a, Swaim Biological Consulting 2002). Silvery legless lizard was positively identified in a remnant dune area located on the far south portion of the Cypress Grove subdivision in January and June 2004 during pre-construction surveys (Sycamore 2004a). Silvery legless lizard was also found just off the Cypress Grove site on a remnant dune located along the Burlington Northern Santa Fe (BSNF) Railroad tracks.

Sycamore Associates determined that the silvery legless lizard has a moderate potential for occurring on-site.

California horned lizard

The California horned lizard (*Phrynosoma coronatum frontale*), a California Species of Special Concern, occupies a variety of open habitats including coastal scrub, oak savanna and grasslands. Historically, the species ranged throughout the Central Valley and Coast Range from Sonoma County south to Santa Barbara, Kern and Los Angeles counties where the species likely intergrades with the San Diego horned lizard (*Phrynosoma coronatum blainvillei*). Despite a wide-ranging distribution, the species appears to be restricted to localized populations because of its close association with loose soils that have a high sand content (Jennings and Hayes 1994); however, local abundance and geographic distribution are poorly understood for this region. Horned lizards require open areas to forage and feed primarily on native harvester ants (*Pogonomyrmex barbatus*) species. The spread of introduced Argentine ants (*Linepithema humile*), which are toxic to horned lizards and eliminate native ants, has probably contributed significantly to localized extirpations in urban and semi-rural areas (Jennings personal communication 2000). The species cannot exist in areas that have been converted to agriculture, so the species' current distribution throughout the Central Valley is highly restricted.

California horned lizards are not expected to occur on the project site. Suitable habitat does exist within the nearby remnant dune/sand mound areas, but a review of recent data (CDFG 2004a, Swaim Biological Consulting 2002), did not reveal recent or historic occurrences within the region. Additionally, the presence of the non-native Argentine ant, which tends to preclude the horned lizard, was noted on the neighboring Gilbert property during surveys conducted by Zentner and Zentner. Finally, according to Jennings and Hayes (1994) this species is extirpated from the Oakley area.

Birds

Avian species that are prominent in today's regulatory environment are addressed below in further detail.

Raptors

Special-status raptor species that have potential to occur on-site and those that are prominent in today's regulatory environment are addressed in further detail below.

Raptors potentially nesting within the project area include white-tailed kite, red-tailed hawk, red-shouldered hawk, Swainson's hawk, American kestrel, great horned owl, short-eared owl, and burrowing owl. Most raptors such as red-tailed hawk, great horned owl, Swainson's hawk, and red-shouldered hawk nest in mature, large trees and use twigs or branches as nesting material. Smaller raptors such as American kestrel may nest in cavities in anthropogenic structures and trees. Short-eared owls and northern harriers nest on the ground with moderate ground cover. Burrowing owls typically nest in small mammal burrows in open dry lands, but have been known to utilize any ground cavity of similar size as well as anthropogenic structures. The nesting period for raptors generally occurs between December 15 and August 31.

Suitable nesting and foraging habitat exists on the project site for many raptor species, especially those that can withstand high levels of disturbance such as red-tailed hawks, American kestrels, and burrowing owls. Agricultural lands can provide a rich source of food for a wide range of species such as rodents, which in turn can be utilized as a prey base by raptors. Several mature trees occur along the south side of Cypress Road and Sellers Avenue, and around the home sites, and provide highly suitable nesting and foraging habitat for raptors. In addition, several species of raptors have been observed foraging on-site.

Western burrowing owl

In California, the western burrowing owl, a California Species of Special Concern and a federal Species of Concern, occurs in the Central Valley, inner and outer Coastal region, the San Francisco Bay Area, southern California Coast, from southern California to the Mexican Border, the Imperial Valley and in portions of the desert and high desert habitats in southeastern and northeastern California. Burrowing owl inhabits available burrows in flat, open areas characterized by dry vegetation that is typical of heavily grazed grasslands, low stature grasslands, or desert vegetation (Johnsgard 1988). Burrowing owl occurs in deserts, plains and open grasslands, and in some cases, urban and agricultural landscapes. Burrowing owl requires underground burrows or artificial, man-made structures for shelter and nesting, and is often associated with fossorial animals such as prairie dogs, ground squirrels, badgers and some canids. In the Bay Area, burrowing owl typically utilizes burrows of Beechey (California) ground squirrel for denning. Burrows are used year-round and are an essential component to the life history of burrowing owl.

Burrowing owl is predominantly active during the early morning and late evening hours, with some limited activity throughout the day. In general, burrowing owl primarily consumes insects, amphibians, reptiles, and small mammals (Zarn 1974, Collins 1979). The breeding season for burrowing owl begins in the late winter and extends through late summer. Courtship is evident when males decorate burrow entrances with dung, feathers, shiny objects, and/or desiccated skins of various animals. In California, egg-laying may begin as early as March in some areas (Zarn 1974) but typically begins in late April and early May (Thomsen 1971). Once eggs are laid, the female does the majority of incubating (although there are conflicting reports; see Coulombe 1971), which lasts approximately three to four weeks.

A single burrowing owl was observed on the neighboring Gilbert property during the biotic survey conducted in November 2004. The owl was likely an over-wintering owl or an owl using the site for foraging. Protocol-level breeding season surveys resulted in negative findings for burrowing owl or sign of burrowing owl, although ground squirrel burrows were present on the Gilbert property within the remnant sand dune area. Because of the presence of burrows and the sighting of an individual owl in November 2004, burrowing owl is considered to have a moderate potential to occur on the Emerson property.

Swainson's hawk

The Swainson's hawk, State-listed Threatened, occurs in open habitats throughout much of the western United States, Canada, and northern Mexico. Swainson's hawk breeds in North America and winters in the open grassland areas of southern South America (pampas), as well as parts of Mexico. In the Central Valley, Swainson's hawk arrives at nesting areas in late February and early March, four to six weeks earlier than the hawk arrives at nesting sites in northeastern California. The species begins to depart for wintering areas in early September. In California, Swainson's hawk breeds in desert, shrub steppe, agricultural, and grassland habitats. Swainson's hawk constructs nests in a variety of tree species in existing riparian forests, remnant riparian trees, shade trees at residences and alongside roads, planted windbreaks, and solitary upland oaks; however, the Swainson's hawk typically does not nest in large continuous patches of woodland other than along edges next to open habitats (England *et al.* 1997). The diet of Swainson's hawk varies considerably during breeding and non-breeding seasons. The species depends largely on small mammals during the breeding season and shift to feeding on insects during the non-breeding season, particularly crickets and grasshoppers. During the breeding season, Swainson's hawk travels long distances (up to 18 miles) in search of suitable foraging habitat that provides abundant prey (Estep 1989). The vegetation types/agricultural crops considered suitable foraging habitat for Swainson's hawk due to the availability of small mammals and insects include alfalfa, fallow fields, beet, tomato, and other low-growing row or field crops, dry land and irrigated pasture, rice land (when not flooded), and cereal grain crops (including corn after harvest) (CDFG 1994).

A Swainson's hawk nest was positively identified on Cypress Road approximately 55 yards west of Dutch Slough in the summer of 2005. This tree was removed, in consultation with the CDFG, for the construction of a pipeline constructed as part of the Summer Lakes residential development east of the project site (Monk & Associates, 2005). Additionally, a pair of Swainson's hawks successfully nested less than 3,000 feet south of the project area in 2004 (CDFG 2005a). Suitable nesting habitat for Swainson's hawk is present within the large trees within the project site. The Emerson site is often cultivated in hay, which is a suitable foraging habitat type for Swainson's hawk. Swainson's hawks have been observed during field surveys conducted on the project site. Swainson's hawks are highly likely to nest on-site.

White-tailed kite

White-tailed kite, a California Fully Protected species, is a medium-sized raptor that is distributed across much of the western part of California. The species underwent a dramatic reduction in numbers during the last century due to habitat loss and hunting. Between the 1940s and early 1980s, the population recovered and its range expanded. More recently, population declines have again been noted, possibly as a result of the conversion of agricultural lands to urban uses (Allsop 2001). The white-tailed kite occupies low-elevation grassland, agricultural, wetland, oak woodland and savanna habitats and nests in a wide variety of trees and shrubs, either isolated or in larger stands.

Nearby open areas are required for foraging, including certain types of agricultural fields. Food habit studies have demonstrated that voles make up a large proportion of the White-tailed kite's diet, although other small mammals, birds and insects are also preyed upon (Allsop 2001). The species hunts during the day primarily by hovering and searching for prey. White-tailed kite in California is generally resident, although the White-tailed kite may occupy different areas during the non-breeding and breeding seasons. Typically, four eggs are laid in February and March and chicks hatch after 30 to 32 days. Juvenile kites are dependent on parents for two to three months before they fledge. During the non-breeding season, the species roosts communally.

Suitable breeding and foraging habitat exists on-site. White-tailed kites have been observed roosting and foraging on the Emerson property and a pair successfully bred on the neighboring Cypress Grove property during the spring of 2004. Therefore, white-tailed kite has a high potential to nest on-site.

Short-eared owl

Short-eared owl, a California Species of Special Concern, is a large owl that inhabits coastal areas of California. The species is a winter resident of the Central Valley of California and occupies open habitats including annual and perennial grasslands, meadows, irrigated lands, and saline and freshwater emergent marshes. Short-eared owl feeds primarily on voles and other small mammals, as well as small birds, amphibians and arthropods. Nests are built on the ground in a shallow depression among dense vegetation. Eggs are laid in April and May. The male feeds the female while she incubates eggs. The young fledge at 31 to 36 days (Sibley 2000). Hay fields such as those found on-site provide suitable foraging and nesting habitat for short-eared owls. Raptor species such as northern harrier and short-eared owl are well suited to foraging in tall grasses and often nest in agricultural fields cultivated in grain crops. However, observations have not been recorded in the vicinity; therefore, short-eared owls have a low potential to occur on-site.

Northern harrier

Northern harrier, a California Species of Special Concern, inhabits grasslands, agricultural fields, scrub habitats, and marshes. Breeding typically occurs in tall vegetation near marshes and in grasslands and agricultural fields from March to July. Northern harrier feeds primarily on voles and other small mammals, birds, frogs, and insects (Sibley 2000). Hay fields such as those found on-site provide suitable foraging and nesting habitat for northern harriers. Raptor species such as northern harrier and short-eared owl are well suited to foraging in tall grasses and often nest in agricultural fields cultivated in grain crops. Northern harrier has been observed in the immediate vicinity of the site; therefore, the northern harrier has a moderate potential to occur on-site.

Passerines and non-passerine land birds

Passerines (perching birds) are a taxonomic grouping that consists of several families including swallows (*Hirundinidae*), larks (*Alaudidae*), crows, ravens and jays (*Corvidae*), shrikes (*Laniidae*), vireos (*Vireonidae*), finches (*Fringillidae*) and Emberizids (*Emberizidae*, warblers, sparrows, blackbirds, *etc*.), among others. Non-passerine land birds are a non-taxonomic based grouping typically used by ornithologists to categorize a loose assemblage of birds. Families grouped into this category include kingfishers (*Alcedinidae*), woodpeckers (*Picidae*), swifts (*Apodidae*), hummingbirds (*Trochilidae*) and pigeons and doves (*Columbidae*), among others. Habitat, nesting and foraging requirements for these species are wide ranging; therefore, outlining generic habitat requirements for this grouping is difficult. These species typically use most habitat types and are known to nest on the ground, in shrubs and trees, on buildings, under bridges, and within cavities, crevices and manmade structures. Many of these species migrate long distances and all species except starlings, English house sparrows, and rock doves (pigeons), are protected under the federal Migratory Bird Treaty Act. The nesting period for passerines and non-passerine land birds occurs between February 1 and August 31.

The cultivated and disturbed habitat and sand mound communities provide suitable nesting habitat for many ground-nesting passerine and non-passerine land bird species. Additionally, trees around home sites provide suitable nesting habitat for many other passerine and non-passerine land bird species.

Special-status passerine species have the potential to occur on-site, including California horned lark, and loggerhead shrike. California horned lark and loggerhead shrike are discussed in more detail below.

California horned lark

The California horned lark, a California Species of Special Concern, breeds in open grasslands throughout the Central Valley and adjacent foothills and along the central and southern California coast region. Feeding on insects and seeds, this bird is a ground nesting species that prefers shorter, less dense grasses and areas with some bare ground. The California horned lark forms flocks in the summer and winter months that are often observed foraging and roosting in cultivated fields and along dirt roads.

Due to the presence of marginally suitable nesting and foraging habitat on-site, California horned lark is considered to have a low potential for occurrence.

Loggerhead shrike

The loggerhead shrike, a California Species of Special Concern, is a wide-ranging species that occupies open habitats including grassland, scrub and open woodland communities. The species typically nests in densely vegetated, isolated trees and shrubs and occasionally man-made structures, and at the margins of open grasslands. Loggerhead shrike feeds on a variety of small prey including arthropods, mammals, amphibians,

reptiles and birds (Alsop 2002). Because the bird lacks talons, the loggerhead shrike often impales prey on thorns or barbed wire. In California, the species does not migrate and is resident year-round. Loggerhead shrike is highly territorial, with pairs maintaining territories during the breeding season and individuals maintaining territories during the winter (Alsop 2002). Declines in numbers have been noted across a broad geographical range in the United States.

Suitable foraging habitat is present on-site, and loggerhead shrikes have been observed foraging on the project site. Potential nesting habitat is also present on the project site.

Mammals

Mammalian species that are prominent in today's regulatory environment are addressed below in further detail.

Special-status bat species

California has 24 known species of bats (CDFG 2000a). Of those, 11 are classified as California Species of Special Concern (CDFG 2000a). Two special-status bat species have at least some potential to occur within the project area, including pallid bat, a California Species of Special Concern, and Townsend's big-eared bat (*Corynorhinus towsendii townsendii*), a California Species of Special Concern. These species use caves, mature trees, snags, crevices and man-made structures (such as buildings) for roosting, either for winter roosting (hibernacula) or for forming nursery colonies. Bats are generally site faithful and will not abandon an established roosting area unless disturbed.

Several mature trees exist along the roadways and around the home site, which provide suitable bat roosting habitat. In addition, the residences located on the project site provide potentially suitable roosting habitat for bats. Even though suitable habitat exists, because individual bats or bat nests were not identified by site-surveys preformed on the proposed project site, the bat species are considered to have a low potential to occur on-site.

Wildlife Movement Corridors and Habitat Fragmentation

Wildlife movement includes migration (usually one direction per season), inter-population movement (long-term genetic exchange, dispersal) and small travel pathways (daily movement corridors within an animal's territory). While small travel pathways primarily function as movement corridors for daily home range activities such as foraging or escape from predators, they can also provide a connection between outlying populations and the main corridor, thereby facilitating dispersal and leading to an increase in gene flow between populations.

The connections between habitat types can extend for miles between primary habitat areas, and occur on a large scale throughout California. Habitat linkages facilitate movement between otherwise isolated populations and those within larger habitat areas. The mosaic of habitats found within a larger-scale landscape results in a meta-population structure, a large single population made up of multiple discrete sub-populations. Where patches of pristine habitat are

fragmented, such as occurs with coastal scrub, movement between these sub-populations is facilitated by habitat linkages in the form of migration or movement corridors.

Depending upon the condition of the corridor, dispersal and subsequent gene flow between populations may be either high or low in frequency. A high frequency of dispersal can allow for an increased genetic diversity within the population, whereas a lower frequency of dispersal may lead to decreased genetic diversity, and increased susceptibility to environmental pressures such as disease. If dispersal frequency is very low, sub-populations may become completely isolated from the rest of the meta-population, and eventually could be subject to local extinction (McCullough 1996, Whittaker 1998).

Habitat fragmentation, by definition, is an event that creates a greater number of habitat patches that are smaller in size than the original contiguous habitat. Fragmentation of primary habitat types can hinder regional wildlife movements. The resulting reduced interaction between individuals changes the long-term dynamics of populations distributed among fragments, reducing the ability of these isolated populations to persist in the face of adverse environmental pressures such as disease or stochastic events and increasing the probability of extinction (Kupfer et al. 1997, Zuidema et al. 1996). The effects of habitat fragmentation on the movement and dispersal of organisms, within a landscape, play an important role in determining the genetic composition and diversity of a population (Opdam 1990, Tiebout III & Anderson 1997). As such, the impacts of potential habitat fragmentation and the subsequent loss of valuable dispersal corridors must be considered when assessing the biological impacts of a project.
The project area is adjacent to agricultural fields with rural residential to the east and south, Contra Costa Canal to the north, and construction activities to the west. The Contra Costa Canal and Dutch Slough are potential movement corridors, which may facilitate the movement of animals to and from the project site and may provide safe refuge for species that may forage within the project area during various times of the year; however, the project site does not provide a key movement corridor for wildlife in the region given the present agricultural practices and surrounding land uses.

REGULATORY CONTEXT

Riparian areas, wetlands, waters of the U.S., and special-status species and communities are considered sensitive biological resources and fall under the jurisdiction of several regulatory agencies. Impacts to these areas often require federal, State, and/or local permits or agreements. The permits required vary depending upon the location of the project and the type and extent of impacts. However, prior to the issuance of any permit for actions that would result in impacts to wetlands, waters, or special-status species or communities, notification to all or some of the following agencies may be required:

- U.S. Army Corps of Engineers (USACE), Sacramento District;
- California Department of Fish and Game (CDFG);
- California Regional Water Quality Control Board (RWQCB);
- U.S. Fish and Wildlife Service (USFWS); and
- National Oceanic and Atmospheric Administration – Fisheries (NOAA Fisheries).

An overview of the jurisdiction, application requirements and required permits for each of the above-listed agencies is provided in the following sections.

Federal

United States Army Corps of Engineers, Sacramento District

Section 404 of the Clean Water Act (CWA) of 1972 regulates activities that result in the discharge of dredged or fill material into waters of the United States, including wetlands. The primary intent of the CWA is to authorize the United States Environmental Protection Agency (EPA) to regulate water quality through the restriction of pollution discharges, which includes sediments. The United States Army Corps of Engineers (USACE) has the principal authority to regulate discharges of dredged or fill material into waters of the United States. However, the EPA has oversight authority over the USACE and retains veto power over the USACE's decision to issue permits.

Waters of the United States include the following:

1) All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of tide;
2) All interstate waters including interstate wetlands;
3) All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
4) Tributaries of the above; and
5) Territorial seas.

Federally jurisdictional wetlands are defined as those areas that are inundated or saturated by surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, bogs, vernal pools, seeps, marshes and similar areas.

Because of the recent Supreme Court Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers decision, the USACE does not take jurisdiction over "isolated wetlands." The USACE does take jurisdiction over "adjacent wetlands," which are hydrologically connected wetlands that may in some cases appear "isolated." The Regional Water Quality Board (RWQCB) has authority over "waters of the State" under the Porter-Cologne Water Quality Control Act. Furthermore, in creek or river systems, RWQCB asserts jurisdiction similar to CDFG, from top of bank to top of bank. The RWQCB asserts authority over all wetlands, including isolated wetlands.

Any discharge of dredged or fill material into waters of the United States must be approved by the USACE pursuant to Section 404 of the CWA. Two permit types are possible:

1) Discretionary Individual Permits; or
2) Nationwide Permits (NWPs), which are already in place, non-discretionary, and generally less time-consuming than the Individual Permit. NWPs may be grouped together or "stacked" with certain limitations.

A standard Individual Permit for residential development such as this project is required if either of the following would occur:

1) Discharges that will result in the fill of any tidal waters or wetlands; or
2) Impacts to more than one-half acre of non-tidal waters or wetlands, and/or impacts to greater than 300 linear feet of non-tidal waters or wetlands, including creeks (either perennial or ephemeral and generally intermittent as well), arroyos or vegetated and unvegetated tributaries.

In contrast, residential projects that result in impacts of less than 0.5 acres and/or less than 300 linear feet may be authorized under one of the existing USACE NWPs if they meet all of the NWP General Conditions.

United States Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries

The Federal Endangered Species Act (FESA) prohibits "take" of federally-listed Threatened or Endangered wildlife species. The FESA defines "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or attempt to engage in any such conduct" 16 U.S.C. Section1532(19). The FESA requires that actions authorized, funded or carried out by federal agencies do not jeopardize the continued existence of a federally-listed species or adversely modify designated Critical Habitat for such species. If a federal agency determines that a proposed federal action (i.e., issuance of a Clean Water Act Section 404 permit for wetland fill) "may affect" a listed species and/or designated Critical Habitat, the agency must consult with the USFWS and/or NOAA Fisheries for protected marine and anadromous fish species in accordance with Section 7 of the FESA. If take of a federally-listed species may occur, the applicant may be required to obtain an Incidental Take Permit from the USFWS. The Incidental Take Permit allows "incidental" taking of federally-listed species if the take is "incidental to and not the purpose of, the carrying out of an otherwise lawful activity" 16 U.S.C. Section1539(a)(1)(B). An Incidental Take Permit is issued by USFWS only if the applicant, to the maximum extent possible, has minimized and mitigated for the impacts of the taking, provided adequate funding for the mitigation plan, and if the taking would not appreciably reduce the likelihood of the survival and recovery of the species in the wild 16 U.S.C. Section1539(a)(2)(B).

Migratory Bird Treaty Act

Raptors (birds of prey), migratory birds, and other avian species are protected by a number of state and federal laws. The federal Migratory Bird Treaty Act prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior. Section 3503.5 of the California Fish and Game Code specifies that actions taking,

possessing or destroying "any birds in the order Falconiformes or Strigiformes or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

State

California Endangered Species Act

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

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

California Department of Fish and Game

The CDFG exercises jurisdiction over wetland and riparian resources associated with rivers, streams, and lakes under CDFG Code Section 1600 to 1607. The CDFG has the authority to regulate work that will do any one or more of the following:

1) Divert, obstruct, or change the natural flow of a river, stream, or lake;
2) Change the bed, channel, or bank of a river, stream, or lake; or
3) Use material from a streambed.

CDFG asserts that its jurisdictional area along a river, stream or creek is usually bounded by the top-of-bank or the outermost edges of riparian vegetation. Typical activities regulated by CDFG under Section 1600-1607 authority include installing outfalls, stabilization of banks, creek restoration, implementing flood control projects, constructing river and stream crossings, diverting water, damming streams, gravel mining, logging operations and jack-and-boring.

Careful project design, including the minimization of impacts and reduction of hard structure surface area (i.e., minimal amounts of cement or rip-rap), is critical for CDFG approval. The CDFG emphasizes the use of biotechnical or bioengineered creek-related components (emphasis

on natural materials, sometimes in conjunction with hard materials) that minimize the need for hard structures in creeks.

CDFG Species of Special Concern

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

CDFG Birds of Prey Protection

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

Regional Water Quality Control Board

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

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

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

State, and prospective dischargers are required to submit a report of waste discharge to the RWQCB and comply with other requirements of Porter-Cologne.

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

Additional requirements of the RWQCB are discussed in the Hydrology, Water Quality, and Water Supply chapter of this EIR.

Waters of the State

Waters of the State, including wetlands, are considered sensitive biological resources and fall under the jurisdiction of the CDFG and the Regional Water Quality Control Board (RWQCB).

The CDFG exercises jurisdiction over wetland and riparian resources associated with rivers, streams, and lakes under California Fish and Game Code Section 1600 to 1616. The CDFG has the authority to regulate work that will substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed. California Department of Fish and Game's jurisdictional area along a river, stream or creek is usually bounded by the top-of-bank or the outermost edges of riparian vegetation. Typical activities regulated by CDFG under Section 1600-1616 authority include installing outfalls, stabilizing banks, implementing flood control projects, constructing river and stream crossings, diverting water, damming streams, gravel mining, and logging.

Natural Community Conservation Planning Act

The Natural Communities Conservation Planning Act (NCCP) program is an unprecedented effort by the State of California, as well as numerous private and public partners that takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity. The program, which began in 1991 under the California Natural Community Conservation Planning Act, is broader in its orientation and objectives than CESA and ESA; these laws are designed to identify and protect individual species that are already listed as threatened or endangered. The primary objective of the NCCP program is to conserve natural communities at the ecosystem scale while accommodating compatible land use (CDFG, 2003).

Local Regulations

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

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

The City of Oakley approved the East Contra Costa County Habitat Conservation Plan (HCP) and authorized execution of the Implementation Agreement and Joint Exercise of Powers Agreement on January 22, 2007 (Resolution No. 12-07). The U.S. Fish and Wildlife Service signed the federal permit for the HCP on July 25, 2007. The California Department of Fish and Game signed the state permit for the HCP on August 6, 2007. Therefore, East Contra Costa County has an officially approved HCP as of August 6, 2007. The City has approved an implementing ordinance and adopted the fee structure that is set forth in the HCP.

The Emerson property is within the HCP inventory area. The HCP development fee is based on the project location. The HCP includes three Fee Zones, defined by a map that determines the fee paid by development, regardless of the land cover type within them (See Figure 4.7-3). The Emerson property site is within the HCP Development Fee Zone I: Cultivated and Disturbed Lands. Land within this zone is generally dominated by cultivated agriculture but also includes undeveloped areas within the existing urban area of Pittsburg, Brentwood, and Oakley. The development fee in Zone I is approximately $12,000 per acre.

East Cypress HCP/NCCP Memorandum of Agreement

On June 1, 2006, the U.S. Fish and Wildlife Service, California Department of Fish and Game, and a group of developers entered a Memorandum of Agreement declaring their intent to participate in a HCP development fee plan. The developers agreed to pay HCP fees prior to or at the time of issuance of a grading permit, as applies to the development. However, the initial amount shall not exceed $9,165 per acre. The developers shall not be required to undertake any species-related measures that may affect the cost, timing, manner, scope or location of development, except those pre-construction and during-construction monitoring, avoidance, and minimization measures.

City of Oakley General Plan

The following applicable goals and policies are from the Oakley 2020 General Plan Land Use Element:

General Land Use

Goal 2.1 Guide development in a manner that creates a balanced and desirable community, maintains and enhances the character and best qualities of the community, and ensures that Oakley remains an economically viable City.

Policy 2.1.5 Preserve open space areas, of varying scales and uses, both within development projects and at the City's boundary.

Policy 2.1.6 Ensure a strong physical connection to the Delta and the waterfront, including convenient public access and recreational opportunities.

Policy 2.1.10 When considering large-scale development projects, the City may, at its discretion, authorize a Specific Plan (SP) or Planned Unit Development (PUD) approach that allows flexibility within a project area. Under this approach, the distribution of land uses may vary from the land uses as designated on the Land Use Diagram. The SP/PUD approach shall not allow either an overall greater development density than allowed under the Land Use Diagram, or a combination of uses that undermines the overall intent of the project area as established under the General Plan policies and Land Use Diagram.

Implementation Program 2.1.F Provide public access to the Delta and the Oakley waterfront through discretionary approvals of development projects, coordinated efforts with involved agencies and organizations, and the improvement of City public facilities.

The following applicable goals and policies are from the Oakley 2020 General Plan Open Space and Conservation Element:

Open Space

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

Policy 2.6.2 Preserve, enhance and/or restore selected existing natural habitat areas, as feasible.

Policy 2.6.3 Create new wildlife habitat areas in appropriate locations, which may serve multiple purposes of natural resource preservation and passive recreation, as feasible.

Biological Resources

Goal 6.3 Encourage preservation of important ecological and biological resources.

Policy 6.3.1 Encourage preservation of important ecological and biological resources as open space.

Policy 6.3.2 Develop open space uses in an ecologically sensitive manner.

Policy 6.3.3 Use land use planning to reduce the impact of urban development on important ecological and biological resources identified during application review and analysis.

Policy 6.3.4 Encourage preservation and enhancement of the natural characteristics of the San Joaquin Delta and Dutch Slough in a manner that encourages public access.

Policy 6.3.5 Encourage preservation and enhancement of Delta wetlands, significant trees, natural vegetation, and wildlife populations.

Policy 6.3.6 Encourage preservation of portions of important wildlife habitats that would be disturbed by major development, particularly adjacent to the Delta.

Policy 6.3.7 Preserve and expand stream corridors in Oakley, restoring natural vegetation where feasible.

Implementation Program 6.3.A Prior to development within identified sensitive habitat areas, the area shall be surveyed for special status plant and/or animal species. If any special status plant or animal species are found in areas proposed for development, the appropriate resource agencies shall be contacted and species-specific management strategies established to ensure the protection of the particular species. Development in sensitive habitat areas should be avoided or mitigated to the maximum extent possible.

Implementation Program 6.3.B Participate with regional, state, and federal agencies and organizations to establish and preserve open space that provides habitat for locally present wildlife.

Tree Protection and Preservation Ordinance

The City of Oakley Zoning Ordinance for Heritage Tree Preservation and Tree Preservation was adopted by the City Council in October 2005. The City of Oakley Heritage Tree Preservation Ordinance defines heritage trees as those that have a circumference of 50 inches or greater, or any tree or group of trees particularly worthy of protection. The Heritage Tree Preservation Ordinance prohibits the removal or destruction of any heritage tree unless a permit has been obtained. It should be noted that a permit is not required for the maintenance of heritage trees, including trimming and pruning.

Other Statutes, Codes, and Policies Affording Limited Species Protection

California Native Plant Society

The California Native Plant Society (CNPS) maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California (Tibor, 2001). Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review. The following identifies the definitions of the CNPS listings:

List 1A:	Plants believed extinct.
List 1B:	Plants rare, threatened, or endangered in California and elsewhere.
List 2:	Plants rare, threatened, or endangered in California, but more numerous elsewhere.
List 3:	Plants about which we need more information - a review list.
List 4:	Plants of limited distribution - a watch list.

Impacts and Mitigation Measures

Standards of Significance

For the purposes of this EIR, impacts are considered significant if implementation of the proposed project would do any one or more of the following:

- Adversely affect, either directly or through habitat modification, any endangered, threatened or rare species, as listed in Title 14 of the California Code of Regulations (Section 670.5) or in Title 50, Code of Regulations (Section 17.11 or 17.12) or their habitats (including but not limited to plants, fish, insects, animals, and birds);
- Have a substantial adverse impact, either directly or through habitat modification, on any species identified as a candidate, sensitive or special-status species in local or regional plans, policies, or regulations or by the CDFG or USFWS, including CNPS plants listed as 1B;
- Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulation or by the CDFG or USFWS;

- Adversely affect federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means;
- Have a substantial adverse effect on significant ecological resources including:
  - Wetland areas including vernal pools;
  - Large areas of non-fragmented natural communities that support endangered, threatened or rare species;
  - Wildlife movement zones, including but not limited to, non-fragmented stream environment zones, avian and mammalian routes, and known concentration areas of waterfowl within the Pacific Flyway;
- 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;
- Conflict with any local or regional policies or ordinances designed to protect or enhance biological resources, such as a tree preservation policy or ordinance;
- Substantially fragment, eliminate or otherwise disrupt foraging areas, access to food sources, range and/or movement;
- Disrupt critical time periods (i.e., nesting and breeding) for fish and other wildlife species;
- Conflict with local, state, or federal resource conservation plans, goals, or regulations that would result in a physical impact on the environment; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish or result in the loss of an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important, but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of a defined important resource on a population-wide or region-wide basis.

Method of Analysis

This section is based on the *Biological Resources Section* by Sycamore Associates. Sycamore Associates' biological analysis is based on a review of documents pertaining to the natural resources of the project area as listed above; examination of aerial photography, biological resources, and vegetation maps; and field investigations as described above. The evaluation of whether or not an impact on biological resources would be substantial considers both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, State, or federal resource conservation plans,

goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

The following information pertaining to biological resources was reviewed by Sycamore Associates in the preparation of this section:

- Atlas Tree Service, Inc. *Tree Survey: Subdivision: Cypress Road, Oakley, CA.* March 7, 2006.
- Entomological Consulting Services, Ltd. *Habitat Assessment for Special-Status Invertebrates for the Cypress Grove Project, Oakley, Contra Costa County, California*. September 19, 2002.
- Entomological Consulting Services, Ltd. *Habitat Assessment for Special-Status Insects and Invertebrates for the Cypress Grove Project, Oakley, Contra Costa County, California.* October 7, 2002.
- Entomological Consulting Services, Ltd. *Western Pacific 19A – Cypress Grove Property in Oakley (Contra Costa County), CA WA# 135 – Presence-Absence Surveys for Three Beetles.* June 27, 2004.
- H.T. Harvey & Associates. Site *Assessment for Special-Status Bats for the Cypress Grove Project, Oakley, Contra Costa County, California.* August 8, 2002
- Monk & Associates. *Shea Homes Summer Lakes Development - Water Pipeline Project – Tree Removal - Swainson's Hawk Avoidance Measures in Coordination with CDFG.* November 14, 2005.
- Raney Planning & Management Inc. *Cypress Grove Draft Environmental Impact Report*. May 2003.
- Raney Planning & Management Inc. *Dutch Slough Properties Draft Environmental Impact Report.* July 2006. *(Withdrawn)*
- Sycamore Associates LLC. *Preliminary Wetlands Delineation and Jurisdictional Determination of the Emerson and Burroughs Properties, Oakley, California. Addendum letter report.* June 28, 1998.
- Sycamore Associates LLC. *Biological Assessment of the Emerson and Burroughs Properties, Oakley, Contra Costa County, California.* 1999.
- Sycamore Associates LLC. *Wetland Delineation and Preliminary Jurisdictional Determination for the Cypress Grove Project, Oakley, California.* August 23, 2001.

- Sycamore Associates LLC. *Protocol-level Habitat Assessment and Focused Breeding Season Burrowing Owl Surveys for the Cypress Grove Project, Oakley, Contra Costa County, California.* August 12, 2002.

- Sycamore Associates LLC. *Botanical Assessment for the Cypress Grove Project, Oakley, Contra Costa County, California.* September 20, 2002.

- Sycamore Associates LLC. *Revised Biological Assessment for the Cypress Grove Property, Oakley, California*. January 30, 2003.

- Sycamore Associates LLC. *Focused Winter Burrowing Owl and Pre-construction Bird Surveys for the Cypress Grove Project, Oakley, Contra Costa County, California.* February 6, 2003.

- Sycamore Associates LLC. *Cypress Grove Project – Swainson's Hawk Foraging Habitat Analysis for the Cypress Grove Project, Oakley, Contra Costa County, California.* June 2003.

- Sycamore Associates LLC. Site *Assessment for the California Red-legged Frog for the Cypress Grove Project, Oakley, California*. March 20, 2003.

- Sycamore Associates LLC. *Supplemental Botanical Assessment for the Cypress Grove Residential Development, Oakley, Contra Costa County, California.* July 25, 2003.

- Sycamore, Hanson Environmental, and Balance Hydrologics. *Essential Fish Habitat Assessment for the Cypress Grove Project, Oakley, Contra Costa County, California.* August 10, 2004.

- Sycamore Associates LLC. *Letter to David Ivester Re: Summary of Silvery Legless Lizard Sightings on the Cypress Grove Residential Development, City of Oakley, Contra Costa County.* May 4, 2004.

- Sycamore Associates LLC. *Silvery Legless Lizard Survey Results and Mitigation Plan for the Cypress Grove Residential Project, City of Oakley, Contra Costa County, California.* July 13, 2004.

- Sycamore Associates LLC. *Focused Special-Status Reptile Surveys for the Cypress Grove Project, Oakley, Contra Costa County, California.* August 23, 2004.

- Sycamore Associates LLC. *Biological Assessment for the 150-acre Emerson Property South of the Contra Costa Canal, Oakley, Contra Costa County, California.* January 14, 2005.

- Sycamore Associates, LLC. *Tree Survey Report for the 150-acre Emerson Property and Off-Site Areas Along Cypress Road and Sellers Avenue, Oakley, Contra Costa County, California.* March 24, 2005.

- Sycamore Associates, LLC. *Burrowing Owl winter Season Habitat Assessment and Focused Surveys 150-acre Emerson Property South of the Contra Costa Canal, Oakley, Contra Costa County, California*. June 6, 2005.

- Sycamore Associates, LLC. *Botanical Assessment for the 150-Acre Emerson Property South of the Contra Costa Canal, Oakley*, California. July 25, 2005.

- Sycamore Associates, LLC. *Swainson's Hawk Foraging Habitat Analysis the 150-Acre Emerson Property South of the Contra Costa Canal, Oakley, Contra Costa County, California*. July 31, 2005.

- Swaim Biological Consulting. *Survey Results for the Giant Garter Snake (Thamnophis gigas) at the Gilbert and Burroughs Properties in Contra Costa County, California*. February 27, 2006.

- Swaim Biological Consulting. *Results of Surveys for the Giant Garter Snake (Thamnophis gigas) in Marsh Creek and the Contra Costa Canal, Northeast Contra Costa County, California.* January 22, 2004.

- Swaim Biological Consulting. *Site Assessment for Special Status Reptiles and Amphibians at the Proposed Cypress Grove Site in Oakley, Contra Costa County, California.* September 15, 2002.

- Swaim Biological Consulting. *Results of Surveys for the Giant Garter Snake (Thamnophis gigas) in Marsh Creek and the Contra Costa Canal, Northeast Contra Costa County, California.* January 22, 2004.

- Swaim Biological Consulting. *Results of Surveys for the Giant Garter Snake (Thamnophis gigas) at the Dal Porto North Property in Oakley, Contra Costa County, California.* October 1, 2005.

- Swaim Biological Consulting. *Results of Surveys for the Giant Garter Snake (Thamnophis gigas) at the Dal Porto South Property in Oakley, Contra Costa County, California*. October 3, 2005.

- Swaim Biological Consulting. *Results of Surveys for the Giant Garter Snake (Thamnophis gigas) at the Lesher Property in Oakley, Contra Costa County, California.* October 3, 2005.

- Swaim Biological Consulting. *Results of Surveys for the Giant Garter Snake (Thamnophis gigas) at the Biggs Property in Oakley, Contra Costa County, California*. October 3, 2005.

- Townsend, S. E. *San Joaquin Kit Fox Regional Analysis for the Cypress Grove Project, Oakley, Contra Costa County, California.* September 9, 2002.

- Zentner and Zentner. *Gilbert Property Oakley, Contra Costa County, Special Status Species Assessment.* January 6, 2005.

- Zentner and Zentner. *Burroughs Property, Oakley, Contra Costa County, Biotic Assessment*. May 2005.

- Zentner and Zentner. *Gilbert Property, Oakley, Section 404 Jurisdictional Delineation*. July 6, 2005.

- Zentner and Zentner. *South Cypress Road Environmental Assessment.* November 2005.

- Zentner and Zentner. S*pecial Status Species Surveys at the Gilbert's Property including Silvery Legless Lizard, Western Pond Turtle, Tri-colored Blackbird, Nesting Raptors and Vegetation.* October 2005.

- Zentner and Zentner. *Annual Report: Gilbert Property Surveys, Oakley, CA.* April 2006.

Nomenclature used throughout this report conforms to Hickman (1993) for plants except where noted. Nomenclature for special-status plant species conforms to the CDFG (2004c,e) and CNPS (2001); nomenclature for special-status animals conforms to the CDFG (2004b,d); nomenclature for special-status natural communities conforms to the California Department of Fish and Game (2003). Nomenclature for wildlife conforms to Sibley (2000) for birds, Stebbins (2003) for reptiles and amphibians, and Jameson Jr. and Peeters (2004) for mammals.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project.

4.7-1 Impacts to jurisdictional waters of the U.S. and waters of the State.

Emerson Slough has been verified as a jurisdictional water of the U.S. by the USACE. Similarly, Emerson Slough is regarded as a water of the State under jurisdiction of the RWQCB and CDFG. Dutch Slough may be under USACE and State jurisdiction, but should be verified as such by them. In addition, other wetlands and waters that may be considered under federal and State jurisdiction are located in the northeastern project site boundary. The roadside ditches along the off-site areas of Sellers Road are considered to be non-jurisdictional, except for one located adjacent to Dutch Slough which appears to be tidally influenced.

However, as noted in the Vegetation Communities and Wildlife Habitats section of this chapter, according to the Wetlands / Section 404 Jurisdictional Delineation Map, the proposed project site does not include any wetland or seasonal wetland areas that would fall under the jurisdiction of the U.S. Army Corps of Engineers (See Figure 4.7-2).

It should be noted that the HCP includes a development fee program to address impacts to habitat resources based on the project location. The HCP includes three

Fee Zones, defined by a map that determines the fee paid by development, regardless of the land cover type within them. The proposed project site is within the HCP Development Fee Zone I: Cultivated and Disturbed Lands. The HCP fee would apply to the entire site.

Although jurisdictional waters are not located within the proposed project site, the proposed project is located within HCP Development Fee Zone I and would be required to pay appropriate development fees in order to comply with the requirements of the HCP. Therefore, the proposed project would result in a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the impact to a *less-than-significant* level.

4.7-1 *The proposed project site is within the HCP Development Fee Zone I: Cultivated and Disturbed Lands. Prior to the issuance of a grading permit, the applicant shall pay the appropriate development fee (either the HCP Development Fee or the East Cypress HCP Memorandum of Understanding) for the proposed project site.*

4.7-2 Impacts to protected and heritage trees.

Trees meeting the definition described in the City of Oakley Tree Protection and Heritage Tree Ordinances are identified in the *Tree Survey Report for the Emerson Property and Off-Site Areas* (See Appendix K).[2] Using the definitions in the City Tree Ordinance, the *Emerson Property and Off-Site Areas* tree survey found that 40 heritage trees exist on the Emerson property and 22 in the off-site areas along Sellers Avenue and Cypress Road. The tree survey report identified 57 protected trees on the Emerson property and 53 along Sellers Avenue and Cypress Road that are protected. Removal of heritage and/or protected trees during development of the project site and off-site infrastructure could have a substantially adverse impact.

The Oakley Heritage Tree Preservation Ordinance (Section 5-D-2-3A) states that a heritage tree is a tree either 50 or more inches diameter at breast height (dbh or 4.5 feet above the natural grade); or any tree or trees "worthy of protection" because they have historical or ecological interest or significance, is dependent upon other trees for health or survival, or is considered an outstanding specimen due to location, size, age, rarity, shape, or health.

The Tree Preservation Ordinance (5-D-3B), which applies to any protected tree, indicates that proposed development shall consider tree alteration or removal as part of the project application, and if necessary, a tree survey shall be submitted. Protected trees are those trees which are adjacent to or part of a riparian, foothill woodland, or oak savannah area, or part of a stand of four or more trees, measure 20 inches or larger dbh, and are one or more of the following native species: bigleaf maple, box

elder, California buckeye, white alder, madrone, toyon, California black walnut, California juniper, tanoak or tanbark oak, knobcone pine, digger pine, California Sycamore, Fremont cottonwood, clack cottonwood, California or coast live oak, canyon live oak, blue oak, California black oak, Valley oak, interior live oak, and California bay or laurel. Protected trees can also include any tree that is shown in an approved tentative map, development, or site plan that is required to be retained as a condition of approval, or any tree required to be planted as a replacement for an unlawfully removed tree.

Heritage and protected trees as defined by this Section 5-D-3 of the Oakley Zoning Ordinance are protected from destruction or removal, and construction activities are limited around the dripline of heritage and protected trees. If heritage or protected trees are damaged, the contractor, developer, or owner must repair or replace the damaged tree according to the fees noted in the ordinance.

In summary, the *Emerson Property and Off-Site Areas* tree survey found that the proposed project site supports 40 heritage and 57 protected trees on-site. In addition, off-site development of infrastructure could result in impacts to heritage trees. Therefore, project related development could result in impacts to protected and heritage trees, which would be a ***potentially significant*** impact to trees.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the impact to a *less-than-significant* level.

4.7-2 *Prior to the issuance of grading permits that would result in the removal of heritage Trees, the applicant shall apply for a tree removal permit and submit a tree replacement plan for the review and approval of the Community Development Department. The plan shall be in compliance with the City of Oakley Zoning Ordinance. The plan shall include but not be limited to:*

- *A map showing where the replacement and new trees will be located; and*
- *Tree removal shall be mitigated at a minimum 3:1 ratio or other ratio acceptable to the City of Oakley, or an in-lieu fee shall be paid on a per-inch basis as determined by the Community Development Department.*

4.7-3 Impacts to special-status dune and sand mound insects.

Special-status insect species, including but not limited to Middlekauf's shieldback katydid, Antioch efferian robberfly, andrenid bee, anthicid beetle and San Joaquin dune beetle, have a low potential to occur within the sand mound habitats on the project site (See Table 4.7-2 for a full list of special-status insect species with a low potential to occur on the site). These invertebrate species are federal Species of

Concern and are not afforded any formal protection under the federal or State Endangered Species Acts. The portion of the sand dune habitat located on the Emerson property site, which extends onto the adjacent Cypress Grove property, was surveyed with negative findings for these species in 2004 by entomologist Dr. Dick Arnold. Given the recent negative findings on the Cypress Grove portion of the dune and the negative findings on the Emerson site, and the dune's disturbed nature, implementation of the project is expected to have a ***less-than-significant*** impact on these species.

Mitigation Measure(s)
None required.

4.7-4 Impacts to special-status fish species.

Potential special-status fish species that may be present in Dutch Slough include Sacramento perch, a federal Species of Concern and a California Species of Special Concern; delta smelt, federally- and State-listed as Threatened; and Sacramento splittail, a California Species of Special Concern; Chinook salmon, winter-run, federally- and State-listed Endangered; Central Valley fall/late run, a federal Candidate species; Central Valley spring-run, federally- and State-listed Threatened; and steelhead, Central Valley ESU, federally-listed Threatened. An Essential Fish Habitat Assessment conducted in 2003 for Emerson Slough concluded that impacts to special-status fish were not expected. Therefore, the proposed project would result in a ***less-than-significant*** impact to special-status fish species.

Mitigation Measure(s)
None required.

4.7-5 Impacts to silvery legless lizard.

The silvery legless lizard is included in the HCP as a species of concern in the East Contra Costa County area. The HCP notes that the occurrences of the silvery legless lizard have been recorded with the HCP study area. The HCP includes mitigation for the loss of habitat for the silvery legless lizard as part of the HCP.

Silvery legless lizard was positively identified in a remnant dune area located on the far south portion of the Cypress Grove project in January and June 2004 during pre-construction surveys (Sycamore 2004a). Silvery legless lizard was also found just off site of the Cypress Grove property on a remnant dune located along the Burlington Northern Santa Fe (BSNF) Railroad tracks. Additionally, a population of silvery legless lizards is known to occur approximately 1.5 miles west of the project site within the East Bay Regional Park Legless Lizard Preserve as recently as May 2000 (CDFG 2004a, Swaim Biological Consulting 2002).

Suitable silvery legless lizard habitat is present within the sand mound located in the northwest corner of the Emerson project site, and is contiguous with the interior dune

habitat on the Cypress Grove property that was surveyed concurrently with the southern dune on Cypress Grove where six silvery legless lizards were found. Beechey (California) ground squirrels have created numerous burrows in the project area, which may be utilized by these lizards for cover. Bush lupine also occurs within this vegetation community. Silvery legless lizards have been found in dune habitats on the adjacent Cypress Grove project site, specifically the dune south of Cypress Road; however, the on-site sand mound is an extension of the dune located on the northern portion of the Cypress Grove site. This on-site dune was surveyed as part of the Cypress Grove project and silvery legless lizard was not found (Sycamore 2004b). Nonetheless, based on the availability of suitable habitat in close proximity to the project site and the recent occurrences within the region, the silvery legless lizard is considered to have a moderate potential to occur on the project site. Therefore, project impacts to this species could be ***potentially significant***.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the impact to a *less-than-significant* level.

4.7-5 (a) *Prior to the issuance of a grading permit, pre-construction surveys for silvery legless lizard shall be conducted within the sand mound habitat on the project site and submitted for the review and approval of the City of Oakley. If silvery legless lizard is not found, further mitigation is not required. If silvery legless lizard is found, Mitigation Measure 4.7-5(b) shall be implemented.*

4.7-5(b) *The following measures shall be implemented to avoid potential take of silvery legless lizards during construction:*

- *All construction activity within potential silvery legless lizard aquatic habitat shall be conducted between May 1 and October 1. This is the active period for silvery legless lizards and, if present, potential effects are lessened because the lizards are actively moving and can avoid danger.*
- *Any dewatered areas within the sloughs shall remain dry for at least 15 consecutive days prior to excavating or filling of the dewatered area.*
- *A qualified biologist shall provide project contractors and construction crews with a worker-awareness program appropriate for silvery legless lizards before any work within aquatic habitats or adjacent upland habitats is initiated. This program shall be used to describe the species, its habits and habitats, its legal status and required protection, all applicable mitigation measures, and conditions of any state or federal permits as they relate to the silvery legless lizard. Proof of this instruction shall be submitted to the City.*

- *During project activities and following construction, all trash shall be properly contained, removed from the work site, and disposed of properly.*
- *24-hours prior to construction activities, the project area shall be surveyed for silvery legless lizards. Survey of the project area shall be repeated if a lapse in construction activity of two weeks or greater has occurred. If a silvery legless lizard is encountered during construction, activities shall not begin until appropriate corrective measures have been completed or it has been determined that the lizard shall not be harmed. Any sightings and any incidental take shall be reported immediately to the USFWS at (916) 414-6600.*
- *Movement of heavy equipment to and from the project site shall be restricted to established roadways to minimize disturbance.*
- *After completion of construction activities, any temporary fill and construction debris shall be removed and, wherever feasible, disturbed areas shall be restored to pre-project conditions. Restoration work shall include replanting emergent vegetation.*
- *All fueling and maintenance of vehicles or other equipment and staging areas shall occur at least 66 feet from any water body. Prior to the onset of work, the applicant shall prepare a plan to allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.*
- *To control erosion during and after project implementation, the applicant shall implement best management practices, as identified by the Regional Water Quality Control Board. Drainage banks shall be stabilized by compacting additional soil after sediment and vegetation removal to minimize the potential for erosion. Additionally, during sediment and vegetation removal in a channel that still contains flowing water during August, September, and October, a silt fence shall be installed directly downstream of the project site. This will help to prevent silt accumulation downstream of the project site.*

4.7-5(c) Implement Mitigation Measure 4.7-1.

4.7-6 Impacts to giant garter snake.

Potential aquatic habitat for the giant garter snake, federally-listed Threatened, is present within Emerson Slough, Dutch Slough, perennially inundated irrigation/drainage ditches, and the Contra Costa Canal adjacent to the project site. Adjacent upland habitats contain ground squirrel burrows that provide dispersal, refugia, and winter retreat opportunities. Focused surveys for giant garter snake in the Contra Costa Canal in 2003 resulted in negative findings as did focused surveys

conducted in 2005 on the Gilbert and Burroughs properties. However, giant garter snakes have been observed approximately four miles northwest and six miles north of the project site, within the waterways of the Delta (CDFG 2004a, Swaim Biological Consulting 2002) in 2002 and 1998 respectively. These recent occurrences in the region suggest that individual giant garter snakes may use the site environs. Given occurrences in the region, and the presence of potential habitat in Emerson Slough, Dutch Slough, potentially inundated irrigation/drainage ditches and the Contra Costa Canal, giant garter snake could move onto the site. The site's proximity to Marsh Creek and the Contra Costa Canal, as well as the presence of suitable escape and refugia habitat on-site in the form Beechey (California) ground squirrel burrows, indicate that the site could potentially be used by giant garter snakes. Therefore, the project could have a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the impact to a *less-than-significant* level.

4.7-6(a) *Prior to the issuance of a grading permit, pre-construction surveys for giant garter snake shall be conducted and submitted for the review and approval of the City of Oakley. If the giant garter snake is not found, further mitigation is not required. If the giant garter snake is found, Mitigation Measure 4.7-6(b) shall be implemented.*

4.7-6(b) *Implement Mitigation Measure 4.7-5(b) for the giant garter snake instead of, or in addition to, the silvery legless lizard.*

4.7-6(c) *Implement Mitigation Measure 4.7-1.*

4.7-7 Impacts to western pond turtle.

The western pond turtle is included in the HCP as a species of concern in the East Contra Costa County area. The HCP notes that the western pond turtle has the potential to occur within the HCP study area. The HCP includes mitigation for the loss of habitat for the western pond turtle as part of the HCP.

Western pond turtle, a California Species of Special Concern, has been documented in the Contra Costa Canal and on the adjacent Cypress Grove property, and has the potential to occur in Emerson Slough, Dutch Slough and perennial irrigation/drainage ditches on the project site. This species has potential to nest and over-winter in upland habitats such as the grasslands/ruderal habitats adjacent to aquatic habitats on the neighboring Gilbert property, as evidence of a Western pond turtle nest was observed adjacent to the Emerson site. Temporary construction impacts that may affect this species include presence of heavy equipment, placement of a temporary cofferdam, placement of rip-rap, placement of the stormwater outfalls into Emerson Slough, and earthmoving activities and fill of irrigation/drainage canals as part of residential, commercial, and levee alignment or modification construction. The proposed project

may result in impacts to upland habitat for western pond turtle. Loss of habitat and potential loss of individuals and nests if this species is present within construction areas could have a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the impact to a *less-than-significant* level.

4.7-7(a) *The project applicant shall comply with the East Contra Costa HCP's Wetland, Pond, and Stream Avoidance and Minimization measures, which include but are not be limited to:*

- *Applicants for coverage under the HCP/NCCP shall follow the guidelines in Conservation Measure 1.10 of the HCP/NCCP to minimize the effects of urban development on downstream hydrology, streams, and wetlands.*
- *All wetlands, ponds, streams, and riparian woodland/scrub to be avoided by covered activities shall be temporarily staked in the field by a qualified biologist.*
- *Buffer zones shall be established where feasible between the aquatic resource and development. Required setbacks for streams are described in Conservation Measure 1.7 of the HCP/NCCP. Credit for preservation of aquatic habitat will be given only if these features meet minimum distances from dense urban development.*
- *Fencing shall be erected between the outer edge of the buffer zone and the project area. The type of fencing shall match the activity and impact types. For example, projects that have the potential to cause erosion shall be required to include erosion control barriers (See below), and projects that may bring more household pets to a site shall be fenced to keep the pets out. The temporal requirements for fencing also depend on the activity and impact type. For example, fencing for permanent impacts shall be permanent, and fencing for short-term impacts shall be removed after the activity is completed.*
- *Personnel conducting ground-disturbing activities within or adjacent to the buffer zone of wetlands, ponds, streams, or riparian woodland/scrub shall be trained by a qualified biologist in these avoidance and minimization East Contra Costa County measures and the permit obligations of project proponents working under the HCP/NCCP. Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas.*
- *Trash generated by covered activities shall be promptly and properly removed from the site.*

- *No construction or maintenance vehicles shall be refueled within 200 feet of wetlands, ponds, streams, or riparian woodland/scrub unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.*
- *Appropriate erosion-control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) shall be used on site to reduce siltation and runoff of contaminants into wetlands, ponds, streams, or riparian woodland/scrub. Filter fences and mesh shall be of material that will not entrap reptiles and amphibians. Erosion control blankets shall be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians. Erosion-control measures shall be placed between the outer edge of the buffer and the project site.*
- *Fiber rolls used for erosion control shall be certified as free of noxious weed seed.*
- *Seed mixtures applied for erosion control shall not contain invasive nonnative species, and shall be composed of native species or sterile nonnative species.*
- *Where feasible, stream crossings shall be located in stream segments without riparian vegetation, and bridge footings shall be built outside the stream banks (i.e., clear span structures).*
- *Herbicide shall not be applied within 100 feet of wetlands, ponds, streams, or riparian woodland/scrub; however, where appropriate to control serious invasive plants, herbicides that have been approved for use by EPA in or adjacent to aquatic habitats may be used as long as label instructions are followed and applications avoid or minimize impacts on covered species and their habitats. In seasonal or intermittent stream or wetland environments, appropriate herbicides may be applied during the dry season to control nonnative invasive species (e.g., yellow star-thistle). Herbicide drift shall be minimized by applying the herbicide as close to the target area as possible.*

Implementation of the above measures would reduce impacts to the habitat of the western pond turtle in compliance with the requirements of the HCP/NNCP.

4.7-7(b) Implement Mitigation Measure 4.7-1.

4.7-8 Impacts to western burrowing owl.

The burrowing owl is included in the HCP as a species of concern in the East Contra Costa County area. The HCP notes that the burrowing owl has the potential to occur within the HCP study area. The HCP includes mitigation for the loss of habitat for the burrowing owl as part of the HCP.

Burrowing owl is a California and federal Species of Concern. Despite negative focused breeding season surveys of the Emerson property, a single burrowing owl was observed on the neighboring Gilbert property during the biotic survey conducted in November 2004. The owl was likely an over-wintering owl or an owl using the site for foraging. Protocol-level breeding season surveys resulted in negative findings for burrowing owl or sign of burrowing owl, although ground squirrel burrows were present on the Gilbert property within the remnant sand dune area. Because of the presence of burrows and the sighting of an individual owl in November 2004, burrowing owl is considered to have a moderate potential to occur on the Emerson property.

Disturbance of over-wintering or nesting owls and habitat loss could have a ***potentially significant*** impact on burrowing owls.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the impact to a *less-than-significant* level.

4.7-8(a) *Prior to the issuance of a grading permit, pre-construction surveys of all potential burrowing owl habitat shall be conducted by a qualified biologist within the project area and within 250 feet of the project boundary. Presence or sign of burrowing owl and all potentially occupied burrows shall be recorded and monitored according to CDFG and California Burrowing Owl Consortium guidelines.*

and

Prior to the issuance of a grading permit, focused over-wintering surveys of all potential burrowing owl habitat shall be conducted by a qualified biologist within the Emerson property. Presence or sign of burrowing owl shall be recorded and monitored according to CDFG and California Burrowing Owl Consortium guidelines. If burrowing owls are not found, further mitigation is not required. If burrowing owls are found, Mitigation Measure 4.7-8(b) shall be implemented.

4.7-8(b) *If burrowing owls are detected, a 50 meter buffer zone during non-breeding season (September 1 through January 31) or a 75 meter buffer zone during breeding season (February 1 through August 31) shall be established around each occupied burrow to minimize disturbance. In addition, if owls must be moved away from the disturbance area, passive relocation techniques, which involve the placement of one-way exclusion doors on occupied and potential burrowing owl burrows, shall be used. Owls shall be excluded from burrows within the project area and within a 160-foot buffer zone of the impact area. A minimum of one week shall be allowed to accomplish this task and to allow for owls to acclimate to alternate*

burrows. The California Department of Fish and Game shall be informed and updated regarding any passive relocation efforts. Passive relocation shall be performed prior to burrowing owl breeding season.

4.7-8(b) *Implement Mitigation Measure 4.7-1.*

4.7-9 Impacts to raptors and migratory birds.

Several HCP species of concern, special-status, and common bird species have the potential to nest in existing vegetation, including trees, shrubs, and ruderal habitats, within the project area, including the following: raptors such as red-tailed hawk, red-shouldered hawk, Cooper's hawk, sharp-shinned hawk, American kestrel, prairie falcon, rough-legged hawk, ferruginous hawk, golden eagle, merlin, short-eared owl, white-tailed kite, and northern harrier; and birds such as California horned lark, and loggerhead shrike. Any removal of buildings, trees or shrubs, grading, or construction activities in the vicinity of active passerine or non-passerine land bird nests, or active raptor nests, could result in nest abandonment, nest failure, or premature fledging. Destruction or disturbance of active nests would be in violation of the Migratory Bird Treaty Act and California Department of Fish and Game (CDFG) Code. Such disturbance would be considered a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the impact to a *less-than-significant* level.

4.7-9(a) *If removal of buildings, trees, emergent aquatic vegetation, or shrubs occurs, or construction begins between February 1 and August 31 (nesting season for passerine or non-passerine land birds) or December 15 and August 31 (nesting season for raptors), a nesting bird survey shall be performed by a qualified biologist within 14 days prior to the removal or disturbance of a potential nesting structure, trees, emergent aquatic vegetation, or shrubs, or the initiation of other construction activities during the early part of the breeding season (late December through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, a qualified biologist shall inspect all potential nesting habitat (trees, shrubs, structures, grasslands, pastures, emergent aquatic vegetation, etc.) in and immediately adjacent to the impact areas for nests.*

4.7-9(b) *All vegetation and structures with active nests shall be flagged and an appropriate non-disturbance buffer zone shall be established around the nesting tree. The size of the buffer zone shall be determined by the project biologist in consultation with CDFG and will depend on the species involved, site conditions, and type of work to be conducted in*

the area. Typically, if active nests are found, construction activities shall not take place within 500 feet of the raptor nests and within 100 feet of other migratory birds until the young have fledged. A qualified biologist shall monitor active nests to determine when the young have fledged and are feeding on their own. The project biologist and CDFG shall be consulted for clearance before construction activities resume in the vicinity.

4.7-9(c) Implement Mitigation Measure 4.7-1.

Mitigation Measures 4.7-9(a) and 4.7-9(b) include measures to avoid take of birds covered under the Migratory Bird Treaty Act, as required by the HCP, which states the following:

- *All no-take species shall be avoided; and*
- *Construction activities shall comply with the Migratory Bird Treaty Act and shall consider seasonal requirements for birds and migratory non-resident species, including covered species.*

4.7-10 Impacts to Swainson's hawk.

Swainson's hawk is included in the HCP as a species of concern in the East Contra Costa County area. The HCP notes that the Swainson's hawk has the potential to occur within the HCP study area. The HCP includes mitigation for the loss of habitat for the Swainson's hawk as part of the HCP.

Mature trees provide suitable nesting habitat on the project site for Swainson's hawk, State-listed Threatened. At least two Swainson's hawk nests are known to occur within 1,000 feet of the project area, one active and one removed (CDFG 2004a, Monk 2005).

The cultivated/ruderal habitats on the project site provide suitable foraging habitat for Swainson's hawks, and they have been observed foraging over these areas. Dryland pasture, irrigated pasture, grasslands, and other suitable foraging habitats such as row crops, in particular alfalfa fields, are abundant in the vicinity of the project area. CDFG identifies whether or not a project will adversely affect suitable foraging habitat within a ten-mile radius of an active Swainson's hawks nest (used during one or more of the last five years). The ten-mile radius standard is the flight distance between active nest sites and suitable foraging habitats as documented in telemetry studies by Estep (1989) and Babcock (1993, 1995). Telemetered Swainson's hawks have been documented by Babcock (1993) utilizing foraging areas of up to 19,000 acres surrounding nest sites. According to calculations in the *Revised Swainson's Hawk Foraging Habitat Analysis the 150-Acre Emerson Property South of the Contra Costa Canal, Oakley, Contra Costa County, California* (Sycamore 2005), presently between 65,181 and 120,078 acres of foraging habitat exist within the ten-mile radius of the nest sites, depending upon individual nest. Development of the proposed

project would remove approximately 120 acres of foraging habitat for Swainson's hawk within the above-described area presently available. Based on this analysis, the currently proposed project is not likely to substantially affect Swainson's hawk foraging habitat.

Loss of an occupied Swainson's hawk nest, however, would be considered a significant impact. If during the pre-construction surveys, Swainson's hawks are found nesting on or adjacent to the site, the project could have a ***potentially significant*** impact on Swainson's hawks.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the impact to a *less-than-significant* level.

4.7-10(a) *Prior to the issuance of a grading permit that occurs during the nesting season (March 15–September 15), a qualified biologist shall 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 shall be required.*

If preconstruction surveys identify occupied nests within 1,000 feet of the project site during the nesting season (March 15–September 15), construction shall be prohibited within 1,000 feet of occupied nests or nests 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 City of Oakley will coordinate with CDFG/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 City of Oakley for a waiver of this avoidance measure. Any waiver must also be approved by USFWS and CDFG. While the nest is occupied, activities outside the buffer can take place.

4.7-10(b) *Any active Swainson's hawk nest trees identified during the preconstruction surveys shall be preserved on site, to the extent feasible. Any nest trees, including non-native trees, lost to construction shall be mitigated by the project proponent in compliance with the*

HCP guidelines, which requires the applicant to purchase, plant, maintain, and monitor 15 saplings for every nest tree removed, or to pay an additional fee to the City of Oakley to purchase, plant, maintain, and monitor the required trees.

4.7-10(c) Implement Mitigation Measure 4.7-1.

4.7-11 Impacts to special-status bat species.

Several mature trees exist along the roadways and around the abandoned home site, which provide suitable bat roosting habitat. In addition, the abandoned residences located on the project site provide potentially suitable roosting habitat for bats. Special-status bat species that have the potential to occur on-site including pallid bat, a California Species of Special Concern, Townsend's big-eared bat, a federal Species of Concern and California Species of Special Concern, and Yuma myotis (*Myotis yumanensis*), a federal Species of Concern.

Townsend's big-eared bat is included in the HCP as a species of concern in the East Contra Costa County area. The HCP notes that this bat species has the potential to occur within the HCP study area. The HCP includes mitigation for the loss of habitat for protected bat species as part of the HCP.

Although these two bat species have a low potential to occur on the project site, the existing building and mature trees located within the project site provide potential roosting habitat for these special-status bat species. If special-status bats are found roosting on-site, the project could have a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the impact to a *less-than-significant* level.

4.7-11(a) Prior to the issuance of a grading permit, a pre-construction survey for roosting bats shall be performed by a qualified biologist within 30 days prior to any removal of trees or structures on the site. If active roosts are not found, further mitigation shall not be required. If either a maternity roost or hibernacula (structures used by bats for hibernation) are present for Townsend's big-eared bat, the project applicant shall implement Mitigation Measure(s) 4.7-11(b) and 4.7-11(d). If either a maternity roost or hibernacula is present for pallid bat or Yuma myotis, the applicant shall implement Mitigation Measures 4.7-11(b, c, and d).

4.7-11(b) If the bat species are discovered or if evidence of recent prior occupation is established, construction shall be scheduled such that the activities minimize impacts to bats. Hibernation sites with evidence of prior occupation shall be sealed before the hibernation season

(November–March), and nursery sites shall be sealed before the nursery season (April–August). If the site is occupied, then the action shall occur either prior to or after the hibernation season for hibernacula and after August 15 for nursery colonies. Construction shall not take place as long as the site is occupied.

4.7-11(c) *If a non-breeding bat hibernacula is found in a tree or structure scheduled for removal, the individuals shall be safely evicted, under the direction of a qualified biologist (as determined by a Memorandum of Understanding with CDFG), by opening the roosting area to allow airflow through the cavity. Demolition shall then follow at least one night after initial disturbance for airflow. This action shall allow bats to leave during darkness, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees or structures with roosts that need to be removed shall first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.*

4.7-11(d) *Mitigation Measures 4.7-11(a-c) include the avoidance and impact minimization measures included in the HCP. In addition, the applicant shall implement Mitigation Measure 4.7-1.*

4.7-12 Impacts to wildlife corridors.

Emerson Slough, Dutch Slough and the Contra Costa Canal, are potential wildlife movement corridors, which may facilitate the movement of animals to and from the project area and may provide safe refuge for species that may forage within the project area during various times of the year, including the giant garter snake (if present) and western pond turtle (if present). However, lands and hydrologic features surrounding the site are not suitable to facilitate movement and dispersal of many other special-status species as described in the above section due to agricultural practices, the isolated nature of habitats (i.e., sand mounds), introduction of exotic predators, and suburban development. Additionally, the project site does not provide a key movement corridor for wildlife in the region given the present agricultural practices and surrounding land uses. Therefore, project impacts to wildlife corridors are expected to be ***less-than-significant***.

Mitigation Measure(s)
None required.

Cumulative Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region.

4.7-13 Contribution to cumulative impacts to biological resources in the project area.

The Oakley area, like many other communities in the Bay Area, is experiencing a great deal of urban growth. Many housing developments are already approved in the surrounding areas. In the immediate vicinity of the project site are several projects in various stages of the entitlement and development process. To the west is the 155-acre Cypress Grove development, which removed 155 acres that were previously under cultivation. Approximately 1.5 miles to the east is the East Cypress Corridor Specific Plan area, an approximate 2,500-acre area that has been used historically for irrigated pasture and row crops and which is planned for urban development. Although the 1,166-acre Dutch Slough restoration project located immediately north of the project area will provide valuable habitat for native plant and wildlife species in the region, cumulatively, these projects could affect common as well as special-status plant and animal species with the reduction of available habitat and the potential loss of individuals.

The Oakley 2020 General Plan EIR (Impact 3.9-F) states that a potentially significant impact to biological resources would result from the cumulative conversion of habitat; however, implementation of applicable General Plan policies and programs would reduce the impact to a less-than-significant level. One of the programs that the Oakley General Plan EIR lists under Impact 3.9-A is Program 6.3.A, which is in the Open Space and Conservation Element of the Oakley 2020 General Plan. Program 6.3.A states that prior to development within identified sensitive habitat areas, the area shall be surveyed for special-status plant and/or animal species. If any special-status species are found, the program requires consultation with the appropriate resource agency to establish management strategies to ensure the protection of the particular species. The mitigation measures pertaining to special-status plant and animal species included in this EIR would be consistent with Program 6.3.A.

In addition, it should be noted that the HCP, which is intended to provide a long-term, effective framework to protect natural resources in eastern Contra Costa County, is inherently a cumulative document and compliance with the HCP would reduce the project's cumulative impacts to biological resources. However, because the project could cumulatively contribute to the loss of special-status species, habitat, and natural communities, a ***potentially significant*** cumulative impact would result.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce cumulative impacts to biological resources to a *less-than-significant* level.

4.7-13(a) Implement Mitigation Measures 4.7-1 through 4.7-11.

Endnotes

[1] Sycamore Associates. *Biological Resources Section.* February 2007.
[2] Sycamore Associates. *Tree Survey Report for the Emerson Property and Off-Site Areas.* 2005.

4.8 GEOLOGY AND SOILS

4.8 GEOLOGY AND SOILS

INTRODUCTION

The Geology and Soils chapter of the EIR analyzes the effects of the proposed subdivision on soils and geology within the project area. Information in this chapter is drawn from the *City of Oakley General Plan*,[1] the *City of Oakley General Plan Draft Environmental Impact Report*,[2] the *Geotechnical Exploration Report: Southern 140 Acres, Emerson Property* prepared by ENGEO, Inc. (See Appendix L of the Draft EIR),[3] a geology report for the Dutch Slough Properties Draft EIR prepared by Kleinfelder (See Appendix M of the Draft EIR),[4] and the Soil Survey of Contra Costa County.[5]

EXISTING ENVIRONMENTAL SETTING

The following background setting information focuses on the site seismicity, soil conditions, groundwater, expansive soils, and liquefaction.

Regional Geology

The site is located at the margin of the Great Valley Geomorphic Province and the Coast Ranges Geomorphic Province. The Great Valley Geomorphic Province consists of an elongated structural trough that has been filled with a sequence of sedimentary deposits ranging from Jurassic to recent in age. In the San Joaquin/Sacramento Delta, sedimentary bedrock is up to six miles in thickness (Atwater, 1982 qtd. in Kleinfelder, 2005). Geophysical evidence suggests that the Great Valley is underlain at depth with granitic rocks of the Sierra Nevada Province. The adjacent Coast Ranges Geomorphic Province is underlain at depth by Franciscan Assemblage rocks.

The San Joaquin/Sacramento Delta lies at the junction of the Sacramento and San Joaquin rivers, the two major waterways that drain the Central Valley. The Delta area currently consists of a braided pattern of brackish to freshwater tidally-influenced channels and sloughs encircling a series of low-lying islands.

Site Geology

The near-surface sediments on the project site consist of eolian (wind-blown), lacustrine (lake-deposited) and alluvial deposits. These sediments are typically irregularly stratified, poorly consolidated deposits of clay, silt, sand, and minor gravel.

The geology of the surficial deposits on the site has been largely influenced by changes in sea level during the Late Pleistocene. Most of the high-standing areas in the site vicinity are the crests of old sand dunes and are underlain by sandy eolian soils deposited during the later part of the most recent low-stand of sea level. According to Atwater, these eolian deposits formerly extended across most of the surface of the site but are now buried in low-lying areas by younger sediments.

The alluvial fan of Marsh Creek extends across the site and Atwater's map (Atwater, 1982 qtd. in Kleinfelder, 2005) and text imply that alluvium of Marsh Creek typically overlies the sandy eolian deposits in low-lying areas. Much of the alluvium in the site vicinity consists of gray silt and clay deposited in near sea-level flood basins and ephemeral lakes.

Site Seismicity

The project is located in an area of moderate seismicity. Faults, active or otherwise, are not known to surface on or very close to the project site. In addition, the site does not include any areas mapped within any Earthquake Fault Zone. The closest active strike-slip fault with surface expression, as identified by the California Geological Survey, is the Concord fault located approximately 19 miles to the west. Other nearby active strike-slip faults include the Calaveras fault 22 miles to the southwest, the Hayward fault 32 miles to the west, and the San Andreas fault 50 miles to the west.

The Midland fault was mapped by Jennings (1994) approximately 0.5 miles east of the site and by Bortugno (1991) approximately two miles east of the site. An unnamed queried fault, assumed to be the Midland fault, is also mapped by the City of Oakley (*Oakley General Plan 2020*) at approximately one mile east of the site. According to Kleinfelder's draft geology report for the proposed project, Crane (1971) mapped a postulated concealed splay of the Midland fault across the subject site. However, evidence does not exist to support that Crane's postulated concealed splay of the Midland fault has a risk of surface rupture on the subject site. The Midland fault is thought to be a part of the Coast Ranges-Sierran Block (CRSB) fault system.

Because of the presence of active faults in the region, the area is considered seismically active. Numerous small earthquakes occur every year in the region, and large (greater than Magnitude 7) earthquakes have been recorded and can be expected to occur in the future. Table 4.8-1 lists distances to known active and potentially active strike-slip faults located within 62 miles of the site and summarizes their estimated earthquake magnitudes.

A significant seismic source listed is the Coast Ranges-Sierran Block (CRSB) boundary, mapped along the west side of the Central Valley. As the name implies, the Sierran Block is the approximate boundary between the actively uplifting east side of the Coast Range crustal block and the west side of the Sierran crustal block. The west side of the Sierran block is covered by the thick veneer of sedimentary rock that fills the Central Valley. The boundary between the two blocks is thought to be a zone of tectonic crustal shortening and compression. The compression is structurally accommodated by a series of generally west-dipping buried or "blind" thrust faults, along which Coast Range rocks have been thrust eastward over Central Valley sediments. According to Wakabayashi and Smith (1994), the CRSB can be divided into a series of segments that are thought to be seismically independent. The local segments of the CRSB, according to the California Geological Survey (Peterson, et al., 1996) pass through the area in the approximate vicinity of the site. Because the CRSB thrust faults are thought to exist entirely in the subsurface, the exact location of the boundary, that is a "surface fault trace," cannot be defined. However, an earthquake on the local segment of the CRSB could occur in the subsurface below or a few miles east or west of the site.

Table 4.8-1
Regional Active and Potentially Active Faults

Fault Name	Approximate Distance in Miles[1]	Maximum Moment Magnitude[2]
Great Valley	5.2	6.7
Greenville	12.0	6.9
Concord – Green Valley	17.6	6.9
Calaveras	21.3	6.8
Hayward	30.3	7.1
West Napa	32.8	6.5
Rogers Creek	36.4	7.0
Hunting Creek – Berryessa	42.4	6.9
Foothills Fault System	47.3	6.5
San Andreas (1906)	48.8	7.9
Monte Vista- Shannon	49.3	6.5
San Gregorio	53.1	7.3
Ortigalita	54.2	6.9
Sargent	60.8	6.8
Point Reyes	61.8	6.8

[1] Source: EQFault, 2003.
[2] Source: CDMG, Open-File Report 96-08.The Movement Magnitude is commonly used by scientists to measure the amount of energy released by an earthquake.

Source: ENGEO, Inc., 2005.

The historic seismicity of the eastern Coast Ranges includes a number of earthquakes in the Magnitude (M) 5.0 to M 6.8 range, including the M 6.3 1889 Antioch-Collinsville earthquake, the M 6.4 to 6.8 1892 Vacaville-Winters earthquakes, and the M 6.0 to 6.5 1983 Coalinga earthquakes. Based on historic seismicity and segment lengths, the CRSB is considered generally capable of producing M 6.0 to 6.8 earthquakes. The CRSB faults are not known to extend to the ground surface and the State of California has not defined Earthquake Fault Hazard Zones around the postulated traces. Therefore, the actual location of a possible earthquake epicenter in the CRSB cannot be easily estimated, thus the maximum ground shaking levels at the site could vary as described above. However, the recurrence interval for the local segments of the CRSB is believed to be in the range of 500 to 650 years (Peterson, et al. 1996), much longer than for the nearby strike-slip faults (commonly 150 to 250 years).

Soil Conditions

The site is mapped by the Soil Survey of Contra Costa County (1977). In general, the project is underlain by variable layers of soft to stiff clayey material and loose to very dense sandy material to the maximum depth explored of 50 feet. The soils across the project site are Dehli Sand (DaC), Marcuse Clay (Mb), and Piper Loamy Sand (Pe). Of these, Delhi Sand and Piper Loamy Sand are considered Farmland of Statewide Importance by the U.S.D.A Natural Resources Conservation Service. The characteristics of the above soils are described in Table 4.8-2, below.

Table 4.8-2 Characteristics of the Soils on the Project Site	
Soil	**Characteristics**
Delhi Sand (DaC)	Slopes are 2 to 9 percent. Runoff is slow or very slow, and the hazards of soil blowing and water erosion are slight where the soil is tilled and exposed.
Marcuse Clay (Mb)	Slopes of less than 2 percent. Poorly drained. Subject to ponding, or water runs off very slowly. No hazard of erosion.
Piper Loamy Sand (Pe)	Slopes of 0 to 2 percent. On the delta and 5 to 10 feet below sea level. Subject to frequent ponding and water runs off very slowly. Soil blowing is a hazard where soil is tilled or exposed. Permeability is rapid.
Source: Soil Survey of Contra Costa County, California. USDA Soil Conservation Service, 1977.	

Expansive Soil

The near surface soils in portions of the project site consist of moderately expansive clay. Expansive soils shrink and swell as a result of moisture changes, causing heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Building damage due to moisture changes in expansive soils can be reduced by re-grading the pad areas with appropriate non-expansive soils, pre-swelling the soils by moisture conditioning, stabilizing the expansive soil through lime treatment, and/or modifying or stiffening foundations to resist movement.

Groundwater

The depth to groundwater varies across the project site from approximately one to 15 feet below the existing ground surface. In addition, the groundwater elevation may fluctuate due to seasonal variation in rainfall, tidal action or other factors not in evidence at this time.

Liquefaction

The most significant geotechnical issue to be considered in the design of the project is the presence of liquefiable dune sand near the ground surface across most of the project site. During earthquakes, ground shaking may cause a loss of strength in cohesionless saturated soils. This process is called liquefaction and occurs most commonly in loose sands associated with a high water table. In general, variable layers of potentially liquefiable material were encountered in the upper 30 feet of the project site during soil explorations. Below a depth of 30 feet, the sandy materials are dense and generally not liquefiable.

REGULATORY CONTEXT

Existing policies, laws and regulations that would apply to the proposed projects are summarized below.

State Regulations

California Building Standards Code / Uniform Building Code

Site development and design are regulated in the State of California by the California Building Standards Code (CBC), based on the federal Uniform Building Code (UBC) and suited to the unique sensitivity of the State's geology and faultlines. CBC and UBC regulations must be complied with in consideration of expansive soils, drainage, erosion, earthquake resistance, and required safety measures during on-site development. Geologic and soils conditions would also determine the proper installation of underground communications and utility lines.

Local Regulations

City of Oakley General Plan

Goals, policies, laws, and regulations established in the Oakley 2020 General Plan, Health and Safety Element are listed below as applicable:

Geology and Seismic Hazards

Goal 8.1 Protect human life, reduce the potential for serious injuries, and minimize the risk of property losses from the effects of earthquakes, including fault rupture, ground shaking, and liquefaction - induced ground failure.

Policy 8.1.1 Recognize that a severe earthquake hazard exists and reflect this recognition in the City's development review and other programs.

Policy 8.1.2 Include a thorough evaluation of geologic-seismic and soils conditions at risk in all significant land use decisions (General Plan amendment, rezoning, etc., affecting 10 acres or more).

Policy 8.1.3 Require the design of structures for human occupancy for satisfactory performance under earthquake conditions.

Policy 8.1.4 Prohibit the erection of critical structures and facilities whose loss would substantially affect the public safety or the provision of needed services, in areas where there is a high risk of severe damage in the event of an earthquake.

Policy 8.1.6 Prohibit construction of structures for human occupancy, and structures whose loss would affect the public safety or the provision of needed services, within 50 feet of known active faults as referenced in the Alquist/Priolo Act.

Policy 8.1.7 In areas where active or inactive earthquake faults have been identified, the location and/or design of any proposed buildings,

facilities, or other development shall be modified to mitigate possible danger from fault rupture or creep.

Policy 8.1.8 To the extent practicable, the construction of critical facilities, structures involving high occupancies, and public facilities should not be sited in areas identified as, or underlain by deposits classified as, having a high liquefaction potential.

Policy 8.1.9 Any structures permitted in areas of high liquefaction potential shall be sited, designed and constructed to minimize the dangers from damage due to earthquake-induced liquefaction. Approval of public and private development projects shall be contingent on geologic and engineering studies which: 1) define and delineate potentially hazardous geologic and/or soils conditions, 2) recommend means of mitigating these adverse conditions; and 3) provide implementation of the mitigation measures.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

In accordance with CEQA, an impact on the geology of the project site would be considered significant if any of the following conditions would potentially result from the proposed project's implementation:

- Exposure of people, structures, or infrastructure components to increased risk of injury or damage due to the presence of expansive soils, soil settlement/compaction, or other geotechnical constraints;
- Exposure of people or structures to substantial, adverse effects as a result of strong ground shaking, seismic-related ground failure, liquefaction, lateral spreading, landslides, or lurch cracking;
- Substantial alteration of the existing topography through significant grading activities; or
- Substantial erosion or unstable slope or soil conditions through alteration of topographic features, dewatering, or changes in drainage patterns.

Method of Analysis

Analyses for this section were undertaken by Kleinfelder Inc. (November 2005), and ENGEO, Inc. (March 2005).

ENGEO, Inc's *Geotechnical Exploration* for the Emerson property included a field exploration and laboratory testing. The field exploration was conducted between June 14 and July 16, 2004 and consisted of drilling test borings to a maximum depth of about 50 feet and advancing 46 CPTs to a maximum depth of about 50 feet. The borings and CPTs were approximately located by pacing from existing features. The borings were drilled using a CME45 drill rig using the

rotary wash method of drilling. Soil samples recovered during drilling were from Standard Penetration Tests and a three-inch outside diameter (O.D.) California-type split spoon sampler fitted with six-inch long brass liners. In addition, three shallow borings were drilled next to CPTs 8, 9, and 10 to verify that the sensitive fines/organic material encountered in the upper ten feet did not contain peat. The Standard Penetration Test (SPT) requires a 140-pound hammer with a 30-inch drop. The drilling rig used for this sampling was equipped with a safety hammer that was raised using a rope and cathead. The penetration of the three-inch diameter sampler and the SPT sampler into the native materials was field recorded as the number of blows needed to drive the sampler 18-inches in six-inch increments. Field blow count results on the boring logs were recorded as the number of blows required for the last one foot of penetration. The blow counts recorded in the field for the last foot of depth are presented on the boring logs without correction factors. Following exploratory drilling, the collected soil samples were reexamined in ENGEO's laboratory to confirm field classifications.

Kleinfielder, Inc.'s *Preliminary Geotechnical Findings* for the Burroughs property included a field exploration and laboratory testing. The field exploration was conducted between April 12 and October 12, 2005, and consisted of drilling test borings to a maximum depth of about 32 feet and advancing 16 CPTs to a maximum depth of about 40 feet. The borings were drilled using a Simco 2400 truck mounted drill rig equipped with four-inch O.D. solid stem auger. During the drilling operations, penetration tests were performed in accordance with ASTM D1586 at regular intervals using a Modified California Sampler and/or Standard Penetration Sampler to evaluate the relative density of course-grained (cohesionless) soil and to retain soil samples for laboratory testing. The penetration tests were performed by initially driving the sampler 6 inches in the bottom of the bore hole using a 140 pound trip-hammer falling 30 inches to penetrate loose soil cuttings and "seat" the sampler. Thereafter, the sampler was progressively driven an additional 12 inches, with the results recorded as the corresponding number of blows required to advance the sampler 12 inches, or any part thereof. The CPTs were performed by hydraulically pushing a 1.4-inch diameter electronic cone penetrometer into the subsurface soils using an enclosed truck mounted 20-ton ram system. During penetration, the cone or tip and sleeve friction resistance is recorded on a nearly continuous basis to the depth of exploration. Following exploratory drilling, the collected soil samples were reexamined in Kleinfelder, Inc. laboratory to confirm field classifications.

The draft Geology Chapter prepared by Kleinfelder in November 2005 relied on *Geotechnical Exploration Report: Southern 140 Acres, Emerson Property* prepared by ENGEO, Inc., *Geotechnical Investigation: Gilbert Property Residential Development* prepared by Stevens, Ferrone & Bailey Engineering Company, Inc.

Conclusions in this chapter are drawn by using the significance criteria listed above and, if applicable, mitigation measures are prescribed.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project.

4.8-1 Damage to foundations, pavements, and other structures constructed within the project site as a result of heaving and settlement of expansive soils.

Construction of the proposed roadways and future construction of residential and commercial development would require solid building surfaces. Expansive soils shrink and swell as a result of moisture changes, causing heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations.

The near surface soils in portions of the site consist of moderately to very highly expansive clay. Therefore, expansive soil on the project site could have a ***potentially significant*** impact on foundations, pavements, and other structures within the proposed project area.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce potential impacts related to foundation support/expansive soil to a *less-than-significant* level.

4.8-1 Prior to approval of Improvement Plans, the project proponent shall conduct a design-level geotechnical study, which shall consider the recommendations in the existing geology report and additional recommendations as needed. The study shall specifically address whether expansive soils are present in the development area and include measures to address these soils where they occur. The recommendations from the geotechnical study shall be incorporated into the design of roadway and infrastructure improvements as well as foundation and building design for the review and approval of the City Engineer.

4.8-2 Impacts related to weak or compressible clay.

Weak or compressible clays can consolidate under additional loads from engineered fill and buildings. The weak or compressed clays can cause settlement of pavements and structures founded on shallow foundations.

Much of the project is underlain by relatively weak or moderately to highly compressible clay and silt with interbedded strata of moderately organic clay (Kleinfelder, p. 4). The presence of moderately organic clay could increase the potential for foundation settlement. A majority of the settlement on the project site is likely to occur during earthwork operations. Therefore, weak or compressible soil could have a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.8-2 *Prior to the approval of Improvement Plans, and after the project grading plans are completed and the approximate building loads are determined, a qualified geotechnical engineer shall determine if remediation measures such as removing and surcharging the compressible materials are necessary to minimize future settlement to acceptable levels. The applicant shall provide the findings of the consolidation analysis to the City Engineer for review and approval.*

4.8-3 Loss of structural support due to potential liquefaction.

Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary, but essentially total loss of shear strength (Any compression stress with support on one side) because of pore pressure build-up, which is the interstitial pressure of water within a mass of soil, rock, or concrete under the reversing cyclic shear stresses associated with earthquakes. The primary factors determining liquefaction potential of a soil deposit are: (1) the level and duration of seismic ground motions; (2) the type and consistency of the soil; and (3) the depth to groundwater.

The geotechnical study performed on the proposed project site indicates that variable thicknesses of liquefiable material exist below a majority of the project. Up to four inches of settlement could occur due to liquefaction. In addition, portions of the site do not have enough capping material to prevent the liquefiable material from venting to the surface creating sand boils, ground cracking, and other ground surface disruption.

Structural support related to the proposed project could be adversely affected by potential liquefaction within the project site. Therefore, the development of the proposed project could result in a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the above impacts related to liquefiable soils to a *less-than-significant* level.

4.8-3(a) *Prior to issuance of a grading permit, the applicant/developer shall incorporate the recommendations of a design-level geotechnical report into the Improvement Plans. The following measures include, but are not limited to, the options available to reduce site liquefaction potential and/or adverse effects to structures located above potentially liquefiable soils. Once final grading plans are designed, the project's geotechnical engineers shall determine the appropriate methods of mitigating the effects of liquefaction, such as:*

- *Remove and replace potentially liquefiable soils;*
- *Strengthen foundations (e.g., post-tensioned slab, reinforced mat or grid foundation, or other similar system) to resist excessive differential settlement associated with seismically-induced liquefaction;*
- *Support the proposed structures on an engineered fill pad (minimum of 5 feet thick) in order to reduce differential settlement resulting from seismically-induced liquefaction and post-seismic pore pressure dissipation; and/or*
- *Densify potentially liquefiable soils with an in situ ground improvement technique such as deep dynamic compaction, vibro-compaction, vibro-replacement, compaction grouting, or other similar methods.*

4.8-3(b) If deep dynamic compaction is expected to be implemented as the method of densification or for any other reason, the following measures shall be implemented:

- *Geotechnical engineers for the District and the Group Member performing Deep Dynamic Compaction (the "DDC Member") shall mutually agree upon acceptable threshold limits for peak particle velocities measured during deep dynamic compaction at the toe of the Canal berm (the "Threshold Limits") along the DDC Member's Project. The sole purpose of the Threshold Limits is to attempt to avoid damage to the canal. The parties are not warranting that peak particle velocities at the toe of the Canal berm along the DDC Member's Project less than said Threshold Limits is safe or would not cause or contribute to Canal damage. In determining Threshold Limits, in addition to general safety and engineering factors, the District and DDC Member Engineers may also consider the types and amounts of comprehensive general liability insurance coverage provided by the DDC Member and its contractors or sub-contractors, as well as specific design, construction monitoring, and other measures that are developed to protect the Canal's Integrity, stability, and water quality as set forth above. (For example, if the District believes the amounts of comprehensive general liability insurance coverage provided by the DDC Member and its contractors or sub-contractors is insufficient, the Threshold Limits should be reduced accordingly to reflect this fact.) An independent licensed engineer selected by the District (with the concurrence of the DDC Member) shall, at the DDC Member's sole cost and expense, monitor measurements of peak particle velocities at the toe of the Canal berm along the DDC Member's Project during the period that Deep Dynamic Compaction is being performed, and shall submit to the District logs reflecting such measurements on a daily basis during such period.*

- *To help ensure that the threshold limits are not exceeded, the DDC Member shall commence deep dynamic compaction on those portions of the project site located farthest from the Canal, and thereafter shall proceed with Deep Dynamic Compaction from those portions of the Project toward the Canal. That is, the DDC Member shall always conduct Deep Dynamic Compaction on this Project in a manner that the progression is in a direction toward the canal.*

- *If the threshold limits are exceeded while deep dynamic compaction is being performed, then the DDC Member shall immediately cease performing deep dynamic compaction within its Project and promptly notify the District. Deep dynamic compaction shall not resume unless and until (i) measures are developed and implemented by the DDC Member to ensure that the threshold limits are not exceeded, and (ii) the DDC Member notifies the District in writing of such measures.*

4.8-4 Increased soil erosion, wind and water erosion, and siltation of local drainage during and after construction from excavation and grading activities.

During construction within the proposed project area, topsoil would be moved and graded. The removal and grading of topsoil would lead to potential erosion of the project site soils because disturbed soil would not have as much connectivity to the ground as undisturbed soil. The disturbed soils are more likely to undergo erosion from a variety of sources, such as wind and water (For impacts related to water quality, see Impact 4.10-5 in the Hydrology and Water Quality chapter of this DEIR). Construction activities involve water, which may further erode the topsoil as the water moves across the ground, or precipitation may lead to soil erosion on the project site. Therefore, the impact would be considered ***potentially significant.***

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.8-4 Prior to issuance of a grading permit, the project applicant shall submit, for the review and approval of the City Engineer, an erosion control plan that utilizes best management practices to limit the erosion effects during construction of the proposed project. Measures could include, but are not limited to:

- *Hydro-seeding;*
- *Placement of erosion control measures within drainageways and ahead of drop inlets;*
- *The temporary lining (during construction activities) of drop inlets with "filter fabric" (a specific type of geotextile fabric);*
- *The placement of straw wattles along slope contours;*

- *Directing subcontractors to a single designation "wash-out" location (as opposed to allowing them to wash-out in any location they desire);*
- *The use of siltation fences; and*
- *The use of sediment basins and dust palliatives.*

4.8-5 Grading and import of fill.

Some parts of the project site would require several feet of fill materials. The placement of fill on the site could increase erosion and the introduction of sediment into the stormwater system. In addition, the transportation of fill to the site would involve a large number of truck trips; these truck trips are further analyzed in the Traffic and Circulation and Air Quality chapters of this EIR. Therefore, the import of fill material would constitute a ***potentially significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.8-5 Implement Mitigation Measure 4.8-4.

Cumulative Impacts and Mitigation Measures

The continuing buildout of developments in the City of Oakley and surrounding areas would be expected to increase the need for surface grading and excavation and, consequently, increase the potential for impacts related to soil erosion, unforeseen hazards, and exposure of people and property to earthquakes.

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region.

4.8-6 In combination with existing and future developments, increased potential impacts related to geological impacts and hazards.

The proposed project would increase the number of people and structures that could be exposed to potential effects related to seismic hazards. Development of the proposed project would also increase the number of structures that could be subject to the effects of shallow depth to rock or expansive soils, and site preparation would result in temporary and permanent topographic changes that could affect erosion rates or patterns. However, potentially adverse environmental effects associated with seismic hazards, as well as those associated with geologic or soils constraints, topographic alteration, and erosion, are usually site-specific and generally would not combine with similar effects that could occur with other projects in Oakley. Furthermore, all projects would be required to comply with the UBC and other applicable safety regulations. Consequently, the proposed project would generally not be affected by, nor would the project affect, other development approved by the City of Oakley. Therefore, the impact would be considered ***less-than-significant***.

Mitigation Measure(s)
None required.

Endnotes

[1] City of Oakley. *Oakley 2020 General Plan*. August 30, 2002.
[2] City of Oakley. *Oakley 2020 General Plan Draft Environmental Impact Report*. September, 2002.
[3] ENGEO, Inc. *Geotechnical Exploration Report: Southern 140 Acres, Emerson Property*. March 2005.
[4] Kleinfelder. *Geology report for the Dutch Slough Properties Draft EIR*. November 18, 2005.
[5] Soil Survey of Contra Costa County (1977).

4.9 HISTORICAL AND CULTURAL RESOURCES

4.9 HISTORICAL AND CULTURAL RESOURCES

Introduction

The Historical and Cultural Resources chapter discusses the impacts the proposed project would have on existing cultural resources in the area. The cultural resources analysis evaluates known prehistoric and historic uses in the project area, and the potential for existence of currently unknown heritage sites. Information used in this chapter is derived from the *City of Oakley General Plan*,[1] the *City of Oakley General Plan Draft Environmental Impact Report*,[2] and the *Archaeological Resources Assessment for the Emerson Property*[3] prepared by Basin Research Associates (See Appendix N of this Draft EIR).

Existing Environmental Setting

This section describes cultural (prehistoric and ethnographic) and historical resources known to be located on the project site. Cultural resources are those sites and artifacts associated with indigenous, non-Euroamerican population, generally prior to contact with people of European descent. Historical resources include structures, features, artifacts and sites that date from Euroamerican settlement of the region.

Prehistoric Resources

Archaeologists have found few prehistoric sites in the Oakley area. One substantial shell mound was discovered early in the twentieth century near what is now the east edge of town. The Northwest Information Center of the California Historical Resources Information System keeps track of archaeological investigations undertaken in Oakley. Around three dozen such projects have been completed in the past 25 years, yielding only four prehistoric sites in the City. However, the Information Center believes a high possibility exists that other prehistoric sites remain within the City.

The Oakley area appears to have been favored by Native Americans for both occupation, and hunting and collecting activities. The area would have provided a favorable environment during the prehistoric period with riparian and inland resources readily available, and the bayshore in relatively close proximity. Native American occupation and use of the Oakley area appears to extend over 5,000 to 7,000 years, and may have been longer. Archaeological information suggests an increase in the prehistoric population over time with an increasing focus on permanent settlements with large populations in later periods. The change from hunter-collectors to increasingly sedentary lifestyle was likely due to more efficient resource procurement with a focus on staple food exploitation, the increased ability to store food at village locations, and the development of increasingly complex social and political systems, including long-distance trade networks.

Ethnographic Resources

The proposed project appears to have been within the Julpun and/or Volvon tribelet area of the Bay Miwok or Eastern Miwok. The Julpun territory appears to have extended along the Old River of the San Joaquin River and lower Marsh Creek, while the Volvon held Mount Diablo and upper Marsh Creek drainage on the eastern side of Mount Diablo (Milliken 1995:229, Map 5, 246, 259). The Julpun and/or Volvon may have been subject to some Northern Yokuts influence, a group clustered along the San Joaquin River and the San Joaquin River's main tributaries. Chupcan is the closest known ethnographic village and the tribelet center appears to have been located at present-day Antioch (Kroeber 1925; Davis 1961; Bennyhoff 1977; Levy 1978; Wallace 1978; Elsasser 1986; qtd. in the Archaeological Resources Assessments for the properties by Basin Research Associates).

The Bay Miwok were the first of the Eastern Miwok to be missionized and the largest group of Julpun went to Mission San José in present-day Fremont. Julpunes is identified as a Christian village on an 1824 topographic map of the Mission San Jose. This village is shown on an island on the north bank of the San Joaquin River in the 1824 map, suggesting the Julpun moved as a result of missionization (Anonymous 1824 in Bennyhoff 1977:144, 166-167, Maps 4a-b; Levy 1978:401; qtd. in the Archaeological Resources Assessments for the properties by Basin Research Associates).

In 1838, Dr. John Marsh, the namesake of Marsh Creek, found a few Native Americans when he settled on his Rancho Los Meganos (the sand-banks or sand dunes), a rancho located south of the project area. Native Americans appear to have returned to the area at the end of 1836 after the secularization of Mission San José. Marsh was noted for his good relations with local Native Americans, whom he referred to as the Pulpunes and placed his adobe dwelling on the bank opposite their rancheria (Hoover et al. 1966; Bennyhoff 1977; Milliken 1995; qtd. in the Archaeological Resources Assessments for the properties by Basin Research Associates).

Extensive ethnographic data for the San Francisco Bay Region are lacking, and the aboriginal way of life apparently disappeared by approximately 1810 due to introduced diseases, a declining birthrate, the cataclysmic impact of the mission system, and the later secularization of the missions by the Mexican government (Levy 1978).

Native American villages or known trails are not situated within or near the project area.

History and Settlement of Oakley

While some historic structures and land uses date back to the late 1800s, most of the City's historic resources date from the period of Oakley's growth and development, roughly from 1901 to 1955. While officially designated historic structures do not exist in Oakley, numerous buildings, primarily in the old town area, are eligible for such designation or listing. The City intends to evaluate such resources and establish preservation policies and practices for qualified historic resources.

Hispanic Period

As identified in the Cultural Resources section of this element, the first settlers in the west delta were the Bay Miwoks, who occupied the region between 1100 and 1770 A.D. Spanish incursions into the Oakley area began in the 1770s. Between 1769 and 1776, a number of Spanish expeditions passed through the San Francisco Bay region, including those led by Portola, Fages, Fages and Crespi, Anza, Rivera, and Moraga. Even though the routes of the early explorers cannot be determined with total accuracy, none are known to have traveled near the project area (Schenck 1926; Cook 1957; Beck and Haase 1974:#17; Milliken 1995:33, Map 3; qtd. in the Archaeological Resources Assessments for the properties by Basin Research Associates). The closest known historic trail corridor, the 1776 Juan Bautista de Anza National Historic Trail, passed just west and south of the Emerson property (USNPS 1995). The Spanish philosophy of government in northwestern New Spain was directed at the founding of presidios, missions, and secular towns with the land held by the Crown (1769 to 1821), while the later Mexican policy (1822 to 1848) stressed individual ownership of the land. After the secularization of the missions was declared by Mexico in 1833, vast tracts of the mission lands were granted to individual citizens (Hart 1987 qtd. in the Archaeological Resources Assessments for the properties by Basin Research Associates).

During the Mexican Period (1822 to 1846) and into the American Period, the project site was situated in ungranted/patented lands north of the Rancho Los Meganos. Governor Jose Castro granted the rancho to Jose Noriega in October 1835. He sold it to John Marsh in 1837. Marsh moved to the rancho in April 1838 and was murdered in 1856 by three Mexican vaqueros. His daughter patented the rancho in August 1867.

Hispanic period features, dwellings, roads, corrals, etc. do not appear to have been present within or near the project (Hendry and Bowman 1940:484-486; Collier 1983; qtd. in the Archaeological Resources Assessments for the properties by Basin Research Associates).

American Period

In the mid-19th century, most of the rancho and pueblo lands in California were subdivided as the result of population growth and the American takeover. The American ascendancy was the result of the confirmation of property titles throughout California, prior to which the transfer of real estate had been extremely risky. The initial explosion in population was associated with the Gold Rush (1848), followed later by the construction of the transcontinental railroad (1869). Still later, the development of the refrigerator railroad car (ca. 1880s), used for the transport of agricultural produce to distant markets, had a major impact on population growth (Hart 1987 qtd. in the Archaeological Resources Assessments for the properties by Basin Research Associates).

American settler John Marsh successfully farmed the land in the 1830s, bringing other American immigrants to the region. By 1862, the population of the Oakley region was large enough to support a school. A store on the Dutch Slough brought vessels into the canal for commerce. In the 1860s, farmers created swampland districts through reclamation of delta lands for new farming opportunities. Construction of the railroad along the City's southern boundary in 1879

introduced a shipping alternative for farmers. The town of Oakley was founded in 1897, when the transcontinental railroad arrived and agriculture shifted from grains to orchard crops.

Contra Costa County is among the 27 initial California counties. Growth in the County has been linked with agriculture, a coal-mining boom from the 1850s to 1880s, and the development of transportation networks to service both industry and agriculture with market links. The towns of Crockett, Port Costa, Vallejo Junction, Martinez, former Bay Point/Port Chicago, Bay Point, Pittsburg, Antioch, and later Oakley were important focal points for services and the transport of coal, fish, lumber, and wheat to San Francisco, Sacramento, and beyond by water and, later, by rail.

Growth was slow in the early 1900s, with expanding agricultural industry and local services. Civic institutions and activities expanded after WWI, followed by the depression. Floods and levee breaks altered the land area, resulting in the expansion of agriculture and tourism for recreation in the 1930s. Opportunities and inexpensive land brought about a population boom in the 1970s. The increase in population attracted industrial and commercial uses to the community. The population quadrupled in the 1980s to 16,000 persons. Discontent with the way the County government was handling growth in Oakley led to the founding of an official advisory council in 1983, and eventual incorporation in 1999.

The Portuguese in the area began observing the Holy Ghost Festival (which involves a parade, a feast and a religious service) in 1926 and built the Flor Do Oakley Hall in 1928. Oakley pioneers John Augusta and Joseph Augusta were both instrumental in the promotion of this annual event. John Augusta moved to Oakley in 1900 and purchased the first business lot in town. His blacksmith shop quickly became a favorite gathering place for early settlers. The shop was lost in the Oakley Fire of 1924, which also burned most of downtown, including the Oakley Hotel. Joseph Augusta, John Augusta's brother, moved to Oakley in 1913 and was a lumberyard manager. He is credited with fighting the County for much needed improvements in Oakley, like curbs and gutters, and he also was instrumental in the formation of the Oakley Sanitary District.

Project Study Area

The project is located in the eastern part of present-day Oakley. Prior to reclamation, Marsh's Landing at the edge of the extensive tule area opposite Sherman Island and Iron House/Babbe's Landing (both dating to the 1850s) along Dutch Slough were the most important features in the study area.

By 1873 the San Pablo and Tulare Railroad ran through the study area, skirting the northeastern portion of Rancho Los Meganos. By 1878, the San Pablo and Tulare Railroad was complete and ran south of the future Oakley vicinity, from Tracy through Byron, Brentwood, Antioch, Pittsburg/Cornwall, and Bay Point and on to Martinez to connect with the Central Pacific Railroad. In 1899, a parallel line was constructed between Seal Bluff and Antioch by the San Francisco & San Joaquin Valley Railroad Company. The parallel line was conveyed to the Santa Fe Railroad Company in 1901, which was an 1897 reorganization of the Atchison Topeka & Santa Fe Railway Company (AT&SF).

By the late 19th century, Oakley was located on the south side of Atchison Topeka and Santa Fe (AT&SF) railroad line 1.5 miles east and slightly south of the Emerson property. The town is now situated about six miles east of Antioch and about 1.5 miles northwest of Knightsen (on the Atchison Topeka & Santa Fe Railway Company rail line). Oakley was named for the abundant native oak trees by R.C. Marsh and was noted for apricots, almonds and grapes. R.C. Marsh, farmer and first postmaster of the Oakley post office, which opened October 7, 1878, negotiated the right-of-way across the northwest quarter of Section 25. The right-of-way included a half-mile of sidetrack and a small station room.

Fruit and vegetable wholesalers built packing sheds along the north side of the half-mile long railroad spur to ship almonds, celery, asparagus, and wine grapes to the eastern markets. Reportedly, the field workers in the area were "mostly Oriental" (Chinese and Japanese) but also included Hindus and later, Mexicans provided labor (Smith and Elliot 1879:map; Collier 1983:141-142; Emanuels 1986:209-211; Patera 1991:154; Fickewirth 1992:13, 129, 137; Metcalfe 1994 [1902]: not paginated; Walker 1994:Map CA-13; Gudde 1998:266; Oakley 2002b:EIR, 3-2; qtd. in the Archaeological Resources Assessments for the properties by Basin Research Associates).

Historical Resources In/Near the Project Site

Two historic-era historical resources are located within or adjacent to the project area: Iron House School, and part of the Contra Costa Canal. The *Archaeological Resources Assessment* prepared by Basin Research Associates did not locate any other local, State, or federal historically or architecturally significant structures, landmarks, or points of interest within or adjacent to the project area. One historic-era cultural resource, Iron House landing (later known as Babbe's Landing), is located just north of the project site.

Iron House School – Built 1896

Originally, Iron House School was located at the northwest corner of the intersection of Cypress Road and Sellers Avenue on the Emerson property (e.g., USGS 1916 Bryon [surveyed 1911]). The School has been moved in recent years to the northeast corner of the Emerson property. By 1882, the Iron House School District was one of 39 in Contra Costa County (Slocum 1882:207). The school is a single-story wood frame building with shiplap siding capped with a double-pitched roof. In 1976, a pipeline was proposed about 150 yards from the school, which had been modified and modernized for use as a private residence and dairy (Busby 1976).

The former school is on the *California History Plan* (CAL/OHP 1973:55) and *California Inventory of Historic Resources* under the theme of Social/Educational (CAL/OHP 1976:209, 229), is listed on the *Revised Preliminary Historic Resources Inventory* of Contra Costa County as a "Structure of Historical Significance" (CCCo/CDD 1989:East Contra Costa County area), and is on the *Contra Costa County Map of Historical Points of Interest* (Contra Costa County Historical Society (CCCoHS) 1994:#148). Iron House School is listed on the *Historic Properties Directory* (HPD) on Cypress Road in Brentwood [*sic*] as a "code 7," not evaluated for inclusion on the National Register of Historic Places or the California Register of Historical Resources or needing reevaluation. The HPD assigns Primary Number P-07-000903 to the school.

Contra Costa Canal

The Contra Costa Canal, the first canal built as part of the Central Valley Project, is located adjacent to the northern boundary of the proposed project area. The United States Bureau of Reclamation opened an office in Antioch in 1936. Construction on the canal began in late 1937 and was completed in 1948 (after work was suspended during World War II). The 46-mile long Contra Costa Canal has been evaluated as eligible for inclusion on the National Register of Historic Places at the state and local level under Criterion A for the canal's association with events that have made a significant contribution to the broad patterns of history. The Contra Costa Water District (CCWD) plans to convert up to 21,000 feet of the Contra Costa Canal adjacent to the proposed project to buried pipeline. The CCWD has completed a CEQA review of the Contra Costa Canal Encasement Project in the form of an Initial Study/Mitigated Negative Declaration (IS/MND).

Iron House Landing

One historic-era cultural resource, Iron House Landing (later known as Babbe's Landing), is described as located at the foot of Sellers Avenue on Dutch Slough (CAL/OHP 1976:228). Iron House Landing, as mapped on the 1862 *Government Land Office* (GLO) survey plat for Township 2 North, Range 3 East, is north of the project site in the N 1/2 of the NE 1/4 of Section 19. The Landing dates to the 1850s and appears on a number of historic maps. The name "Iron House" is reportedly associated with a store on the Landing owned by Larrabee and Henderson who replaced their make-shift pole and tule structure with a house built of sheet iron. The Iron House was later bought by the Halstead family (Hohlmayer 1991:239-240 qtd. in the Archaeological Resources Assessments for the properties by Basin Research Associates). The Landing was on a channel cut to high land and was the central point for horse and hay transport to San Francisco in the Iron House and Eden Plains districts. The Landing also included the store of Martin Hamburg until he moved to Antioch (Smith and Elliott 1879:30, ff22 [illustrated]; Slocum 1882:484; Baker 1985:2-4/S-7639 qtd. in the Archaeological Resources Assessments for the properties by Basin Research Associates). Research conducted by Baker at the Bancroft Library, University of California, Berkeley located some material on Frederick Babbe, but not for Martin Hamburg at the Landing site. Baker posits, given the lack of data, locating the Martin Hamburg store at the Landing may be a mistake.

Babbe's Landing is listed on the *California History Plan* under the theme of Exploration/Settlement (CAL/OHP 1973:53), *California Inventory of Historic Resources* under the theme of Economic/Industrial (CAL/OHP 1976:68, 228), and the *Revised Preliminary Historic Resources Inventory* of Contra Costa County (CCC/CDD 1989:East Contra Costa County area) as a Site of Historic Event.

Farm Structures

By the early 1930s the number of farm structures within the present City limits might have been 500. Due to the small-scale nature of most of local agriculture in the twentieth century, the buildings were generally small and simple. Few farmsteads containing a house, auxiliary buildings, and surrounding open land, remain today. Exceptions are the Emerson and former

Burroughs dairies in the northeast corner of the City. Individual farm buildings, not always houses, are more common. Several trends have diminished the number of farm structures: the abandonment of ranching, the replacement of old houses with newer ones, and the conversion of land from farming to residential tracts.

Regulatory Context

Federal, State and local governments have developed laws and regulations designed to protect significant cultural resources that could be affected by actions that they undertake or regulate. The National Environmental Policy Act (NEPA), National History Preservation Act (NHPA) and California Environmental Quality Act (CEQA) are the basic federal and State laws governing preservation of historic and archaeological resources of national, regional, State and local significance.

Federal Regulations

Federal regulations for cultural resources are governed primarily by Section 106 of the NHPA of 1966. Section 106 of NHPA requires federal agencies to take into account the effects of their undertaking on historic properties and affords the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The Council's implementing regulations, "Protection of Historic Properties," are found in 36 Code of Federal Regulations (CFR) Part 800. The goal of the Section 106 review process is to offer a measure of protection to sites, which are determined eligible for listing on the National Register of Historic Places. The criteria for determining National Register eligibility are found in 36 CFR Part 60. Amendments to the Act (1986 and 1992) and subsequent revisions to the implementing regulations have, among other things, strengthened the provision for Native American consultation and participation in the Section 106 review process. While federal agencies must follow federal regulations, most projects by private developers and landowners do not require this level of compliance. Federal regulations only come into play in the private sector if a project requires a federal permit or if the project uses federal money.

National Historic Preservation Act (NHPA)

The NHPA establishes laws for historic resources to preserve important historic, cultural, and natural aspects of our national heritage, and to maintain, wherever possible, an environment that supports diversity and a variety of individual choice. The Historic Sites Act of 1935 established national policy to preserve historic sites, buildings, and objects of national, state and local significance.

National Register of Historic Places

The National Register of Historic Places is maintained by the National Park Service and the State Historic Preservation Offices. Structures and sites are eligible for listing on the National Register when they are a minimum of 50 years-old.

State Regulations

Historical resources are recognized as part of the environment under CEQA statutes and guidelines (Public Resources Code sections 21001(b), 21083.2 and 21084.1; and section 15064.5 of the CEQA Guidelines). CEQA requires lead agencies to carefully consider the potential effects of a project on historical resources. Properties of local significance, including those identified in a local historical resource inventory, are presumed to be significant for the purposes of CEQA unless a preponderance of evidence indicates otherwise (PRC sections 5024.1, 14 CCR section 4850).

Section 15064.5 of the CEQA Guidelines specifies criteria for evaluating the importance of cultural resources. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource (Public Resources Code section 5020.1). A resource may be considered to be "historically significant" if the resource meets the criteria for listing on the California Register, including the following:

- The resource is associated with events that have made a contribution to the broad patterns of California history;
- The resource is associated with the lives of important persons from our past;
- The resource embodies the distinctive characteristics of a type, period, region or method construction, or represents the work of an important individual or possesses high artistic values; or
- The resource has yielded, or may be likely to yield, important information in prehistory or history.

Integrity is the authenticity of the historical resource's physical identity as evidenced by the survival of characteristics that existed during the resource's period of significance. The property must meet at least one of the criteria as described above and retain enough historic character or appearance to be recognizable as an historical resource, and also to convey the reasons for the property's significance. Integrity is evaluated with regard to the aspects of location, design, setting, materials, workmanship, feeling, and association.

CEQA also applies to effects on archaeological sites. When a project will impact an archaeological site, the lead agency shall determine if the site is an historical resource as defined above. Advice on procedures to identify such resources, evaluate their importance, and estimate potential effects is given in several agency publications, such as the series produced by the Governor's Office of Planning and Research (OPR). The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including, but not limited to, museums, historical commissions, associates and societies, be solicited as part of the process of cultural resources inventory. In addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of the antiquity and provides for the sensitive treatment and disposition of those remains.

State Office of Historic Preservation

The State Office of Historic Preservation implements preservation laws regarding historic resources, and is responsible for the California Historic Resources Inventory (CHRI), which uses the National Criteria for listing resources significant at the national, State, and local level.

Local Regulations

The following are the local government environmental goals and policies relevant to the CEQA review process.

City of Oakley General Plan

Few archaeological or paleontological finds exist in the City of Oakley. However, given the rich history of the General Plan Area and region, the City will continue to require site evaluation prior to development of undeveloped areas, as well as require procedures if artifacts are unearthed during construction.

The following applicable goals and policies are from the Oakley 2020 General Plan Open Space and Conservation Element:

Cultural Resources

Goal 6.4 Encourage preservation of cultural resources within the Plan Area.

Policy 6.4.1 Preserve areas that have identifiable and important archaeological or paleontological significance.

Program 6.4.A Assess development proposals for potential impacts to significant archaeological resources pursuant to Section 15064.5 of the CEQA Guidelines. Require a study conducted by a professional archaeologist for projects located near creeks or identified archaeological sites to determine if significant archaeological resources are potentially present and if the project will significantly impact the resources. If significant impacts are identified, either require the project to be modified to avoid the impacts, or require measures to mitigate the impacts. Mitigation may involve archaeological investigation or recovery.

Historical Resources

While some historic structures and land uses within the community date back to the late 1800s, most of the City's historic resources date from the period of Oakley's growth and development, roughly from 1901 to 1955. While officially designated historic structures do not exist in Oakley, numerous buildings, primarily in the old town area, may be eligible for such designation or

listing. The City intends to evaluate such resources and establish preservation policies and practices for qualified historic resources.

Goal 6.5 Encourage preservation and enhancement of selected historic structures and features within the community.

Policy 6.5.1 Promote the compatibility of new development located adjacent to existing structures of historic significance with the architecture and site development of the historic structure.

Policy 6.5.2 Respect the character of the building and its setting during the remodeling and renovation of facades of historic buildings.

Policy 6.5.3 Encourage the use of the State Historic Building Code for historic buildings and other structures that contribute to the City's historic character. Use flexibility when applying zoning regulations to historic sites and buildings.

Policy 6.5.4 Recognize the value of Oakley's historic resources as an economic development tool.

Policy 6.5.5 Ensure that the integrity of historic structures and the parcels on which they are located are preserved through the implementation of applicable design, building, and fire codes.

Policy 6.5.6 Work with property owners to preserve historic features within the community.

Program 6.5.A Encourage owners of eligible historic properties to apply for State and Federal registration of these sites and to participate in tax incentive programs for historic restoration.

Program 6.5.B Identify funding mechanisms, including funding from the City to the extent possible, to support programs to preserve, restore, and enhance unique historic sites.

Program 6.5.C Assess development proposals for potential impacts to significant historic resources pursuant to Section 15064.5 of the CEQA Guidelines. For structures that potentially have historic significance, require a study conducted by a professional archaeologist or historian to determine the actual significance of the structure and potential impacts of the proposed development. Require modification of projects to avoid significant impacts, or require mitigation measures. Protect historical buildings

and sites to the extent possible, including modifications to Uniform Code requirements for historic structures.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

Archaeological Resources

A project could have a significant effect on the environment if the proposed project would cause a substantial adverse change in the significance of an archaeological resource or disturb any human remains. Pursuant to Section 15064.5 of the CEQA *Guidelines*, archaeological resources not otherwise determined to be historical resources may be significant if they are unique. Public Resources Code (PRC) Section 21083.2(g) states, "[…] 'unique archaeological resource' means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific questions and a demonstrable public interest exists in that information;
2) Has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
3) Is directly associated with a scientifically recognized important prehistoric or historic event or person."

According to Section 15064.5 of the CEQA *Guidelines*, all human remains are significant.

A non-unique archaeological resource means an archaeological artifact, object, or site that does not meet the above criteria. Non-unique archaeological resources do not receive further consideration under CEQA.

Historical Resources

Section 15065 of the CEQA *Guidelines* mandates a finding of significance if a project would eliminate important examples of major periods of California history or pre-history.

In addition, pursuant to Section 15064.5 of the CEQA *Guidelines*, a historical resource (including both built environment and prehistoric archaeological resources) shall be considered by the lead agency to be historically significant if it is listed on the California Register of Historical Resources (CRHR) or has been determined to be eligible for listing by the State Historical Resources Commission. An historical resource may also be considered significant if the lead agency determines, based on substantial evidence, that the resource meets the criteria for inclusion in the CRHR. Any resource that is listed on or considered eligible for inclusion on the National Register of Historic Places is automatically considered eligible for the CRHR.

Under the National Historic Preservation Act (NHPA), the quality of significance in American history, architecture, archaeology and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, handiwork, feeling and association and:

1. That are associated with events that have made a significant contribution to the broad patterns of our history;
2. That are associated with the lives of persons significant in our past;
3. That embody the distinctive characteristics of a type, period, or method of construction, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and/or
4. That have yielded or may be likely to yield, information important in prehistory or history.

The National Register of Historic Places requires consideration of significance of any structure over 45 years old.

Method of Analysis

Determinations of impacts to cultural resources were based on information from the *Oakley General Plan: Environmental Setting and Background*, the *City of Oakley General Plan*, and the *Cultural and Archaeological Assessment* prepared by Basin Research Associates for the proposed project.

A prehistoric and historic site records and literature search was completed by the California Historical Resources Information System, Northwest Information Center, California State University Sonoma, Rohnert Park (CHRIS/NWIC File No. 04-04, and 04-808). Reference material from the Bancroft Library, University of California at Berkeley and Basin Research Associates, San Leandro, was also consulted.

A *Phase 1 Environmental Site Assessment* and land *Soil Quality Evaluation* was also conducted for the project (St. Thomas Construction 2004) and reviewed by Basin Research Associates. The *Phase 1 Environmental Site Assessment* provides the results of a historical review, interview, regulatory records results, and site visit.

Based on information in the above reports, the standards of significance for cultural resources are identified and applied to the existing conditions to determine the impacts. Lastly, mitigation measures are proposed, if necessary.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project.

4.9-1 Substantial adverse change in the significance of a historical resource.

Two historic-era historical resources are located within or adjacent to the Emerson project site: Iron House School and part of the Contra Costa Canal. The study did not identify any other local, State, or federal historically or architecturally significant structures, landmarks, or points of interest within or adjacent to the project area. One historic-era resource, Iron House Landing (later known as Babbe's Landing), is located just north of the project.

The former Iron House School, previously located at the northwest corner of Cypress Road and Sellers Avenue, has been moved to the northeast quadrant of Emerson property. The schoolhouse is proposed to be moved to the Community Park site immediately north of the project site. The Memorandum of Understanding (MOU) between the City and the proposed project property owner includes provisions for the property owner to contribute to the relocation and rehabilitation of the former Iron House School. Basin Research Associates indicates in their assessment of the Emerson property that the past site of Iron House School at the northwest corner of Cypress Road and Sellers Avenue could contain significant archaeological resources. It should be noted that the closer the new location of the Iron House School building is to the current historic site, the greater degree to which impacts would be reduced. In addition, it should be noted that preserving features and materials of the Iron House School at the current historic location would reduce impacts to a greater degree than moving the features and materials to a new site. Project impacts would be expected to be reduced commensurate with the percentage of the existing building that is salvaged or otherwise preserved.

Three other buildings also exist on the Emerson property that could be over 50 years in age: a small one-story farmhouse, a barn, and an outbuilding. The doublewide mobile home and metal outbuilding with two garage bays on the Emerson site identified by Basin Research Associates appear to be less than 50 years in age and do not require further consideration.

As stated under the Existing Setting section of this chapter, the 46-mile long Contra Costa Canal has been evaluated as eligible for inclusion on the National Register of Historic Places (NRHP), and the portion of the canal adjacent to the proposed project is planned for encasement. Because the Contra Costa Canal has been determined eligible for listing in the NRHP, the canal is automatically determined eligible for listing in the California Register of Historic Resources. Therefore, the Contra Costa Canal qualifies as a historical resource under CEQA. However, the Contra Costa Canal Encasement Project states in the Cultural Resources section, page 3-54, that the canal's significance as a cultural resource lies in the association with the Central Valley Project and the economic development of the eastern Contra Costa Canal. The 21,000-foot segment of unlined canal to be replaced by pipeline is only a small segment of the primary structure of the

Contra Costa Canal. This segment is not central to the canal's significance as a whole, but rather is among the many features along the canal that contribute to the historic significance. Thus, the IS/MND for the canal encasement project concluded that the impact would be less-than-significant, and the rest of the canal would retain status as historical. Therefore, although the proposed project would not impact the adjacent canal, the segment adjacent to the proposed project would cease to be a historical resource after implementation of the Contra Costa Canal Encasement Project.

In addition, the Oakley General Plan EIR addresses the loss of cultural and historical resources, stating that the Oakley Planning Area and the surrounding areas contain possible archeological resources that would be potentially affected from new development associated with buildout of the General Plan, which would include the three structures existing in the central portion of the proposed project site. Urbanization of Oakley and the surrounding areas could result in the continued loss of historic structures and remove sources that have value both as a scientific resource and as an integral part of establishing community identity. However, the General Plan EIR addressed the impact of General Plan buildout on cultural and historical resources and concluded that with implementation of the General Plan goals and policies, a less-than-significant impact would result.

Because the historic Iron House School building could be subject to damage or loss as a result of development, a ***significant*** impact would occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the magnitude of impacts to the Iron House School building; however, impacts would remain *significant and unavoidable*.

4.9-1(a) *If avoidance of the former location of Iron House School at the northwest corner of the Cypress Road/Sellers Avenue intersection is not feasible as determined by the City, archaeological monitoring during ground disturbing construction shall be conducted in the vicinity of the former school. In the event that any historic and cultural materials are uncovered during construction, work within 25 feet of the find shall cease immediately, and a qualified professional archaeologist shall be contacted for further review and recommendations to determine if the resource is significant and to determine appropriate mitigation.*

4.9-1(b) *Prior to the issuance of grading permits, the City shall determine if the Iron House School can be relocated to the 55-acre future community park site immediately north of the project site, in accordance with the terms and conditions of the Memorandum of Understanding between the City of Oakley and Emerson, Burroughs, and Gilbert Families, entered into as of September 23, 2002. The specific location within the community park site shall be approved by the Community Development Department. The project proponent shall mitigate as follows:*

The project proponent shall offer to move the Iron House School to another location in the Dutch Slough area. If the Iron House School is moved from the building's original location, the new location shall be appropriate to the historic character of the building (i.e., a rural location similar to the current historic location).

If moving the Iron House School is not feasible, the historic materials and features of the building shall be salvaged. The salvaged materials may be able to be incorporated into buildings on the proposed project site or on other sites in the project area. Representatives of the East Contra Costa County Historical Society, the Contra Costa County Historical Society, the City of Oakley, and other interested parties shall be contacted and given the opportunity to examine the building and provide suggestions for salvaging various features.

Prior to the demolition, salvage, or moving of the Iron House School building and related landscape features, the building and features shall be photographically documented according to the Historic American Building Survey (HABS) "Photographic Specifications" published by the Great Pacific Basin Office of the National Park Service in Oakland, California. The documentation shall include archival quality, large format (minimum four by five inch) photographs of the exterior and interior of the building. The documentation shall focus on the individual structure. Written documentation shall include a narrative report according to the instructions in the "Historic American Building Survey Guidelines for Preparing Written Historic and Descriptive Data" published by the Cultural Resources Division of the Great Pacific Basin Office of the National Park Service. In addition to photographs, the documentation shall include historic maps and aerials. A copy of the documentation, with original photo negatives, prints, and plans, shall be donated to a historical archive accessible to the public and with facilities for storing archival photographs, such as the East Contra Costa County Historical Society in Oakley or the Contra Costa County Historical Society in Martinez.

4.9-2 Unearthing of previously unknown archaeological resources as a result of project grading.

Development associated with the proposed project, such as road improvements, utility corridors, and excavation associated with residential, or business development could result in the destruction or damage of unknown archaeological, or paleontological resources. The Archaeological Resource Assessment of the project area stated that based on a review of pertinent records, maps and other documents, and a field inventory, the proposed project can proceed as planned in regard to prehistoric and historic archaeological resources.

Archeologists have found few prehistoric sites in the Oakley area. One substantial shell mound was discovered early in the twentieth century near what is now the east edge of town. The Northwest Information Center of the California Historical Resources Information System now keeps track of archaeological investigations undertaken in Oakley. Around three dozen such projects have been completed in the past 25 years, yielding only four prehistoric sites in the City. However, the Information Center believes there is a high possibility that other prehistoric sites remain within the City.

Knowledge about the Oakley area prior to European settlement is limited and evidence of early native peoples who occupied the area is scarce; any artifact or information is therefore valuable. The intensity of prehistoric and historic human activities in this region increases the potential presence of a substantial number of as yet undiscovered important heritage resources within the project area.

The Oakley General Plan indicates that given the rich history of the General Plan area and region, the City will continue to require site evaluation prior to development of undeveloped areas, as well as require procedures if artifacts are unearthed during construction. Isolated artifacts can occur in a wide variety of environments. Many other areas of California, for which there is a significant body of archaeological information, including zones adjacent to creeks, rivers, and springs, are consistently considered to be of high archaeological sensitivity. Prehistoric encampments may occur on high ground along drainages, such as along Dutch Slough, though subsequent flooding and construction of oil wells may have either destroyed or buried these deposits.

Although studies suggest that the project area does not contain a large number of prehistoric sites or artifacts, archaeological sensitivity within the project area cannot be ruled out. In addition, Oakley General Plan Policy 6.4.1 requires the preservation of areas that have been identified as having important archaeological or paleontological significance. Therefore, because potential exists for archaeological resources to occur virtually anywhere in Oakley, even in areas thought to be of relatively low sensitivity, a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce any potential risks to archaeological resources to a *less-than-significant* level.

4.9-2(a) *During construction, if any earth-moving activities uncover artifacts, exotic rock, or unusual amounts of bone or shell, work shall be halted in the immediate area of the find and shall not be resumed until after a qualified archaeologist has inspected and evaluated the deposit and determined the appropriate means of curation. The appropriate mitigation measures may include as little as recording the resource with the California Archaeological Inventory database or as much as excavation, recordation, and preservation of the sites that have outstanding cultural or historic significance.*

4.9-2(b) *During construction, if bone is uncovered that may be human, the Contra Costa County Coroner and the Native American Heritage Commission in Sacramento shall be notified. Should human remains be found, the Coroner's office shall be immediately contacted and all work halted until final disposition by the Coroner. Should the remains be determined to be of Native American descent, the Native American Heritage Commission shall be consulted to determine the appropriate disposition of such remains.*

Cumulative Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region.

4.9-3 In combination with other known and foreseeable projects in the Oakley area, the project's contribution to cumulative cultural resources impacts.

Buildout of approved and planned uses such as the Emerson Property project and other projects within the City have the potential to uncover previously unknown resource sites. Each site is a unique contributor to the overall scientific understanding of a region's pre-history. Evaluation of cultural finds and resources within their original context is a critical component of their value. Disturbance, movement, and destruction of such resources would remove or preclude the analysis of the resource within the resource's origin and therefore adversely affect the understanding of the development of human cultural history. Increased population and intensified land use patterns associated with cumulative growth could also increase the potential for vandalism and/or inadvertent destruction of such resources. Consequently, the Oakley 2020 General Plan EIR found that cumulative development would create a significant impact to cultural resources. Therefore, cumulative impacts from implementation of the proposed project would be considered to be ***potentially significant***.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the proposed project's incremental contribution to the cumulatively significant impact to archaeological resources to a *less-than-significant* level.

4.9-3 *Implement Mitigation Measures 4.9-2(a) and (b).*

Endnotes

[1] City of Oakley. *Oakley 2020 General Plan*. August 30, 2002.
[2] City of Oakley. *Oakley 2020 General Plan Draft Environmental Impact Report*. September, 2002.
[3] Basin Research Associates. *Archaeological Resources Assessment for the Emerson Property.* 2004.

4.10 HYDROLOGY, WATER SUPPLY, AND WATER QUALITY

4.10 HYDROLOGY, WATER SUPPLY, AND WATER QUALITY

INTRODUCTION

This chapter of the EIR describes existing drainage and water resources for the proposed project site and the region, and evaluates potential impacts of the project with respect to flooding, surface water resources, groundwater resources, and water supply. The hydrology and water quality impact analysis is based on information drawn from the *City of Oakley General Plan*,[1] the *City of Oakley General Plan Draft Environmental Impact Report*,[2] the *Oakley 2020 General Plan Background Report*,[3] the *Groundwater Study for the Emerson and Burroughs Properties* prepared by ENGEO, Inc. (See Appendix O of this Draft EIR),[4] the *Preliminary Stormwater Management Plan for the Emerson Property* prepared by Balance Hydrologics, Inc. (See Appendix P of this Draft EIR),[5] and the *SB 610 Water Supply Assessment for the Emerson Property Project* prepared by RBF Consulting and adopted by the Diablo Water District (See Appendix Q of this Draft EIR).[6]

EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing conditions of the water supply, drainage systems, water quality, as well as stormwater runoff on the proposed project site and drainage area.

Project Site Characteristics

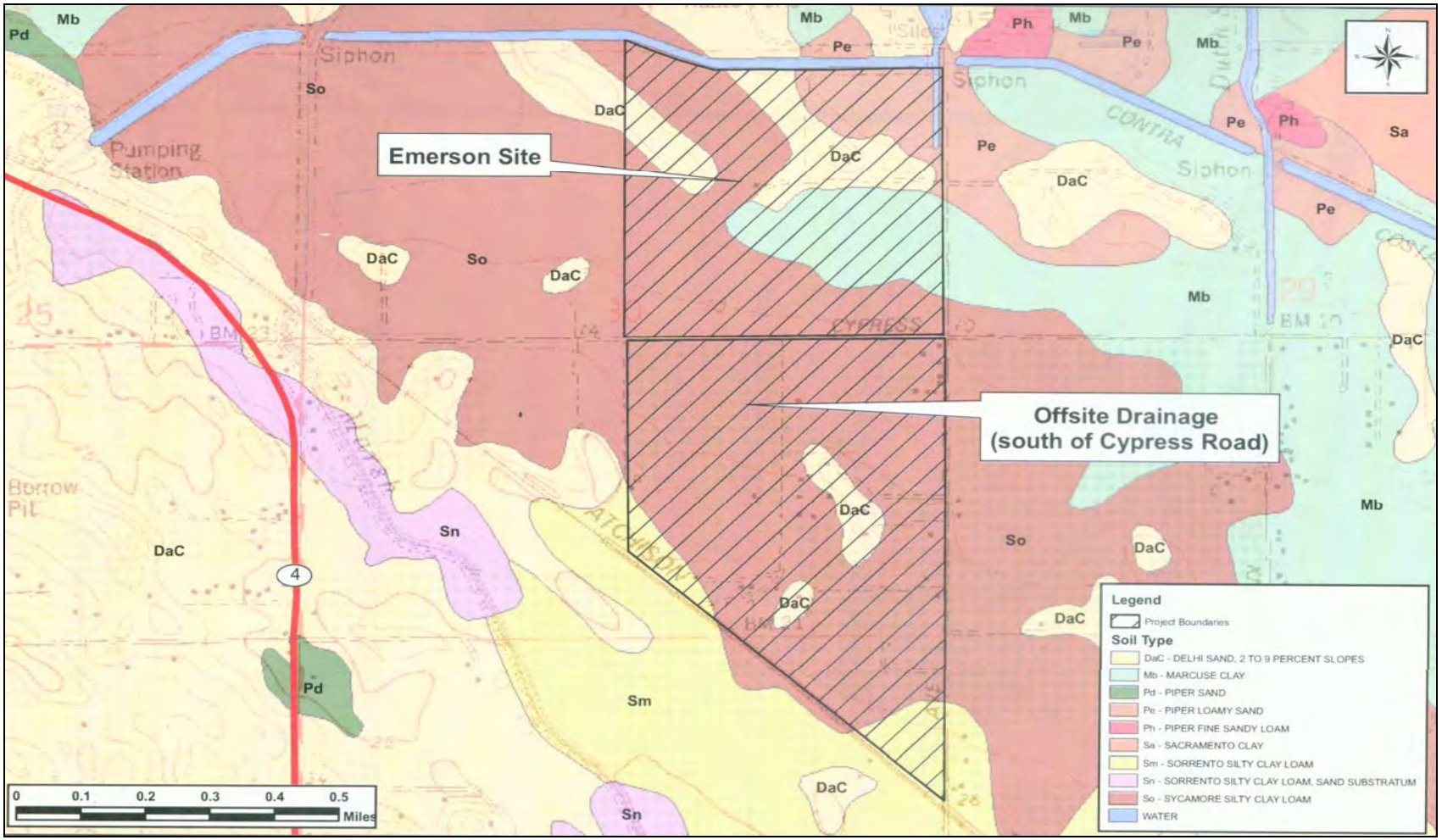
The proposed project area is located in a low-elevation region of Contra Costa County, in the rain shadow of the coastal mountain ranges, which remove much of the moisture from incoming storm systems. The City of Oakley rests in one of the driest regions in the County, and one of the driest regions in the State of California outside of desert regions. Mean seasonal rainfall maps prepared by Contra Costa County indicate that the average seasonal rainfall on the project site is approximately 11.5 inches per year, markedly lower than the western portion of the County, which, on average, receives more than twice that figure annually.

The Antioch Pumping Plant, which is located roughly 3.1 miles west of the Emerson property, records a minimum annual precipitation of 5.6 inches (in Water Year 1976) and a maximum of 27.1 inches (in Water Year 1983).

Soils

The soil survey for Contra Costa County identifies a total of four different soil types at the project site. The soil types for the Emerson property are illustrated in Figure 4.10-1. The most common is Sycamore silty clay loam (So), which underlies approximately 50 percent of the site.

Figure 4.10-1
Emerson Property Site Soils



Source: Balance Hydrologics, Inc., 2005.

The soil is in hydrologic soil group C and is described as poorly drained and formed in alluvium from sedimentary rock on floodplains.

Approximately 20 percent of the site is underlain by Marcuse clay (Mb), which extends in a single plume from the southeastern edge of the site. The soil is described as consisting of poorly drained soils that formed alluvium from sedimentary rock and is categorized as belonging to hydrologic soil group D.

Delhi sand (DaC) covers an estimated 19 percent of the site and is described as excessively drained soils that formed in wind-modified stream deposits. The Delhi sands are the only hydrologic soil group A soil found at the project site.

A small portion of the site, which equates to approximately 11 percent, is underlain with Piper loamy sand (Pe). The soil is described as consisting of poorly drained soils formed on low Aeolian mounds and ridges that have become more prominent as the surrounding organic soils subside. This soil is categorized in hydrologic soil group C.

Groundwater

The project site is irregularly shaped with some slight manmade natural rises. Existing site elevations range from approximately four to 14 feet above mean sea level. The groundwater flow direction in the area is toward the northeast at an estimated rate of approximately one gallon per day per square foot based on a hydraulic gradient of 0.1. The project site is located within the Central District of the California Department of Water Resources (DWR) and is located in the northernmost portion of the Tracy Sub-basin of the San Joaquin River Hydrologic region. Groundwater occurs at the site at depths of approximately four to six feet below ground surface (bgs) (ENGEO Inc., p.20). Within the project area groundwater levels are between 10 feet above and 10 feet below ground level according to the National Geodetic Vertical Datum (NGVD).

Drainage Area

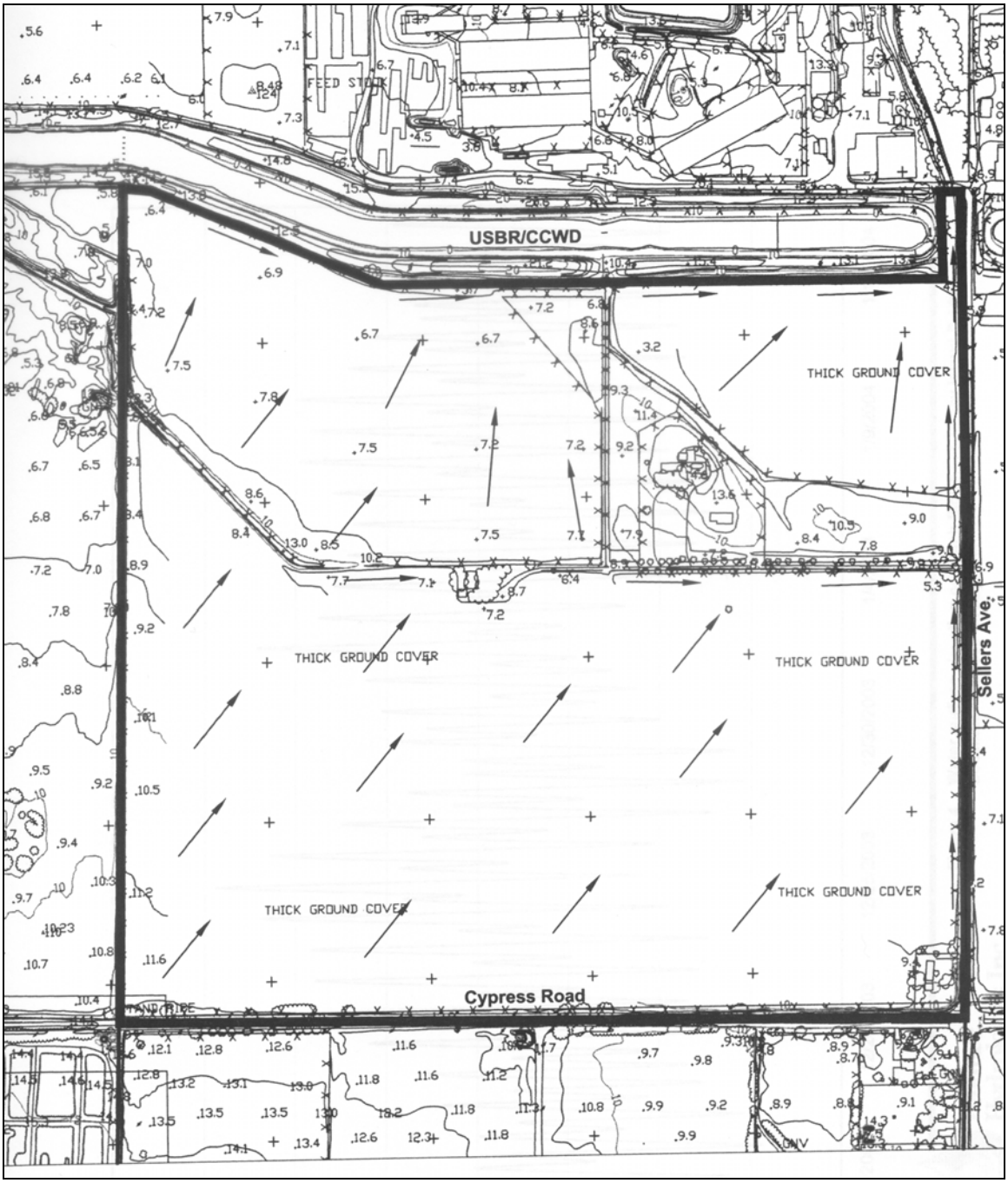
For the purposes of this analysis, this section identifies the proposed project site, as well as the overall drainage area. The project site is located on approximately 140 acres directly to the east of the center of the City of Oakley in the north-central portion of Contra Costa County.

The proposed project site is situated north of Cypress Road, bordered on the immediate east by vacant land and is bordered on the west by the Cypress Grove Project. The proposed project is bounded on the north by the Contra Costa Water District Canal (CCWD/USBR Canal) and to the south by rural and agricultural land uses (See Figure 3-3 in Chapter 3 of this Draft EIR).

Drainage Patterns

The drainage pattern on the Emerson project site has historically been maintained by a conventional agricultural drainage system (See Figure 4.10-2). Stormwater and irrigation return flow along a series of shallow ditches.

Figure 4.10-2
Drainage on the Emerson Property



Source: Balance Hydrologics, Inc., 2005.

The site is split into two main drainage areas: 52.9 acres flow into a ditch running from west to east on the northern perimeter, and the remaining 88.6 acres flow into a separate parallel ditch running through the middle of the property. Both drainage areas flow toward the northeastern corner of the site and discharge, via culverts, into Emerson Slough.

Runoff from the off-site property immediately south of the Emerson property drains to the northeast corner of the parcel, where runoff can collect in a broad, shallow depression during large storms. Currently, the runoff drains under Cypress Road through an 18-inch storm drain, and is carried to Emerson Slough in an open ditch, which runs along Sellers Avenue. Runoff from this area does not enter the proposed project site, but the drainage does depend on the roadside ditch along Seller's Avenue to reach Emerson Slough. In addition, the limited capacity of the 18-inch drain for the 184-acre area south of Cypress Road can lead to a buildup in the northeastern corner of the area in question and can lead to pooling that has the potential to spill over Cypress Road to the north and drain into the drainage ditch along Sellers Road that leads to Emerson Slough. Therefore, large flood events in this adjacent area to the south of the Emerson project site are limited by the current crown of Cypress Road at 9.9 feet in reference to the National Geodetic Vertical Datum (NGVD).

Water Supply

Contra Costa Water District (CCWD)

The proposed project site is located in the City of Oakley, which relies on the Diablo Water District (DWD) the City's water purveyor. DWD receives water from Contra Costa Water District (CCWD). The CCWD's primary source of water is the United States Bureau of Reclamation's Central Valley Project (CVP). The CCWD receives additional supplies from Mallard Slough, Mallard Well Fields, and the East Contra Costa Irrigation District (ECCID).

The CCWD is a CVP contractor relying almost entirely on the United States Bureau of Reclamation (USBR) to supply the district's water through the Sacramento-San Joaquin Delta (Delta). The CCWD amended contract with the USBR provides for the operation of the Los Vaqueros Project, and for a maximum delivery of 195,000 acre-feet per year (AFY) from the CVP. The CCWD's supply contract is subject to reductions in deliveries during water shortages including regulatory-restricted low flows and drought years.

The CVP manages approximately nine million acre-feet of water annually, delivering approximately seven million acre-feet to agricultural, urban, municipal and industrial, and wildlife (public trust) uses. The CVP currently provides approximately five million acre-feet for farms and 600,000 acre-feet for municipal and industrial use. The Central Valley Project Improvement Act (CVPIA) dedicates 800,000 AFY for fish and wildlife habitat, and 410,000 AFY to State and federal wildlife refuges and wetlands, pursuant to the CVPIA.

Passage of the CVPIA in 1992 established new CVP operating parameters by reforming water distribution pricing and policies. The CVPIA attempts to better balance the needs of water contractors with those of the environment. Future water allotments under renewed CVP contracts

will be based on new estimates of CVP supply that take into account the CVPIA and other new regulations.

In addition to the existing CVP contract, CCWD receives minor supplies from pumped diversions at Mallard Slough and through pumping at the Mallard Well Fields. The CCWD has obtained an agreement with ECCID to use up to 12,000 AFY (8,200 firm, plus 4,000 in years of shortage) of the ECCID water supply for municipal and industrial demands in portions of the ECCID that are now within the CCWD Service Area. An agreement with the City of Brentwood provides for the transfer of 21,000 AFY to Brentwood for future water needs. A review of water rights in the current CCWD Service Area identified the City of Antioch, the Gaylord Container Corporation, and the Tosco Corporation as having surface water rights.

Under ideal conditions, current agreements entitle CCWD to a total annual supply of 242,700 AFY, plus an additional 3,000 acre-feet produced from wells (owned by CCWD and others) in the District's Service Area.

Central Valley Project

Contra Costa Water District's primary water supply is through CVP entitlement. On September 18, 1951, the District entered into a contractual agreement with the United States Department of the Interior, Bureau of Reclamation (USBR or Bureau), to receive water service from the Bureau's CVP (Water Right Permits Nos. 12725 and 12726). The contract has been amended on several occasions since the contract's original enactment. The Contract is effective through February 28, 2045 and provides that the Bureau will supply up to 195,000 AFY to CCWD at Rock Slough.

The CVP's ability to provide water supplies to CCWD is greatly affected by regulatory conditions in the Sacramento-San Joaquin Delta, the Central Valley Project Improvement Act (CVPIA), and upstream water resource conditions. During regulatory restrictions, CCWD will receive greater than 75 percent of the contract entitlement, or 85 percent of historical use. During water shortages, CCWD will not receive less than 75 percent of the contract entitlement or 85 percent of historical use (whichever is less). Under severe drought conditions, the CVP supply can drop to as little as 75 percent of historical use; the contract allows lower supplies during drought emergency conditions, when there is only a sufficient supply to maintain health and safety.

Current Water System Capacity and Quality

Prior to completion of the Los Vaqueros Project, approximately 90 to 95 percent of the DWD's raw water was surface water supplied from the Contra Costa Canal. Since the Los Vaqueros Project was completed in 1997, and since a new water intake was constructed by CCWD just south of Discovery Bay at Old River, water quality has improved.

Contra Costa Canal and Los Vaqueros Project

The DWD purchases CVP water from CCWD under a contractual agreement. Surface water is currently supplied from the Contra Costa Canal. The canal is operated by CCWD, which treats water for the CCWD's own use and also sells raw water to agencies serving the municipalities of Oakley, Antioch, Pittsburg, Bay Point, Martinez, and several large industrial users. In turn, these communities/water districts and industries own their own treatment, distribution, and storage systems for treated water.

The Contra Costa Canal is 48 miles long and conveys water from Rock Slough and Old River in the Delta to various treatment plants. The USBR constructed the canal and the USBR's four pump stations in 1937, as part of the CVP, to serve agricultural and industrial demands in eastern and central Contra Costa County. Since that time, the predominant demand for canal water has transitioned to residential, commercial, and some industrial use; agricultural use is now negligible. The CCWD assumed operation and maintenance of the canal and pump stations in 1972. The canal capacity varies from 350 cubic feet per second (cfs) at Mile 0 in Oakley to approximately 25 cfs at Mile 48, where the canal terminates into the Martinez Reservoir in Martinez.

Pumping Plant 1 is approximately four miles from the canal intake and the City of Oakley is the first major consumer of canal water. The Randall-Bold Water Treatment Plant (RBWTP), which DWD jointly owns with CCWD, takes raw water from the canal downstream of Pump Station No. 4. Los Vaqueros Reservoir also provides raw water, which is blended with Rock Slough canal water prior to delivery to the RBWTP.

Historically, the canal has been a reliable source of water. Stoppages of canal operations have occurred infrequently from one to eight hours in duration, because of electrical or mechanical failures, over the past 20 years. However, water supply was not interrupted because the treatment plant intake is positioned so that water can be backfed to the plant from the Contra Loma Reservoir in Antioch.

In November 1988, Contra Costa County voters passed a bond proposal for the construction of a water storage reservoir in the Los Vaqueros area. The CCWD proposed the Los Vaqueros Project to improve the quality of water supplied to the CCWD's customers, minimize seasonal water quality changes, and improve the reliability of the CCWD's raw water supply by providing emergency storage. The raw water supply from Rock Slough is subject to substantial variations in quality, during seasonal periods of saltwater movement from the San Francisco Bay into the Delta. The Los Vaqueros project facilities were completed in 1998. The Los Vaqueros Reservoir supplies high-quality water for blending with Rock Slough water during periods of low water quality in the Delta. Los Vaqueros Reservoir also provides emergency storage in the event of unforeseen circumstances, such as a levee failure or chemical spill, which could make Delta water unusable for extended periods.

The Los Vaqueros Project provides 100,000 acre-feet of storage with a 1,500-acre surface area and 170-foot maximum depth. The intake is from the Delta at Old River just south of Discovery Bay. The intake facility has a 250 cfs (10,000 HP) pumping plant.

The reservoir is filled during times of high water quality (typically winter and spring high flow periods). During low flow periods (typically summer and fall) when the canal water quality from Rock Slough is traditionally at the lowest with high sodium and chloride levels, the higher quality water stored in the reservoir is blended with the canal water to improve raw water quality. The blending is effected by the RBWTP at the Neroly blending facility, which receives water conveyed from the Los Vaqueros Reservoir via a pipeline varying from six to eight feet in diameter.

Groundwater Wells

In addition to the surface water supply from the CCWD, the DWD is developing a groundwater supply system. Dedicated well supply pipelines will convey groundwater from one or more wells located in the City of Oakley to a blending facility near the RBWTP. The first well, Glen Park Well near March Creek, was put into service in 2006. The Glen Park Well has a pumping capacity of approximately 1.5 mgd. The DWD may implement additional wells as "future phases" with specific locations to be determined as part of future well siting studies.

The CCWD anticipates that groundwater supply until 2020 is from the Glen Park Well only, assuming an average 1.5 mgd pumping capacity. By 2020, the CCWD assumes that an additional well(s) will be constructed that will provide an additional 1.5 mgd capacity. By 2030, an additional 1.5 mgd well capacity is provided. Ultimately, groundwater may provide a total capacity of approximately six to seven mgd.

Expansion of the groundwater supply system is based on the performance of the Glen Park Well. As the Glen Park Well is implemented and operated, ongoing data collection and monitoring conducted by DWD will be provided. The DWD will monitor groundwater levels and consult other well operators to monitor effects on other wells in the region. In the event local wells are adversely affected, mitigation actions would be made on a case-by case basis, and may include, supplying the property with different sources of water, lowering or replacing pumps, or installing new wells.

Randall-Bold Water Treatment Plant (RBWTP)

The RBWTP, completed in 1992, is jointly owned by DWD and CCWD. The CCWD operates the plant under a Joint Powers Agreement between the two agencies that specifies the terms of the contractual arrangement for ownership and operation.

The facility has a capacity of 40 mgd with an expansion capability of up to 80 mgd. The initial treatment capacity is allocated with 15 mgd to DWD (37.5 percent share) and 25 mgd to CCWD. The DWD is entitled to increased capacity, from 15 mgd to 30 mgd, provided the incremental increases are not less than five mgd in any single increment. DWD must notify CCWD of the need for additional capacity at least three years prior to the date such capacity is required.

Diablo Water District (DWD)

The DWD is the water purveyor to the City, including the proposed project. The DWD's service area encompasses the northeastern corridor of Contra Costa County including the City of Oakley, the Town of Knightsen, and portions of Bethel Island. The DWD currently serves a population of approximately 28,000 residents of the City of Oakley. Under the City of Oakley's adopted General Plan, the total build-out population will be approximately 68,000, including approximately 50,000 residents within the existing City limits and 18,000 in the City's expansion area.

Approximately 90 to 95 percent of DWD's raw water supply comes from the Contra Costa Water District (CCWD) via the Contra Costa Canal and Los Vaqueros Reservoir. All surface water is treated at the Randall-Bold Water Treatment Plant (RBWTP), which is jointly owned by DWD and CCWD. When the RBWTP was put into operation in 1992, the treatment plant had an initial capacity of 40 million gallons per day (mgd) with expansion capability to 80 mgd. The initial allocation of water to DWD from CCWD is 15 mgd, with a future maximum allocation of 30 mgd. This future allocation is to be made in increments of 5 mgd under the condition that CCWD is notified at least three years prior to the date such capacity is required.

For purposes of comparing DWD's allocation to CCWD's total water supply, 15 mgd and 30 mgd translate into approximately 16,800 and 33,500 AFY respectively. Therefore, in a normal year DWD would initially claim approximately 6.9 percent of CCWD's total water supply under ideal conditions, and approximately 7.3 percent of the firm supply. Under the maximum allocation, in a normal year, DWD would claim approximately 13.8 percent of CCWD's water supply under ideal conditions and 14.6 percent of CCWD's firm water supply.

In addition to the surface water supplies from CCWD, DWD is implementing a groundwater supply system to supplement the raw water supplied by CCWD during peak summer demand periods, or if there is a limitation imposed on Contra Costa Canal supply.

Since 1991, a number of changes have occurred requiring that DWD review and update the districts water system planning to ensure adequate capacity for existing and future customers. In 1993, Oakley Water District became Diablo Water District, with a service boundary that includes the community of Oakley, as well as unincorporated lands in the greater Oakley area. The DWD's sphere of influence has also grown to include the Cypress Corridor, Hotchkiss Tract, Veale Tract, and Knightsen. The DWD may also provide service to Bethel Island in the future. In 2005, based on DWD's analysis of the changes in the districts sphere of influence, DWD prepared the Diablo Water District Urban Management Plan.

Diablo Water District Urban Water Management Plan Update

The DWD Urban Water Management Plan Update was adopted in December 2005. Historically, 98 percent of the DWD's customers are residential and the remaining two percent are primarily commercial with some landscape irrigation. The DWD does not provide any water for agricultural uses. Between 1995 and 2004, the total number of customer connections increased by approximately 31 percent, an average annual growth rate of approximately three percent per

year. The East Contra Costa County area, including DWD's service area, is experiencing high growth. Accordingly, DWD calculated water use projections in five-year increments from 2005 to 2040 (See Tables 4.10-1 and 4.10-2). Buildout water usage for each customer sector was calculated using buildout land uses from the City of Oakley General Plan, the East Cypress Corridor Specific Plan, and the Contra Costa County General Plan.

DWD's primary water supply is treated surface water from the CVP, purchased from CCWD. CCWD, in turn, contracts with the USBR for delivery of CVP water supplies. CVP water is conveyed through the Contra Costa Canal, and treated at the Randall-Bold Water Treatment Plant (WTP) in Oakley, which is jointly owned by DWD and CCWD. DWD is also beginning to develop a groundwater supply system to provide additional supply reliability. Canal water can also be supplemented by surface water stored at Los Vaqueros Reservoir. Owned and operated by CCWD, the Los Vaqueros Reservoir is a large 100,000 acre-foot storage facility located eight miles south of Brentwood. In May 2005, CCWD renewed their water service contract with the USBR for a period of 40 years, through February 2045.

To accommodate the buildout of DWD's ultimate service area will require the purchase of additional excess capacity at the current WTP, which has a design capacity of 40 mgd and is expandable to 80 mgd. The RBWTP was designed assuming that the treatment plant would be expanded in the future to service future development within the planned service area. The WTP anticipates that DWD will purchase five mgd additional capacity in 2015, 2025, and 2035 in order to meet DWD's needs.

Groundwater Supply

As described in the Urban Water Management Plan update (November 1, 2005), DWD is currently implementing a new groundwater supply system to provide additional supply reliability, known as the Well Utilization Project. Groundwater from the Well Utilization Project, located in the City of Oakley, will be conveyed by a dedicated well supply pipeline to a blending facility near the Randall-Bold WTP. The first well, Glen Park Well near March Creek, was put into service in 2006. The well has a pumping capacity of 1.5 mgd. DWD anticipates that groundwater supply until 2020 is for the first well only. By 2020, additional well(s) will be constructed that will provide an additional 1.5 mgd capacity. Ultimately, groundwater may provide up to 20 percent of the DWD's water supply, which would be a total ultimate well capacity of 6 to 7 mgd.

The Well Utilization Project wells will be developed in a groundwater basin that has been studied since the late 1990's by Luhdorff and Scalmanini Consulting Engineers (LSCE) (See Investigation of Ground-Water Resources in the East Contra Costa Area, Luhdorff & Scalmanini, March 1999). The groundwater basin is not adjudicated, and has not been studied by the California Department of Water Resources. The groundwater basin is currently not overdrafted. The DWD wells will be located within the region identified as the Marginal Delta Dunes. When groundwater is withdrawn from an aquifer, groundwater levels are lowered around the well, creating a cone of depression.

Table 4.10-1
Projected Water Use

Customer Sector (Millions of Gallons)								
	Residential		Commercial Business Park, & Light Industrial	Heavy Industrial	Institutional (Public & Schools)	Parks & Landscape Irrigation	Unaccounted for System Losses	Total (MG)
Year	Single Family	Multi-Family						
2005	1,590	45	5	0	10	35	100	1,785
2010	1,934	124	147	70	40	51	140	2,467
2015	2,279	204	289	140	70	68	180	3,149
2020	2,623	283	431	210	100	84	220	3,831
2025	2,967	362	574	280	130	101	260	4,514
2030	3,311	441	716	350	160	117	290	5,186
2035	3,656	521	858	420	190	134	330	5,868
2040	4,000	600	1,000	400	220	150	380	6,750

Source: Diablo Water District Urban Water Management Plan, December 2005.

Table 4.10-2
Current and Projected Water Supplies

Water Source Supplies	2005	2010	2015	2020	2025	2030	2035	2040
Surface Water Purchased from CCWD	2,738 MG	2,738 MG	3,650 MG	3,650 MG	4,562 MG	4,562 MG	5,457 MG	5,457 MG
DWD Groundwater	0	547 MG	547 MG	1,095 MG	1,095 MG	1,642 MG	1,642 MG	2,189 MG
Supplier Produced Diversions: None								
Transfers: Only as supplied by CCWD and included in surface water purchased from CCWD – See DWD's Urban Water Management Plan Section 6.4								
Exchanges: Only through CCWD and including in surface water purchased from CCWD – See DWD's Urban Water Management Plan								
Recycled Water: Section DWD's Urban Water Management Plan Section 5								
Desalinization: Section DWD's Urban Water Management Plan Section 4.4								
Total Supply	2,738 MG	3,285 MG	4,197 MG	4,745 MG	5,657 MG	6,204 MG	7,099 MG	7,646 MG

Note: It should be noted that the figures shown in this table for "Surface Water Purchased from CCWD" for years 2035 and 2040 (i.e., 5,457 MG) differ from those shown in Table 4-1 of the 2005 Diablo Water District Urban Water Management Plan (i.e., 5,475 MG). Also, the figure shown in this table for "Total Supply" for the year 2030 (i.e., 6,204 MG) differs from that shown in Table 4-1 of the 2005 Diablo Water District Urban Water Management Plan (i.e., 5,657). These changes reflect the correction of clerical errors contained in the 2005 Diablo Water District Urban Water Management Plan. Note, however, that these changes are consistent with Tables 7-1 through 7-3 of the Urban Water Management Plan, which tables contain the correct figures. (Source: Lisa House, P.E.; CDM, consultant to the Diablo Water District and preparer of the 2005 Diablo Water District Urban Water Management Plan).

Source: Diablo Water District Urban Management Plan, December 2005, Table 4-1.

The 1999 Investigation of Ground-Water Resources in the East Contra Costa Area by Luhdorff & Scalmanini stated that historical conditions suggest that for much of the Alluvial Plain and Marginal Delta Dune regions, extraction activates have not exceed the sustainable yield of the groundwater system. Sustainable yield is unlikely to be exceeded because of the general lack of groundwater development throughout much of these areas. Areas in the vicinity of the river and Delta systems have a large source of potential recharge, which could offset potential adverse impacts due to increased extraction. The Urban Water Management Plan update describes the potential for such impacts causing decreased productivity in existing wells from this process to be low. The Glen Park Well site was chosen based on a regional groundwater investigation, and due to the areas deep annular seal, which will serve to isolate the walls of the well from significant pumping impacts. The Urban Water Management Plan (UWMP) predicted a depression of approximately ten feet of draw down at the City of Brentwood Well 14 when pumping at three mgd for 30 days. However, the investigation pumping is greater than the anticipated one to two mgd well capacity at the Glen Park site. In April 2004 testing indicated that additional pumping at the Glen Park site did not have a measurable impact on groundwater levels at the Brentwood site.

The 1999 Investigation of Ground-Water Resources in the East Contra Costa Area by Luhdorff & Scalmanini also indicates that groundwater extraction on a local level may induce some degradation by nitrate. However, these influences can be mitigated through well design practices. Diablo Water District will continue to monitor groundwater levels and consult with other well operators to monitor effects on the other wells in the region. In the event local wells were to be adversely affected (i.e., lowering of groundwater below existing pumps or degradation of water quality), mitigation actions would be taken on a case by case basis and could include supplying the property with a different source of well water, lowering or replacing pumps, or installing new wells. It should be noted, however, that DWD has sufficient surface water supplies to serve buildout of the Oakley area, which is expected to occur between 2010 and 2015. Therefore, the proposed project, which would be completed previous to 2010, would not be expected to rely on groundwater as a source of water supply. In addition, it should be further noted that the impervious surfaces associated with the proposed project would not be expected to substantially interfere with groundwater recharge in the vicinity of the project area.

Additionally, DWD requires that parks and landscaped areas in new development areas irrigate landscaped areas with groundwater, not with DWD water.

Flood Hazards

The proposed project site is not in a designated floodplain area as mapped by the Federal Emergency Management Agency (FEMA, 2002). With the exception of the dune areas, the entire site is currently protected from potential flooding by the levees that run along the Contra Costa Canal that border the project site to the north and the northeast. The base flood elevation from Delta flooding is shown by FEMA to be 7.0 feet.

FEMA and CCFCD regulations state that areas lower than the base flood elevation must be protected by levees with a minimum of three feet of freeboard above the base flood elevation.

Contra Costa Canal levees currently offer this level of protection. However, CCWD is currently pursuing plans to underground all or part of the Contra Costa Canal in the vicinity of the project.

In either case, the project area would be provided further protection by a new levee system that would be built along the northeast, west and south perimeters of the project to FEMA urban standard levee specifications. The new levee would tie into the higher grades of Cypress Road to the south.

REGULATORY CONTEXT

Existing policies, laws and regulations that would apply to the proposed project are summarized below.

Federal

Emergency Management Agency (FEMA)

The Federal Emergency Management Agency (FEMA) operates the National Flood Insurance Program, which issues maps of Special Flood Hazard Areas (SFHA), based on water surface elevations of the one percent (100-year) flood event. For any project that would result in a change to the designated 100-year floodplain, a Conditional Letter of Map Revision (CLOMR) is required to be issued by FEMA prior to the initiation of any construction activities. FEMA issues CLOMRs to modify the elevations and/or boundaries of the Special Flood Hazard Areas (based on the 100-year flood event). FEMA requires assurance by the participating community that minimum floodplain management requirements are complied with, including minimum floor elevations above the "base flood," existing lands and structures or proposed structures are "reasonably safe from flooding," and that all supporting analysis and documentation used to make that determination is on file and available upon request. The supporting hydraulic analysis and documentation must include new topographic data and certification by a registered professional engineer or licensed land surveyor.

The floodplain areas are identified on the Flood Insurance Rate Maps (FIRMs) published by FEMA.

National Pollutant Discharge Elimination System (NPDES)

The National Pollutant Discharge Elimination System (NPDES) permit system was established in the federal Clean Water Act (CWA) to regulate municipal and industrial discharges to surface waters of the U.S. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that EPA must consider in setting effluent limits for priority pollutants.

Nonpoint sources are diffuse and originate over a wide area rather than from a definable point. Nonpoint pollution often enters receiving water in the form of surface runoff, but is not conveyed

by way of pipelines or discrete conveyances. As defined in the federal regulations, such nonpoint sources are generally exempt from federal NPDES permit program requirements.

However, two types of nonpoint source discharges are controlled by the NPDES program: nonpoint source discharge caused by general construction activities, and the general quality of stormwater in municipal stormwater systems. The 1987 amendments to the CWA directed the federal EPA to implement the stormwater program in two phases. Phase I addressed discharges from large (population 250,000 or above) and medium (population 100,000 to 250,000) municipalities and certain industrial activities. Phase II addresses all other discharges defined by EPA that are not included in Phase I.

U. S. Army Corps of Engineers: Waters of the United States

Areas meeting the regulatory definition of "Waters of the United States" are subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE). The USACE, under provisions of Section 404 of the Clean Water Act (1972), has jurisdiction over "Waters of the United States" (jurisdictional waters). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sand flats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U. S.," tributaries of waters otherwise defined as "Waters of the U. S.," the territorial seas, and wetlands adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3).

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill material into such waters must be in compliance with permit requirements of the USACE. USACE permits are not effective in the absence of State water quality certification pursuant to Section 401 of the Clean Water Act. The State Water Resources Control Board (SWRCB) is the State agency charged with implementing water quality certification in California.

State

Water Planning - Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code Sections 10610 – 10656). The Act requires that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually shall prepare and adopt an urban water management plan. The Act states that urban water suppliers should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Act also states that the management of urban water demands and the efficient use of water shall be actively pursued to protect both the people of the State and their water resources.

Water Quality – State Water Resources Control Board

The State Water Resources Control Board (SWRCB) manages all water rights and water quality issues in California under the terms of the Porter-Cologne Water Quality Control Act (1969). The California Department of Health Services (DHS) has been granted primary enforcement responsibility for the Safe Drinking Water Act (SDWA.) Title 22 of the California Administrative Code establishes DHS authority and stipulates drinking water quality and monitoring standards. These standards are equal to, or more stringent than, the federal standards.

Water Supply – SB 610/SB 221

Senate Bills 610 and 221, which took effect January 1, 2002, require, specific information about water availability be presented and considered by land use agencies during the processing of certain land use entitlement applications. SB 610 and SB 221 apply to projects that include more than 500 residential units.

SB 610

SB 610 refers to numerous details that must be addressed in the water supply assessment, which are described in portions of the amended Water Code Section 10910:

> (d)(1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system…under the existing water supply entitlements, water rights, or water service contracts.
>
> (2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system […] shall be demonstrated by providing information related to all of the following: (A) Written contracts or other proof of entitlement to an identified water supply. (B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system. (C) Federal, State, and local permits for construction of necessary infrastructure associated with delivering the water supply. (D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.
>
> (e) If no water has been received in prior years by the public water system […] under the existing water supply entitlements, water rights, or water service contracts, the public water system […] shall also include in its water supply assessment […] an identification of the other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water […]

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project would be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project.

A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines […] that the sufficiency of groundwater necessary to meet the initial and project demand associated with the project was addressed in [its urban water management plan].

SB 221

SB 221 requires supporting documentation of verification that sufficient water supplies are available for a project. SB 221 provides that in determining whether water supply is sufficient, the water agency shall consider a myriad of factors:

(A) The availability of water supplies over a historical record of at least 20 years.

(B) The applicability of an urban water shortage contingency analysis […] that includes actions to be undertaken by the public water system in response to water supply shortages.

(C) The reduction in water supply allocated to a specific water use sector pursuant to a resolution or ordinance adopted, or a contract entered into, by the public water system […]

(D) The amount of water that the water supplier can reasonably rely on receiving from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfer, including programs identified under federal, State, and local water initiatives such as CALFED and Colorado River tentative agreements [...]

If the water agency relies upon water supplies not then available, then the written verification must be based on the following elements, to the extent each is applicable:

(1) Written contracts or other proof of valid rights to the identified water supply that identify the terms and conditions under which the water will be available to serve the proposed subdivision.

(2) Copies of a capital outlay program for financing the delivery of a sufficient water supply that has been adopted by the applicable governing body.

(3) Securing of applicable federal, State, or local permits for construction of necessary infrastructure associated with supplying a sufficient water supply.

(4) Any necessary regulatory approvals that are required in order to be able to convey or deliver sufficient water supply to the subdivision.

If water supply for the proposed subdivision includes groundwater, the public water system shall also evaluate, based on substantial evidence, the extent to which the subdivision or the landowner has the right to extract the additional groundwater needed to supply the proposed subdivision.

The water agency's written verification must also "include a description, to the extent that data is reasonably available based on published records maintained by federal and State agencies, and public records of local agencies, of the reasonably foreseeable

impacts of the proposed subdivision on the availability of water resources for agricultural and industrial uses within the public water system's service area that are not currently receiving water from the public water system but are utilizing the same sources of water." The water agency may rely upon a prior CEQA document for this analysis.

If the water agency determines that water supplies are insufficient, the local agency may override that decision. "The local agency may make a finding [based on substantial evidence], after consideration of the written verification by the applicable public water system, that additional water supplies not accounted for by the public water system are, or would be, available prior to completion of the subdivision that will satisfy the requirements of this section."

Local

The following are the local government environmental goals and policies relevant to the CEQA review process.

Diablo Water District

The Diablo Water District (DWD) serves customers in Oakley from a water treatment plant owned in cooperation with the Contra Costa Water District.

Water District Master Plan and Facilities Plan Update

The Diablo Water District (DWD) drafted the original Master Plan in 1991, and has since updated the plan to ensure adequate capacity for existing and future customers. Most recently revised in 2005, the Plan also addresses water-demands projections, identification of potential future facilities, and financial evaluations.

The DWD Facilities Plan Update focuses on water planning with respect to population projections within the Sphere of Influence.

Contra Costa Water District

The Contra Costa Water District (CCWD) serves approximately 450,000 people through north-central and east Contra Costa County, and supplies raw and treated water distribution facilities to Oakley by means of the Diablo Water District. In December 2000, the CCWD developed and implemented an Urban Water Management Plan.

Contra Costa County Flood Control and Water Conservation District

The design of the drainage system for the Emerson Project area is based on the Contra Costa County Flood Control Standards manual developed by the Contra Costa Water District. The Contra Costa County Flood Control and Water Conservation District standards provide guidance to the development of flood control measures throughout the County, particularly for stormwater drainage and sedimentation issues regarding new development.

City of Oakley General Plan

The following lists the goals and policies related to hydrology and water quality for the project site, as identified in the Oakley 2020 General Plan Growth Management Element:

Water Services

Goal 4.8 Assure the provision of potable water availability in quantities sufficient to serve existing and future residents.

Policy 4.8.1 Coordinate future development with all water agencies to ensure facilities are available for proper water supply.

Policy 4.8.2 Encourage the development of locally controlled supplies to meet the growth needs of the City.

Policy 4.8.3 Encourage the conservation of water resources throughout the City.

Policy 4.8.4 Ensure that new development pays the costs related to the need for increased water system capacity.

Policy 4.8.5 Ensure that water service systems be required to meet regulatory standards for water delivery, water storage, and emergency water supplies.

Policy 4.8.12 Reduce the need for water system improvements by encouraging new development to incorporate water conservation measures to decrease peak water use.

Drainage Facilities

Goal 4.10 Protect persons and property from the damaging impacts of flooding.

Policy 4.10.1 Work cooperatively with Contra Costa County Flood Control and Water Conservation District (CFCWCD) to ensure and enhance flood protection in the City of Oakley.

Policy 4.10.2 Pursue and achieve compliance with all regional, State, and Federal regulations related to flood control, drainage, and water quality.

Policy 4.10.3 Recognize the unique flooding constraints of the areas north and east of the Contra Costa Canal.

Policy 4.10.4 Pursue responsible and adequate financing for implementation of the Drainage Plan.

Policy 4.10.5 Improve and expand the functionality of Marsh Creek as a major drainage corridor.

Policy 4.10.6 Develop new drainage facilities and/or improvements to existing facilities to provide additional recreational or environmental benefit, where possible.

Policy 4.10.7 Land use planning and zoning should be the primary means for flood management in preference to structural improvements, where possible.

Policy 4.10.8 Detention basins should be designed for multiple uses such as parks and playing fields when not used for holding water, where possible.

Policy 4.10.9 Develop open bypass channels, detention basins, and all drainage facility rights of way as an asset to the development or adjacent neighborhood, e.g. as a secondary recreation use.

The following applicable goals and policies are from the Oakley 2020 General Plan Health and Safety Element:

Flood Hazards

Goal 8.2 Protect public safety and minimize the risk to life and property from flooding.

Policy 8.2.1 Applications for development at urban or suburban densities in 100-year floodplain areas where there is a serious risk to life and property shall demonstrate appropriate solutions or be denied.

Policy 8.2.2 In mainland areas along the creeks and bays affected by water backing up into the watercourse, it shall be demonstrated prior to development that adequate protection exists through levee protection or change of elevation.

Policy 8.2.3 Buildings in urban development near the shoreline of the Delta and in flood-prone areas shall be protected from flood dangers, including consideration of rising sea levels.

Policy 8.2.4 Habitable areas of structures near the shoreline of the Delta and in flood-prone areas shall be sited above the highest water level expected during the life of the project, or shall be protected for the expected life of the project by levees of an adequate design.

Policy 8.2.5 Rights-of-way for levees protecting inland areas from tidal flooding shall be sufficiently wide on the upland side to allow for future levee widening to support additional levee height.

Policy 8.2.8 Development proposals near the shoreline of the Delta and within flood-prone areas shall be reviewed by the Flood Control District, as an advisory agency, prior to approval by the city.

Subsidence

Policy 8.2.9 Development of lands subject to subsidence shall take into account and fully mitigate the potential impacts of flooding based on the best currently available techniques.

Levee, Dam Failure, or Tsunami

Policy 8.2.12 In order to protect lives and property, intensive urban and suburban development shall not be permitted in reclaimed areas subject to 100-year flooding, unless flood protection in such areas is constructed. Typically, levees shall meet the standards of the U.S. Army Corps of Engineers, although 'Dry levees' that supplement existing levees may be allowed at the discretion of the city.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

A hydrology, water supply, or water quality impact would be significant if the proposed project were to do any of the following:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Increase demand on existing water supply and distribution facilities, such that the facilities cannot meet the demand;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;

- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year floodplain structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to a significant risk of loss, injury or death involving flooding from inundation by seiche, tsunami, or mudflow.

Method of Analysis

The information contained in this chapter was derived from the hydrological evaluations of the project site prepared by Balance Hydrologics. Research methods used in the analysis of the proposed project include the following:

- Precipitation data and rainfall statistics data developed by Contra Costa County Public Works Department;
- Soils data developed by the Soil Conservation Service, now the Natural Resources Conservation Service;
- Site visits to the project site and hydrology study by engineering staff from Balance Hydrologics, Inc.; and
- Hydrologic and hydraulic modeling.

Hydrologic and Hydraulic Modeling

The modeling work focused on predicting the operation of the multi-purpose drainage basins when subject to Contra Costa County Flood Control and Water Conservation District (CCCFCWCD) 100-year and 10-year design storms of various durations. Per standard practice in the County, the preliminary lake and pump station designs are based on the runoff hydrographs for the proposed project conditions using CCCFCWCD's Hydro-6 software. A full range of storm durations were modeled, because clarity could not be determined as to which would be the most conservative with regard to sizing the infrastructure needed to regulate water surface elevations in the drainage basins. Storm events with durations of 6, 12, 24 and 96-hours were evaluated. The depth-storage relationship for the drainage ponds was assumed from the drainage pond surface area and surrounding side slopes of 4:1. The depth-storage relation for the drainage ponds is important because the depth-storage relation sets how much runoff can be stored within the given water surface elevation targets. (The depth-storage relationship for preliminary lake configuration is shown on Figure 8 in Appendix P of this Draft EIR.)

The input data were used to construct a hydrologic model of the drainage basins using the U.S. Army Corps of Engineers' HEC-HMS software platform. This is a standard hydrologic routing

program that includes the hydrographs produced by CCCFCWCD and allows for various pump station configurations to be tested.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project.

4.10-1 Exposure of future and adjacent residents to flood hazard.

The proposed project area is not within a designated floodplain as mapped by FEMA. The site is currently protected to the north and east by the Contra Costa Canal, which borders the proposed project area. FEMA and CCCFCWCD regulations state that areas of lower elevation must be protected by levees with a minimum of three feet of freeboard above the base flood elevation. Contra Costa Canal levees currently offer this level of protection. However, CCCFCWCD is currently pursuing plans to underground all or part of the Contra Costa Canal in the vicinity of the project. The District has indicated that the material in the levee may be needed as part of the project.

In addition, the site is subject to inundation risk from the Sacramento/San Joaquin Delta, which has a 100-year flood elevation of seven feet above mean sea level (msl). To protect the homes within the Cypress Grove project and neighboring area, including the Emerson property, from flood risks, a levee system was built in 2005 south of the existing CCWD/USBR levee along the northern boundary of the Cypress Grove project site which extends across the northern boundary of the Cypress Grove development and the northern edge of the Emerson property. An additional levee was constructed along Sellers Avenue on the eastern edge of the Emerson site. The levee that runs parallel to Sellers Avenue extends from the CCWD/USBR canal to Cypress Road. After comprehensive study and analysis for CEQA purposes by the Cypress Grove EIR, the levee was determined to cover the development project to the west of the project site. The levee was built to an elevation of 10 feet above msl to protect against a flood elevation of seven feet, with an additional three feet of freeboard. The remainder of the project perimeter, including Cypress Road, is higher than 10 feet msl and does not require further flood protection.

The levee system was designed to provide flood protection for the Cypress Grove and future projects to the east of the Cypress Grove site, including the Emerson property, in conformance with the requirements of FEMA. As required by FEMA, the levee integrity was evaluated with respect to potential detrimental settlement, stability and seepage. Potential levee settlement was evaluated under static and seismic loading conditions. Satisfactory factors of safety against levee slope failure were achieved for several potential loading conditions, which include end of construction, sudden draw down, critical flood stage, steady seepage at flood stage, and earthquake. The levees were designed in accordance with both under-seepage and through-seepage FEMA requirements.

The CCWD has raised a concern regarding potential levee failure of the adjacent Contra Costa Canal. The canal contains drinking water supplied to the district. The portion of the

canal adjacent to the site is earth-lined and has been in existence since the 1950s. Significant breaches of this levee have not occurred in the past. In addition, the CCWD has the ability to shut off the water supply at the nearby pump station #1. Therefore, a CCWD canal levee failure would not be anticipated to result in a substantial adverse impact.

The protection offered by the existing Contra Costa Canal, as well as the additional levees put in place by the Cypress Grove project would provide protection from floodwaters for the proposed project site and the surrounding areas. Therefore, the development would result in a ***less-than-significant*** impact.

Mitigation Measure(s)
None required.

4.10-2 Maintenance of levees surrounding the project.

The site is subject to flood risks from the Sacramento-San Joaquin Delta, which has a 100-year flood elevation of seven feet above msl. To protect the Emerson property and Cypress Grove project areas, a levee system was built in 2005 along the northern boundary, south of the existing CCWD/USBR levee and along Sellers Avenue. The levee also extends from CCWD/USBR canal to Cypress Road.

The levee was built to an elevation of 10 feet above msl to protect against a flood elevation of seven feet with an additional three feet of freeboard. The remainder of the project perimeter to the south is higher than 10 feet msl and does not require further flood protection.

The Emerson property would utilize the existing levee systems along the northern boundary of the proposed project site built for the Cypress Grove project. The existing levee along Sellers Avenue may be modified with this development to cross Sellers Avenue and connect into the proposed Gilbert levee system with the development of the neighboring Gilbert Property, eliminating the requirement for levees along Sellers Avenue. If not maintained properly, the levee system surrounding the project could cause significant flooding risks to people and structures located within the proposed project site. Therefore, the impacts of the levee system would be ***potentially significant*** to future residents and structures if not maintained properly.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

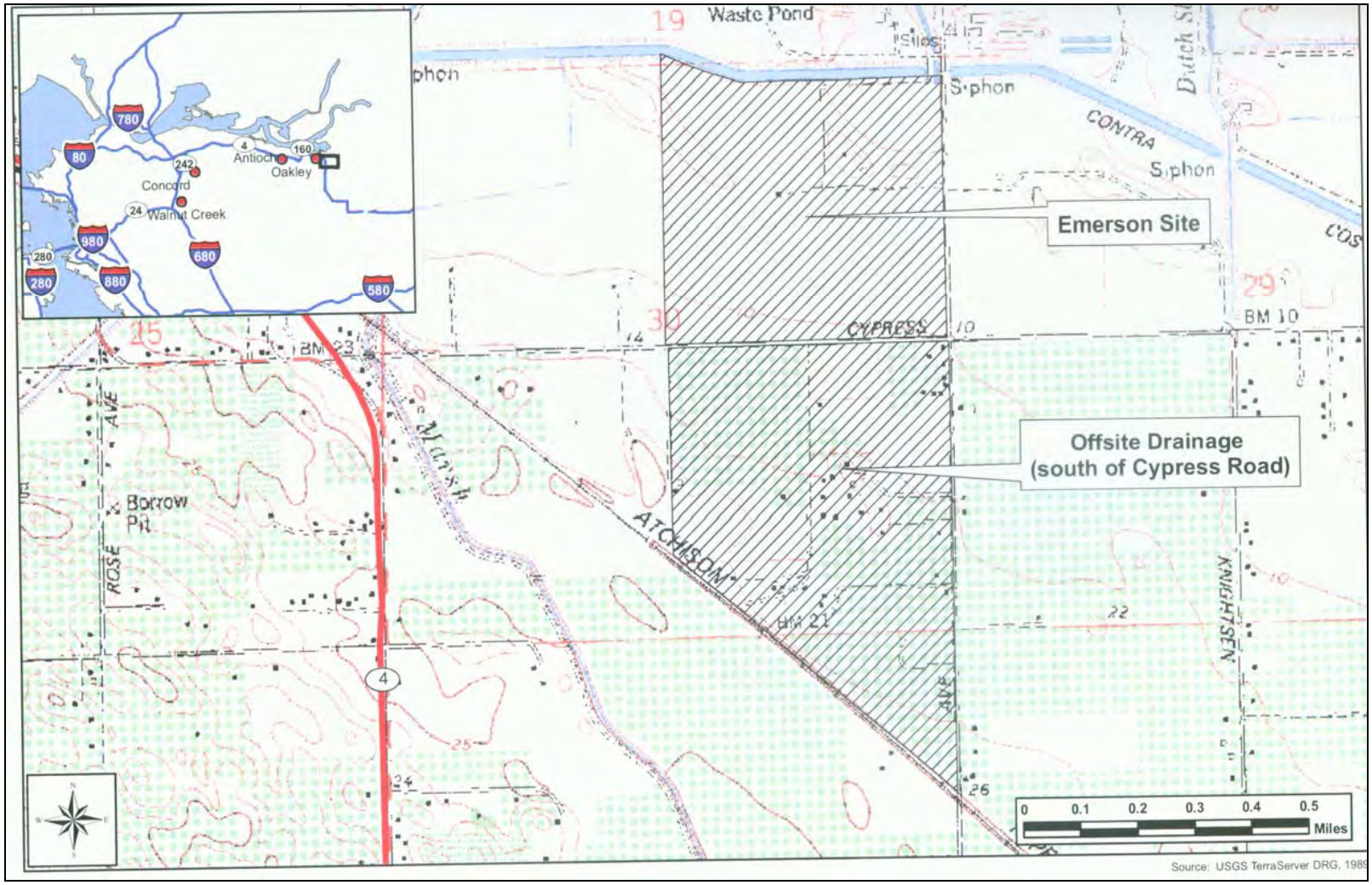
4.10-2 *Prior to Improvement Plan approval the project engineer shall develop a levee maintenance program. The maintenance program shall be submitted for the review and approval of the City Engineer and include the plan for financing and maintenance of the levee system. The plan shall include the following guidelines:*

- *All pertinent agencies that may have jurisdiction over the repair area shall be consulted. These agencies may include (but are not limited to) the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the Army Corps of Engineers, the Regional Water Quality Control Board, the Contra Costa County Public Works Department, and the Contra Costa County Flood Control District.*
- *Both an engineering geologist and a civil engineer shall be consulted on significant embankment repairs.*
- *Soil removal and placement shall be limited to the minimum amount needed to achieve bank stabilization.*
- *Access roads shall be kept clear of obstructions and maintained in a manner that allows access for maintenance equipment at all times. Access road dimensions and specifications shall conform to guidelines prepared by the City of Oakley.*
- *The establishment of woody vegetation (e.g., trees or shrubs) can impair the integrity of the levees. Therefore, regular inspection for, and removal of, woody vegetation shall be required.*
- *Tunnels created by ground squirrels and other animals can also compromise the integrity of the levees. Annual inspection of the levees by a competent professional shall be required to assess the need for remedial repairs and animal control measures.*
- *Material shall not be placed in a manner that could be eroded by normal or expected high flows.*
- *Bank stabilization in excess of 500 feet in length or an average of one cubic yard per running foot must be authorized by the City of Oakley or Contra Costa County Flood Control.*
- *The condition of levee embankments and access roads shall be monitored in detail as part of routine monitoring, as well as during post-flood event inspections. During periodic monitoring visits, personnel shall inspect the entire perimeter of the levees around the project and note evidence of erosion or slope failures on both sides of the levee. Embankments shall generally be free of erosion, rills, slumps, and landslides.*

4.10-3 Change in peak stormwater flows.

The project area is part of a larger drainage area that is part of the City of Oakley's master drainage planning efforts. The drainage area includes the approximately 31-acre area that includes Cypress Road, and areas to the southeast of the Emerson property on what is referred to as the Baldocchi property (See Figure 4.10-3).

Figure 4.10-3
Emerson Site Stormwater Drainage



Balance Hydrologics, Inc., 2005.

The project site is bounded on the immediate north by levees that protect against flooding associated with the large storms in the Central Valley and Sierra Nevada Mountains that occasionally result in high flood elevations in the delta. The Flood Insurance Study for the City of Oakley (FEMA, 2002) identifies the base flood elevation to be seven feet in the adjacent delta waters. The base flood elevation is such that local drainage systems for the proposed project site would not be able to reliably drain storm water to the sloughs through gravity-flows in all circumstances. Therefore, the capability to pump stormwater runoff from the site over the levee system into Emerson Slough for drainage is necessary.

Additionally, the groundwater table at the project site fluxes seasonally. This results in potential seepage of stormwater to or from the Contra Costa Canal. Because of this, any stormwater storage would need to be physically separated from local shallow groundwater by liners, clay soil or other appropriate means.

The project site has four distinct segments that would move stormwater runoff to the ultimate discharge point at the south end of Emerson Slough. The four project segments are:

- *Gravity-Flow Storm Drains*. A series of gravity flow storm drains would be the primary component of the storm drain system for the proposed properties. The drainage system would consist of a conventional storm line network that would be designed to collect stormwater runoff and convey the stormwater runoff in underground pipes to the lake located centrally in the Emerson property. Because of the potentially high water surface elevations that can occur in the lakes during significant storm events, the trunk line installed would be built to at least 48 inches in diameter.

- *Multi-Purpose Lakes*. The proposed multi-purpose lake would be located on the Emerson property. The lake would provide water quality and peak runoff control benefits, serve as important components of the common area irrigation system, and provide aesthetic benefits for the project.

  The lake would include lining to separate lake/stormwater from the water table, be graded to a minimum of 10 feet below normal water surface elevation to discourage the growth of aquatic plants, and would have exterior slopes graded to no greater than 4:1. The lowermost part of the volume would be used to slowly release the runoff from a small to moderate storm event. The storage volume associated with the drainage basin would accommodate the runoff from large events up to, and including, the CCFCD 100-year design storms. The drainage basins would also comply with Contra Costa County guidelines regarding the recovery of storage volume via pumping.

  The recovery pumps would allow for the entire detention volume to be recovered in 48 hours and 70 percent in the first 24 hours, per County

guidelines. Finally, the lake would also serve as irrigation water storage for the common areas of the project.

- *Stormwater Pump System and Force Main*. The lake would be drained by stormwater pumping stations equipped with reserve pumps and emergency power generation equipment so that the pumps would be able to operate during extreme events. The pumps would send the flow from the lakes to an outfall at the end of Emerson Slough to the north through a storm drain force main.

- *Storm Drain Outfall at Emerson Slough.* The outfall location for the water pumped from the lakes on the Emerson property would be located at the southern end of Emerson Slough, just north of the Contra Costa Canal at the end of Sellers Avenue. The outfall structure was discussed in detail in the Stormwater Management Plan for the Cypress Grove project to the west of the proposed project site. The outfall structure was designed, analyzed for impacts, and permitted as part of the Cypress Grove project. The outfall was designed with four pipe outlets, one from Cypress Grove, one from the Emerson lake and drainage system, one for drainage south of Cypress Road, and one for the Gilbert property lake and drainage system. The outfall is permitted for a total peak discharge of 140 cfs.

In the event of a 100-year storm, the multi-purpose lake on the proposed project would be able to provide an active storage volume of 19.7 acre-feet. The volume above the water-quality elevation is reserved to accommodate the runoff from large storm events up to and including the CCFCD 100-year design storm. Therefore, the multi-purpose lake on the Emerson site is designed to contain the rainfall associated with the 100-year storm.

The storm drain system, stormwater pond, and stormwater pump station and outfall designed for the proposed project would ensure that the change in peak stormwater flows resulting from the proposed project would have a ***less-than-significant*** impact.

Mitigation Measure(s)
None required.

4.10-4 Adequate water supply and delivery for new residents.

As documented in the Urban Water Management Plan update, DWD has adequate supply sources to meet future needs under all conditions, normal, dry and multiple dry water years (See Tables 4.10-3, 4.10-4, and 4.10-5).

Table 4.10-3
Projected Supply and Demand Comparison for Normal Year (MG)

	2005	2010	2015	2020	2025	2030	2035	2040
Surface Water From CCWD	2,738	2,738	3,650	3,650	4,562	4,562	5,457	5,457
DWD Groundwater	0	547	547	1,095	1,095	1,642	1,642	2,189
Supply Total	2,738	3,285	4,197	4,745	5,657	6,204	7,099	7,646
Demand	1,685	2,324	2,964	3,603	4,242	4,881	5,521	6,350
Difference (Surplus of Supply)	1,053	961	1,233	1,142	1,415	1,323	1,578	1,296

Source: Diablo Water District SB 610 WSA, June 22, 2007.

Table 4.10-4
Projected Supply and Demand Comparison for Single Dry Year (MG)

	2005	2010	2015	2020	2025	2030	2035	2040
Surface Water From CCWD	2,738	2,738	3,650	3,650	4,562	4,562	5,457	5,457
DWD Groundwater	0	547	547	1,095	1,095	1,642	1,642	2,189
Supply Total	2,738	3,285	4,197	4,745	5,657	6,204	7,099	7,646
Demand	4,685	2,324	2,964	3,603	4,242	4,881	5,521	6,350
Difference (Surplus of Supply)	1,053	961	1,233	1,142	1,415	1,323	1,578	1,296

Table 4.10-5
Projected Supply and Demand Comparison for Multiple Dry Year Period (MG)

	2005	2010	2015	2020	2025	2030	2035	2040
Surface Water From CCWD	2,738	2,738	3,103	3,103	3,878	3,878	4,638	4,638
DWD Groundwater	0	547	547	1,095	1,095	1,642	1,642	2,189
Supply Total	2,738	3,285	3,650	4,198	4,973	5,520	6,280	6,827
Demand	1,685	2,324	2,964	3,603	4,242	4,881	5,521	6,350
Difference (Surplus of Supply)	1,053	961	686	595	731	639	759	447

Source: Diablo Water District SB 610 WSA, June 22, 2007.

To address long-term demand, both CCWD and DWD are undertaking a number of programs to supplement CCWD's current entitlements, including: water transfers, annual purchases of supplemental water, water recycling (CCWD only), conservation, and improvement of water quality and water storage capacity (Los Vaqueros). For example, to date CCWD's water conservation program has already demonstrated significant success. The measures are set forth in detail in the DWD and CCWD 2005 Urban Water Management Plans, as well as CCWD's 2002 Future Water Supply Study and DWD's 2005 Technical Memorandum.

Constraints on DWD Water Supplies

In addition to potential future drought conditions (both single-year and multi-year), as well as anticipated increases in demand for potable water, the Urban Water Management

Plan update identifies several regulatory constraints on the project's future water supply. Those constraints include: approvals from CCWD, and USBR; compliance with the federal Endangered Species Act (ESA); and implementation of the CVPIA.

As a federal approval, CCWD's water contracts with USBR must comply with Section 7 of the ESA. Under Section 7, USBR must consult with the U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries on any federal action which "may affect" a federally listed species or adversely modify critical habitat. In conjunction with CCWD's Future Water Supply Implementation Program and renewal of the district's CVP long-term water service contract, USBR consulted with the USFWS under Section 7. On March 11, 2005, USFWS issued a biological opinion, which amended the service's April 27, 2000 biological opinion and evaluated the direct, indirect, and cumulative effects of CCWD's water supply program and long-term contract renewal. The amended biological opinion concluded that the proposed action (USBR's approval of CCWD's water supply program and long-term contract) was not likely to jeopardize the continued existence of any federally-listed species or result in the destruction or adverse modification of critical habitat. To address the indirect effects of the proposed action on upland species within CCWD's service area, the USFWS conditioned the opinion on CCWD's agreement to limit water deliveries to not more than 148,000 ac-ft annually until an incidental take permit is issued for the East Contra Costa County Habitat Conservation Plan (HCP). To address this limitation on water deliveries, the USFWS and CCWD joined with several local jurisdictions (including the City of Oakley) to prepare an HCP for East Contra Costa County.

On January 25, 2000, the Contra Costa County Board of Supervisors declared its intent to participate in the development of a Habitat Conservation Plan (HCP) for East Contra Costa County. On June 30, 2000, the East Contra Costa County Habitat Conservation Plan Association Agreement went into effect. This agreement established the East Contra Costa Habitat Conservation Plan Association (HCPA) as the lead agency in drafting the Habitat Conservation Plan for submittal to the governing boards and councils of member agencies, oversee compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), and would serve as the lead agency under CEQA for developing the HCP. The City of Oakley elected to participate in the development of the HCP and is a member of the HCPA.

The City of Oakley approved the East Contra Costa County Habitat Conservation Plan (HCP) and authorized execution of the Implementation Agreement and Joint Exercise of Powers Agreement on January 22, 2007 (Resolution No. 12-07). The U.S. Fish and Wildlife Service signed the federal permit for the HCP on July 25, 2007. The California Department of Fish and Game signed the state permit for the HCP on August 6, 2007. Therefore, East Contra Costa County has an officially approved HCP as of August 6, 2007. The City has approved an implementing ordinance and adopted the fee structure that is set forth in the HCP.

In addition to the ESA, delivery of CVP water may be subject to the CVPIA. Enacted in 1992, the CVPIA amended the Central Valley Project Act, which governs USBR's

operation and maintenance of the CVP. Specifically, the CVPIA added the environment as one of several project purposes; along with water supply for agricultural, industrial, and municipal uses. The CVPIA included provisions for dedicating additional water to in-stream uses, an agricultural land retirement program, a restoration fund for acquiring aquatic habitats and other environmentally oriented projects, water conservation, and long-term contract renewals. The CVPIA also supports the transfer of CVP water supplies from agricultural to municipal water supplies. Moreover, consistent with CVP water contracting requirements under Section 3406 of the CVPIA, water conservation measures must be adopted and implemented by any recipients of federal CVP water supplies. Consistent with the CVPIA, USBR renewed CCWD's long-term contract in 2005. The terms of CCWD's long-term contract were considered in the Urban Water Management Plans adopted by CCWD and DWD in December 2005.

The proposed project would result in an increased demand for domestic water. The DWD provides water service to all residential and commercial users within the City limits. The water supply available to DWD is the CVP water purchased by CCWD under CCWD contract number 175r-3401 with the USBR, and resold by CCWD to DWD under CCWD's Code of Regulations.

Proposed Project

According to the City of Oakley's 2020 General Plan, maximum water needs figures are calculated based on the assumption that single-family units consume an average of 525 gallons per day (as determined by DWD standards included in the Oakley 2020 General Plan, p. 4-21).

A Water Supply Assessment was performed by DWD for the Emerson property in June 2007. This WSA was based on the assumption that the proposed project would include 662 residential units, a 10.5-acre commercial center, a five-acre stormwater pond, and an approximately three-acre park. The WSA assessment determined that the project would create water demand of approximately 420.7 AFY, based on the following demand rates: 525 gallons per day (gpd) per dwelling unit (du) for single-family residential uses; 2,250 gpd per acre for commercial uses; and 1,450 gpd per acre for park uses.

Since June 2007, the proposed project components have been revised to include 578 residential units, 23.74 acres of commercial uses, and 10.13 acres of park uses. (The five-acre stormwater pond would remain.) Raney calculated the projected water demand for the proposed project, based on the demand rates used by DWD for the WSA. As shown in Table 4.10-6, the projected water demand for the Emerson property is estimated to be approximately 416.2 AFY.

Table 4.10-6
Emerson Property Project Water Demand

Land Use Type	Units	Water Demand Rate	Estimated Water Demand	
Single Family Homes	578 DU	525 gpd / DU	303,450 gpd	339.9 AFY
Commercial	23.74 acres	2,250 gpd / acre	53,415 gpd	59.8 AFY
Parks	10.13 acres	1,450 gpd / acre	14,689 gpd	16.5 AFY
Total Estimated Project Water Demand				**416.2 AFY**

Source: Diablo Water District SB 610 WSA, June 22, 2007.

According to the WSA that was prepared, the availability of 420.7 AFY is included and accounted for in DWD's Urban Water Management Plan, DWD's 1998 Facilities Plan Update, CCWD's 2000 Urban Water Management Plan, and CCWD's 1996 Future Water Supply Study. Therefore, the proposed project's demand of 416.2 AFY would be expected to be met by the available water supply.

The maximum quantity of water purchased by DWD in any prior year is approximately 1.8 billion gallons. Delivery of water to the Emerson property can be accomplished by extension of DWD's existing water mains. Funding for the delivery of the supply is documented in DWD's 1998 Facilities Plan Update. State and local permits for construction of the extensions can be obtained routinely in the normal course of business. The DWD water supplies that are available for the proposed project do not include ground water.

The stormwater pond is anticipated to serve as both a stormwater detention facility and an aesthetic feature of the development. The stormwater pond is anticipated to be partially filled throughout the year. To recharge the pond during the dry season, the proposed project would obtain water from either the Emerson Slough or through the construction of a new groundwater well located onsite. The project owner currently has water entitlements to surface water supply from Emerson Slough. Water supplied for the stormwater pond would be from the Emerson Slough and not a new groundwater well.

The proposed project site is located within the boundaries of CCWD service area. However, the entire project is located north of East Cypress Road, outside of the CCWD's CVP contractual service area boundary. Therefore, the project must be approved for inclusion in the CVP service area boundary by the USBR. An application for inclusion of the project into the CVP service area boundary is currently under consideration by CCWD and USBR.

The water supply is sufficient to meet the projected water demand associated with the proposed project. The approval of the USBR must be obtained for the inclusion of the Emerson property for municipal and industrial water service under CCWD's contract. CCWD's application for inclusion is underway.

The proposed project site is in the eastern portion of DWD's Sphere of Influence. The area is currently operating as a new pressure zone. A pressure reducing station is planned

to be located near the intersection of Sellers Avenue and Cypress Road to maintain acceptable pressures under low demand conditions. The Randall-Bold Water Treatment Plant would provide all water supplies in low demand conditions. Under higher demand conditions, Reservoir R-3 would be able to provide additional supplies.

The DWD Facilities Update recommended a Capital Improvement Program (CIP) for service within the DWD's Sphere of Influence to help support and plan the necessary facility expansion in the area. The schedule for improvements to serve new developments is dependent on the actual growth that occurs. Included in the CIP are the following:

- Installation of new pipelines;
- Construction of a secondary emergency well;
- Addition of Reservoir No. 3;
- Purchase of additional capacity at the Randall-Bold WTP; and
- Increasing capacity at existing reservoirs.

The DWD has funding mechanisms to finance capital improvement in new developments. These mechanisms include a Facility Reserve Charge (FRC) and Main Extension Reimbursement Assessment (MERA). Currently FRC's are charged to new water connections based upon the water meter size. MERA funds are used to reimburse developers who install oversized water lines.

Providing near-term service to the proposed development at the Emerson property would require the construction of a 20-inch waterline north of Cypress Road that would loop back to the Cypress Road Main. In addition, to avoid cycling too much water through Reservoir R-1, off-site system improvements would be required. The proposed project would require the completion of the 24-inch waterline loop in Carpenter Road between Empire and O'Hara Avenue. The 24-inch main in Carpenter Road is presently under construction by the Magnolia Park Subdivision and should be in service by the time the additional services would be needed for servicing the project area.

The development of the proposed project would necessitate the buildout of infrastructure in accordance with DWD's CIP other off-site improvements. Therefore, the impact on water supply and delivery would be considered ***potentially significant.***

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the above impacts to a *less-than-significant* level.

4.10-4(a) *Prior to recording of the final map, the applicant shall be required to pay a fair-share fee as determined by the DWD toward the CIP for water service infrastructure improvements.*

4.10-4(b) *Prior to recording of the final map, the applicant shall be required to obtain written verification from DWD to verify that water supplies are sufficient to serve the proposed project, consistent with SB 221.*

4.10-4(c) Prior to final map approval, each subdivision map shall be conditioned to ensure that the property included within each subdivision map is within the CCWD's CVP contractual service area.

4.10-5 Degradation of water quality in the Contra Costa Canal and Dutch Slough.

Degradation in water quality of the water bodies surrounding the proposed project could occur during two phases, construction and operation.

Construction Phase

During grading of the proposed project site, the top layer of the site soil would be exposed. Runoff from the site during storm events would pick up the exposed soil particles and transport the suspended sediment offsite, potentially to waterways of the State. In addition, any fuel or oil leaks from the equipment working on-site would be entrained in the runoff. Similarly, once the project utilities and internal roadways have been installed, the exposed soils on the building pads would be transported as sediment to the storm drains during storm events.

To control the above types of construction discharge, the Regional Water Quality Control Board (RWQCB) requires any development planned to disturb one-acre or more to obtain a National Pollutant Discharge Elimination System (NPDES) general construction permit (General Permit). The General Permit requires the developer to file a Notice of Intent (NOI) to develop the proposed project and to produce and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP is a dynamic document prescribing site-specific Best Management Practices (BMPs), changing the BMP type and location based on the construction timeline and BMP monitoring. Compliance with the NPDES General Permit would help prevent sediment from leaving the site during construction.

Operational Phase

The Contra Costa Canal is the natural northern border for the project site, running east to west between the site and farmlands to the north. The proximity of the waterway to proposed residential properties north of Cypress Road could potentially affect water quality (due to anticipated roofs, roadways, and other impervious surfaces), resulting in the loading of urban pollutants into increased stormwater runoff. The CCWD has expressed concern that drainage and seepage originating from the housing developments could impact the Canal's water quality. In addition, the drainage from the site could impact water quality in Emerson Slough because stormwater would be ultimately discharged to the Slough via the pump located at the stormwater pond.

The proposed multi-purpose lake on the proposed project site was designed by Balance Hydrologics, Inc. to be an effective overall BMP for the site, providing volume-based treatment control and additional treatment for runoff prior to leaving the site. The lake would be sized to serve as an extended detention BMP for the entire contributing

watershed (including the current watershed south of Cypress Road and the Baldocchi property).

The lake would be multi-purpose in nature and therefore require different operating levels depending on the circumstances of individual storms and the season of the year. The pond would be designed as an amenity to the project and should therefore be attractive and safe, as well as functional. The flow-based treatment controls include bioretention areas, bioswales and similar BMPs where the rate of runoff is the primary design criterion, and not the total runoff volume.

The sizing calculations for deriving the appropriate water quality treatment volume were taken directly from the Stormwater C.3 Guidebook. The volume estimates are based on the directly connected impervious area in the contributing watershed. The required treatment volume is 5.6 acre-feet. This volume corresponds with the lake being filled to the elevation of 3.1 feet. The only time that the lakes would fill to this elevation would be during moderately large storms, or when a sustained series of storms results in more than 5.6 acre-feet of runoff in 48 hours.

Conclusion

The proposed project would be required to obtain and comply with the NPDES General Permit and the stormwater management system is designed to adequately treat urban runoff generated by the project. Thus, during both the construction and operation of the proposed project, sediment and urban pollutants would not reach the surrounding water bodies in significant quantities. Therefore, the proposed project would result in a ***less-than-significant*** impact on water quality in the Contra Costa Canal and Emerson Slough.

Mitigation Measure(s)
None required.

4.10-6 Maintenance of stormwater lake.

The proposed lake would be operated and managed like other similar lake features throughout central California. Best practices associated with stormwater drainage and lake management have become well established and are built upon years of accumulated experience. Details regarding the care and maintenance of the multi-purpose lake on the Emerson property would be detailed in a separate Operations Maintenance Manual (OMM).

Several key issues for upkeep and maintenance of the multi-purpose lake include maintenance of water levels in dry periods. From the months of May to October, the lakes would likely require make-up water to maintain their normal surface elevation as a result of evaporation. Calculations show that in the period of highest demand in June and July, the lake would require approximately three acre-feet per month (Balance Hydrologics' *Preliminary Stormwater Management Plan for Burroughs Property*, Table 9). The most likely source for this replacement water would be groundwater pumped via

well(s). The use of well water would be consistent with the lake as a central element of the common area irrigation systems. Other maintenance issues that would be detailed in the OMM include maintaining an attractive shoreline, removal of debris and control of nutrient loads and aquatic algae and plants.

If not maintained properly, the stormwater lake could have an adverse effect on future residents in the proposed project. Insect, wildlife, and/or water quality issues could adversely affect future residents. Therefore, the impacts of the water quality detention basin would be ***potentially significant*** to future residents.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.10-6 *Prior to Improvement Plan approval, the project engineer shall develop a storm drain system maintenance program. The maintenance program shall be submitted for the review and approval of the City Engineer and include the plan for financing and maintenance of the water quality detention basin. The maintenance program shall include measures that would ensure that impacts related to the maintenance of the stormwater lake and sedimentation are fully mitigated to the satisfaction of the City Engineer. The plan shall address aquatic vegetation and vector control, pond bank and inlet structure conditions, and pond sediment removal.*

4.10-7 Maintenance of storm drain system.

Storm drains throughout the project would function best if the amount of sediment entering the system is kept to a minimum. The level terrain at the project site would help to reduce the overall amount of sediment generated within the drainage area of the stormwater pond because the erosion potential would be low, particularly after landscaping has been established. Many of the routine BMPs implemented as part of the City of Oakley's responsibilities under the NPDES permit for Contra Costa County would work to reduce sediment production and mobilization within the project. Among the most important would be the following:

- Regular street sweeping. Regular street sweeping can have a significant impact on the control of such constituents of concern as trash and debris, particulates, and heavy metals. All streets should be swept on a regular basis to control the build-up of sediment and trash with particular attention to the early fall period prior to the onset of the winter rainy season. Street sweeping schedules would follow City of Oakley standards, but should not be less than monthly.

- Inlet and catch basin cleaning. Stormwater inlets and catch basins can function as effective sediment traps for heavier materials. Therefore, these structures would need to be maintained and cleaned on at least an annual basis. Typical

maintenance schedules for these activities include a thorough inspection and cleaning in late summer or early fall and a mid-winter inspection to identify any new problems that may have arisen.

If not maintained properly, the storm drain system could have an adverse effect on the drainage patterns of the project site and the treatment efficiency of the water quality detention pond due to the potential that the detention basins could become heavily loaded with sediment. Therefore, the impacts of the storm drain system would be ***potentially significant*** to future residents.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.10-7 Implement Mitigation Measure 4.10-6.

4.10-8 Groundwater interaction with stormwater pond well.

The project includes construction of a lake that would be supplied by stormwater runoff and groundwater resources for the purpose of establishing storage capacity. Groundwater resources would be utilized to maintain the water level of the lake and also supply turf irrigation water for landscaping and common green spaces. To evaluate the affects on groundwater supply and demand contributed from the project, in addition to other nearby planned development for which additional lakes and community park and turf space are planned, ENGEO Inc. prepared a Groundwater Study for the project site. The Groundwater Study evaluated groundwater conditions over a much broader area than the site (approximately 12 square miles) (the "groundwater study area") to provide an adequate and cumulative assessment of the potential impacts of the project's use of groundwater for lake water level maintenance and turf irrigation.

To evaluate the hydrology specific to the groundwater study area, available Water Well Drillers Reports (WWDRs) were obtained from the Department of Water Resources for the entire groundwater study area. In addition, a reconnaissance of the area was conducted to identify groundwater wells for which WWDRs were not on file. The ENGEO report also evaluated other available studies of the groundwater basin including, but not limited to, Luhdorff and Scalmanini Consulting Engineer's (LSCE) 1999 investigation of the groundwater conditions in the east Contra Costa County area for the East County Water Management Association and LSCE's 2005 investigation of two new wells within the study area. Most of the wells in the groundwater study area were screened between 100 and 250 feet below the ground surface (bgs), while some of the boreholes extended as deep as 610 feet bgs.

The ENGEO report determined that groundwater recharge in the groundwater study area currently exceeds the groundwater pumpage by approximately 1,455 AFY and that groundwater levels in the area have remained shallow and constant for a long period. Groundwater occurs beneath the project site at depths of approximately four to six feet

bgs (elevations of 10 to -2 feet NGVD). Within the groundwater study area, groundwater levels are between approximately 10 and -10 NGVD. Throughout the region, groundwater is encountered at depths of less than 20 feet. Accordingly, the ENGEO report determined that the groundwater study area does not appear to be in a state of overdraft as demonstrated by the shallow groundwater levels and that the overall groundwater levels have been very stable and are expected to remain that way irrespective of whether recharge from irrigation or rainfall increase or decreases over the area due to urbanization.

According to the ENGEO report, groundwater levels have the potential to be lowered only a relatively small amount as a result of urbanization for the following reasons:

- The surface water levels in the adjoining sloughs and river will remain constant, thereby providing a significant recharge source for the area.

- While urbanization has the potential of reducing available groundwater recharge from irrigation and rainfall by up to 90 percent (from 3,400 to 340 AFY), an increase in available recharge from slough and river course stream beds would occur. The potential end result could be a lowering of the groundwater table by only 10 feet in the northeastern portion of the groundwater study area and 20 feet in the southwestern portions of the study area.

- A removal of groundwater pumpage in the groundwater study area due to land use changes (e.g., removal of industrial groundwater use like that which formerly existed at the Lesher property, east of the project site, and other agricultural irrigation pumping in surrounding areas) would counteract the affects of lost recharge from urbanization. The amount of gain in the groundwater budget by stopping industrial and commercial groundwater pumpage is conservatively estimated at 1,000 AFY.

The probable net affect of lost recharge due to urbanization and future groundwater pumpage for lake makeup water and turf irrigation requirements is a shift of groundwater flow from northeastward to southwestward in the northeastern portion of the groundwater study area as the lost recharge is replaced by stream bed infiltration along Emerson, Sandmound, Little Dutch and Dutch Sloughs. The potential available rate of infiltration from the sloughs to groundwater is estimated to be between 1,700 and 3,400 AFY, depending on the degree of hydraulic gradient reversal that may occur. The net negative difference of 1,440 AFY due to urbanization is less than the minimum 1,700 AFY available from the infiltration of slough water. Much of the land in the groundwater study area is currently irrigated through lift pumps or sluice gates that take water from the sloughs and disperse the water on the land. The amount of irrigation water sourced from the sloughs is conservatively estimated to be approximately 9,650 AFY. Under an urbanization scenario, 75 percent of the 9,650 AFY of water pumped from the sloughs would cease and that water would become available for indirect recharge of the groundwater basin. Given that 1,440 AFY is relatively small compared to approximately 7,240 AFY (75 percent of the estimated 9,650 AFY historically derived from the sloughs

for irrigation purposes), a net beneficial affect of increased amounts of water in the sloughs would occur once the area is urbanized.

According to the Groundwater Study, the study area has a generally low occurrence of chemical release sites because of the project site's rural setting. Previous phase one environmental site assessments by ENGEO for the project site did not reveal significant contaminated sites that would indicate potential impacts to groundwater. Groundwater in some areas within the study area, to the south of the project site, contain elevated nitrate levels at less than 100 feet deep due to agricultural practices. A 1999 study prepared by LSCE also noted differences in groundwater quality with respect to high nitrate levels being limited to the upper sequence of aquifer materials and that nitrate levels decreased appreciably in wells screened below 200 feet. Review of a map of the aerial distribution of nitrate concentrations at selected wells shows pronounced differences between the Brentwood, Discovery Bay, Oakley and Delta areas. In general, nitrate concentrations were below detection limits for wells within the study area.

Generally, detectable nitrate levels trend lower across the study area from the southwest to the northwest. In the northeastern and eastern portions of the groundwater study area, closer to Emerson, Little Dutch, Dutch and Rock Sloughs, nitrate is generally not detectable in groundwater. This pattern of lower nitrate levels in the northeast may be attributable to the local groundwater recharge conditions that are comprised of significant amounts of irrigation with higher quality river water and without much use of agrichemicals (fertilizers and pesticides). Nitrate was not detected in groundwater that services the communities on Sandmound Road, Bethel Island, and Holland Tract.

An example of the localized and sporadic occurrence of elevated nitrate levels occurs in the vicinity of Delta Road and SR 4. A groundwater well at the Bethel Mission Baptist Church located just west of SR 4, had a nitrate as (NO_3) level of 46 milligrams per liter while the groundwater well at Delta Kids Center located less than 1,000 feet to the east of the church on Delta Road does not have detectible levels of nitrate. One well, located at the intersection of Sellers Avenue and Cypress Road is only 90 feet deep and had a nitrate as NO_3 level of 93 milligrams per liter (mg/l). A large area of orchards is shown on aerial photographs of the study area (USGS, 1998) in the immediate vicinity and upgradient of this well that may have a localized affect on the groundwater quality less than 100 feet deep. In contrast, in the vicinity of the City of Oakley where less farming occurs, nitrate as NO_3 levels are low, ranging from less than four mg/l at Diablo Water District's Contra Costa Canal Pumping Station (well likely greater than 100 feet deep) to 12 mg/l at State Well Number 002N002E036M001M (a well that is 130 feet deep) located approximately 0.5 mile further west of the Bethel Mission Baptist Church.

In July 2003, ENGEO conducted a focused investigation on shallow groundwater in the immediate vicinity of the Emerson Dairy north of the project site, which indicated nitrate as NO_3 levels were below analytical detection levels in six of the seven samples collected. One sample had a nitrate as NO_3 concentration of 320 mg/l that was in close proximity to the wash water disposal pond for the dairy operation and was considered a

localized effect because nitrate levels were below detection levels at locations less than 500 feet away.

The Groundwater Study indicates a slightly different trend in the distribution of total dissolved solids (TDS) concentrations in the study area with respect to surrounding areas like Brentwood and Discovery Bay. Higher concentrations (generally above 1,000 mg/l) are evident in the Brentwood area compared to the study area and Discovery Bay (generally between 500 and 1,000 mg/l). TDS concentrations cannot be concluded to show the same trend with depth as nitrate concentrations. Groundwater beneath Brentwood appears to have a higher component of groundwater recharge from the Coast Ranges geomorphic province than the Great Valley or Sierra Nevada providences to the east that may have a stronger influence on groundwater beneath the study area than in Brentwood. Another plausible explanation for the lower TDS concentrations beneath the study area and the Discovery Bay area is their closer proximity to the San Joaquin River and Delta resulting in a greater component of stream bed recharge of higher quality surface water, generally having low TDS concentrations, to their underlying aquifers than recharge from the Coast Ranges. The lithologic profile in the groundwater study area indicates generally thicker and shallower sequences of sand that would increase the chances for surface water infiltration to reach the underlying aquifer.

The Groundwater Study indicates lower chloride concentrations in the study area compared to areas to the south and west (e.g., Brentwood and central Oakley areas). However, in general, chloride concentrations are below 200 mg/l, well below concentrations considered brackish (e.g., 500 mg/l). The data collected in and surrounding the groundwater study area suggests that, in general, groundwater in the study area is less impacted with nitrates than in the Brentwood area where farming of row crops that use agrichemicals in greater volumes than in the study area appears to have contributed significantly to nitrate in groundwater. The groundwater study area has primarily been used to raise cattle feed and, in general, application of fertilizers, pesticides and herbicides is not done. Therefore, irrigation infiltration in the study area has a lower propensity to cause nitrate contamination in the groundwater.

Finally, water quality in the sloughs appears to be of higher quality (i.e., lower TDS and does not contain nitrates) than agricultural runoff water that also infiltrates to the groundwater table (i.e., high TDS and nitrates). With the onset of urbanization and a reversal of groundwater flow direction, water quality is expected to improve in the study area as a result of slough water recharge.

Conclusion

The project is part of an overall urbanization of the entire groundwater study area. The combined affects of this urbanization will result in a change in the sources of recharge and pumpage within the overall groundwater budget. While these changes are appreciable in quantity, they have a tendency to counteract each other and would not result in significant overall loss of groundwater supply or a significant drop in the groundwater table elevation. In addition, the changes in sources of recharge and pumpage in the

groundwater beneath the study area has the potential to improve the general quality of the groundwater by changing the groundwater flow direction. The result is that future slough water that is capable of recharging the groundwater is of higher quality than a substantial portion of the irrigation water currently recharging groundwater. Therefore, the impacts to groundwater resources caused by well pumping to maintain the water level of the project's lake and also to supply turf irrigation water for landscaping and common green spaces would be ***less-than-significant***.

Mitigation Measure(s)
None required.

Cumulative Impacts

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region.

4.10-9 Contribution to cumulatively increased stormwater drainage into the existing drainage system.

The proposed project plus other developments in the project area would create impervious surfaces where none currently exist. The addition of impervious surfaces to the area would increase the stormwater drainage downstream of the project area. The proposed project plus other development in the project area may increase the stormwater flowing into the drainages, which could overcome the existing drainage system and cause flooding downstream.

The majority of the surface runoff flows to the northeast of the site and discharges into the Contra Costa Canal and Emerson Slough. The proposed drainage system for the overall drainage area (of which the proposed project is a component) would consist of a gravity-flow pipe system leading to the multi-purpose lake on the Emerson property, which would be regulated by a pump system. Increases in flows generated from the development of the proposed project would be contained in the proposed drainage system.

The proposed project includes the use of two to four 36-inch drainage pipes at the Emerson Slough outfall that were installed by the nearby Cypress Grove development in order to accommodate the anticipated need resulting from the buildout of the Cypress Corridor area. Each outfall pipe would serve a distinct area within the drainage shed. The maximum discharge volume from each area would not exceed 35 cubic feet per second (cfs) at Emerson Slough, equating to a discharge velocity of approximately five feet per second (fps). Consequently, during a large storm event, the maximum impact at the Slough would occur when each of the four pipes discharges 35 cfs. Although a total of 140 cfs of flow would be entering Emerson Slough, the velocity would still be limited to five fps.

Therefore, although the proposed project and buildout of the General Plan would increase the amount of impervious surfaces to the drainage area of which the project site is a part, the stormwater management system designed by Balance Hydrologics would contain increased flows resulting from the project and other development in the Cypress Corridor and would also redirect runoff from existing drainage systems. Therefore, the proposed project would have a ***less-than-significant*** impact on existing drainage systems.

Mitigation Measure(s)
None required.

4.10-10 Cumulative impacts to groundwater recharge.

Water supply for the region has been master planned by both DWD and CCWD. The Urban Water Management Plan has taken into account the water supply that would be necessary for buildout of the Oakley General Plan. Furthermore, the City of Oakley relies primarily on surface water for the City's water supply; therefore, the proposed project would also rely primarily on surface water and would not be expected to lower the groundwater table in the area.

In addition, as discussed above, according to the Groundwater Study prepared by ENGEO, Inc., groundwater recharge in project area currently exceeds groundwater pumpage by approximately 1,455 AFY, and groundwater levels in the area have remained shallow and constant for a long period. The ENGEO report determined that the groundwater study area does not appear to be in a state of overdraft, as demonstrated by the shallow groundwater levels overall, and groundwater levels in the region have been very stable and are expected to remain that way irrespective of whether recharge from irrigation or rainfall increases or decreases due to urbanization. In addition, according to the Groundwater Study, groundwater levels have the potential to be lowered only a relatively small amount as a result of urbanization. Thus, the project's impact to groundwater was determined to be less-than-significant (See Impact 4.10-8). Therefore, because the proposed project would not impact the groundwater recharge in the area and the region, the proposed project's incremental contribution to any cumulative groundwater recharge impacts would be ***less-than-significant***.

Mitigation Measure(s)
None required.

4.10-11 Project contribution to cumulative water quality impacts downstream of the project site.

Development of the proposed project and buildout of the General Plan would increase the sediment load of area waterways. In addition, the stormwater runoff occurring in urbanized areas would contribute a higher amount of pollutants to adjoining channels. As such, water quality in the region could be affected on a short-term and long-term basis.

However, the project applicant has proposed a design for the Cypress Corridor drainage area, which would prevent pollutants from entering the downstream channel. The proposed drainage plan would construct one multi-purpose lake to serve as detention basin, which would filter out pollutants before the drainage enters Emerson Slough as well as groundwater supplies. Therefore, the impact to water quality would be considered ***less-than-significant***.

Mitigation Measure(s)
None required.

Endnotes

[1] City of Oakley. *Oakley 2020 General Plan*. August 30, 2002.
[2] City of Oakley. *Oakley 2020 General Plan Draft Environmental Impact Report*. September, 2002.
[3] City of Oakley. *City of Oakley 2020 General Plan Background Report.* September 2001.
[4] ENGEO, Inc. *Groundwater Study, Emerson and Burroughs Properties, Contra Costa County, California.*. October 27, 2005.
[5] Balance Hydrologics, Inc. *Preliminary Stormwater Management Plan for the Emerson Property*. October 2005.
[6] Diablo Water District. *SB 610 Water Supply Assessment for the Emerson Property Project*. June 2007.

4.11 PUBLIC SERVICES AND UTILITIES

4.11 PUBLIC SERVICES AND UTILITIES

INTRODUCTION

The Public Services and Utilities chapter summarizes setting information and identifies potential new demand resulting from the proposed project on wastewater systems, solid waste disposal, law enforcement, fire protection, schools, parks and recreation, electric power, natural gas, and telephone services. It should be noted that water supply is discussed in Chapter 4.10, Hydrology, Water Supply, and Water Quality.

Information for this chapter is drawn from the *Oakley 2020 General Plan Background Report*,[1] the *Contra Costa County (CCC) General Plan*,[2] the *CCC General Plan's Draft Environmental Impact Report*,[3] and the *Oakley 2020 General Plan*[4] and the associated EIR.[5] Further sources include the *Diablo Water District 1998 Facilities Plan Update* (DWD Plan) prepared by Camp, Dresser & McKee (CDM), and the *Bay Area Census 2000 Report*[6] provided by the Association of Bay Area Governments (ABAG), and information submitted by the applicant regarding proposed services and utilities.

EXISTING ENVIRONMENTAL SETTING

The existing environmental setting section describes the existing wastewater collection and treatment, solid waste collection and disposal, law enforcement, fire protection, schools, parks and recreation facilities, and other related public utilities.

Wastewater Collection and Treatment

The Ironhouse Sanitary District (ISD) provides wastewater service to the entire City of Oakley and the unincorporated areas of Bethel Island and Sandmound. Wastewater services include the conveyance of primarily residential and some commercial and light industrial raw wastewater to a treatment facility, for treatment, and disposal of treated effluent onto agricultural lands on the mainland and Jersey Island.

Current System Capacity

The wastewater system is composed of collection, treatment, and disposal. The collection and treatment facilities will be expanded to meet future requirements. The disposal system has been sized to meet the buildout capacity within the District. The current daily average dry weather flow is 2.6 million gallons per day (MGD) and treatment capacity totals 3.0 MGD. The current average BOD concentration is 225 milligrams per liter (mg/l), an increase of 20 percent over the original design value of 188 mg/l.

Current Conveyance Facilities

The trunk line system is divided into four general areas that are identified as follows:

- Empire Avenue System;
- South of Ridge Line System;
- Central System, O'Hara Avenue, Laurel Road; and
- State Route 4 System.

The ISD collection system includes approximately 85 miles of gravity pipelines, 20 miles of pressure pipelines, and 31 pump stations. All of the pump stations have a permanent standby generator on-site or are equipped with a portable generator plug-in.

Wastewater Treatment

Ironhouse Sanitary District owns and operates a wastewater treatment plant in the northeast portion of Oakley. The plant currently provides wastewater treatment services for Oakley, Bethel Island, and the sand mound area. Fifty acres of on-site storage are currently available for treated wastewater. The plant uses an aerated pond treatment system that occupies about 7.5 acres of the site. The aerated pond system consists of a nine-inch parshall flume, two grinders, two pumps, and two parallel-two-stage aerated treatment ponds followed by storage and then chlorination.

Current Disposal Facilities

Current ISD disposal facilities consist of disinfection facilities, 50 acres of storage ponds with a capacity of 350 acre-feet, and land application of recycled water on 166 acres of "mainland" agricultural adjacent to the WWTP and on 425 acres of Jersey Island.

Sludge Disposal Capacity

The Ironhouse Sanitary District has never applied sludge on property they own, although sludge application is permitted in their current Wastewater Discharge Requirements.

Solid Waste Collection, Disposal, and Recycling

Oakley Disposal Service, since 1976, has provided residential and commercial solid waste collection and recycling service to the City of Oakley. Contra Costa Waste Service and Mt. Diablo Recycling are affiliates of Oakley Disposal Service and provide recycling services and waste diversion programs.

Oakley Disposal Service

Solid waste collected by Oakley Disposal in the City limits of Oakley is hauled to the recycling Center and Transfer Station in Pittsburg, which is operated by Contra Costa Waste Service. Residential, commercial, and industrial waste is processed at this transfer facility and the residual

material is hauled to Potrero Hills Landfill (PHLF) outside Suisun City. Potrero Hills Landfill is permitted to accept waste through 2015, with the potential expansion of 50 additional years.

Mount Diablo Recycling

Oakley Disposal Service provides weekly curbside recycling service whereby each residential customer is provided two 12-gallon crates for discarding recyclables. Green waste service is provided on a bi-weekly basis. The curbside material is transported to the Concord Facility (Mount Diablo Recycling) where the recyclables are sorted and moved to the appropriate markets for processing, composting, etc.

Law Enforcement

The City of Oakley contracts with the Contra Costa County Sheriff's Department for equipment and personnel. However, the Oakley Police Department controls the specifics of delivery of law enforcement services in the City, and this control results in a city-based police operation free of County jurisdiction. The current number of officers in the City results in a ratio of 0.7 police officers per 1,000 residents.

The General Plan EIR indicates that as the population in the General Plan area increases, the need for additional law enforcement services would increase. The General Plan EIR indicates that to maintain the level of service for the General Plan area, the appropriate police officer to population ratio is 1.5 officers per 1,000 residents.

Fire Protection

The City of Oakley receives fire protection from the East Contra Costa Fire Prevention Department (ECCFPD). The ECCFPD, formed in 2002, dispatches emergency services for a 250-mile area including the City of Oakley, provides fire suppression, and is the second largest fire service in the County. The ECCFPD includes eight stations and over 83 emergency staff, and was formed as a consolidation of three fire districts, including the Oakley/Knightsen Fire Protection District, which used to provide services to the City of Oakley. The ECCFPD strives to achieve a standard five-minute response time, 90 percent of the time (Contra Costa County General Plan 7-25).

The City of Oakley is served by Fire Station 93, which is located at 215 Second Street within the City of Oakley. Additionally, a fire station site is planned for construction on East Cypress Road immediately east of Bethel Island Road.

Schools

Three school districts serve the Oakley area: Oakley Union Elementary School District, Liberty Union High School District, and Antioch Unified School District. Following are brief descriptions of the schools operated by these three school districts.

Oakley Union Elementary School District

The Oakley Union Elementary School District (OUESD) encompasses the City of Oakley with Neroly Avenue and Delta Road as the southern border, Sellers Avenue and Sand Mound Slough as the eastern border, and Empire Avenue as the western border. The following schools are included in the OUESD:

- O'Hara Park Middle School (1100 O'Hara Avenue);
- Gehringer Elementary (4951 Main Street);
- Laurel Elementary (1141 Laurel Road);
- Oakley Elementary (501 Norcross Lane);
- Vintage Park Elementary (1000 Vintage Parkway);
- Iron House Elementary (4801 Frank Hengel Way);
- Delta Vista Middle School (4901 Frank Hengel Way); and
- Almond Grove Elementary School (5000 Amaryllis Street).

For elementary and middle schools, the City of Oakley is primarily served by the OUESD. The OUESD currently has approximately 4,700 students enrolled (3,000 elementary students and 1,700 middle school students). The student capacity of the above school sites is approximately 5,550 students, including the recently constructed Almond Grove Elementary School (600 student capacity). At this time, the enrollment is at approximately 85 percent of existing capacity.

The construction of the Almond Grove Elementary School is complete; however, in the June 2008 update on the status of the opening of Almond Grove Elementary, the OUESD reported only 20 elementary students living in the Magnolia Park subdivision (location of Almond Grove Elementary School). The opening of Almond Grove Elementary School has been postponed by the OUESD. Instead, the facility will be leased until the OUESD can justify the opening of Almond Grove Elementary School for OUESD's purposes.

Liberty Union High School District

The Liberty Union High School District (LUHSD) includes three full service high schools, Freedom High School (in Oakley), and Liberty High School and Heritage High School (in Brentwood). The LUHSD also maintains a continuation high school, LaPaloma High School. Enrollment in the LUHSD is currently over capacity, with 5,329 students in the 2006 school year and a capacity of 2,500 students per high School (Dan Smith, Superintendent LUHSD).

Antioch Unified School District

The Antioch Unified School District (AUSD) primarily covers the City of Antioch, and the western portion of Oakley from the border with Antioch to Empire Road and Big Break Road. Of the seventeen schools in the AUSD, the following five schools enroll Oakley students:

- Bidwell Elementary (800 Gary Avenue);
- Kimball Elementary (1310 August Way);
- Antioch Middle School (1500 D Street);
- Antioch High School (700 W. 18th Street); and
- Deer Valley High School (4700 Lone Tree Way).

The Antioch Unified School District serves the western portion of the City of Oakley. The Gilbert Property project is on the eastern edge of the City of Oakley and would not result in an increase in enrollment at the Antioch Unified School District.

Parks and Recreational Facilities

Two basic park types exist in Oakley, neighborhood and community parks (Oakley 2020 General Plan, p. 7-15). Neighborhood parks generally abut residential areas and have amenities such as play areas, picnic areas, gathering areas, and open turf. These parks have turf areas suitable for informal play, practices, and scrimmages, but not formal games. Community parks are designed to serve the needs of several neighborhoods up to the whole community. The parks are intended to host organized, formal recreation leagues and tournaments to meet adult recreation opportunities that would require larger fields and therefore larger sites.

The City of Oakley became responsible for the provision of local parks at the time of its incorporation in 1999. Parks in the City of Oakley that are located on school property or other joint-use sites, and maintained under school/park joint-use agreements with the Oakley Unified School District or Contra Costa County, are funded by the park's Landscape and Lighting Assessment District. The school use agreements detail how all aspects of the joint site-use are funded, developed, and maintained.

The existing agreements provide for joint school/community-use areas, a term used to describe areas used exclusively by the schools during the school day and that are available to the public after school hours and on weekends. Public park use, or day use, is also provided by the agreements, which refers to sites that are available to the general public during all daylight hours. Existing Oakley recreation facilities are listed in Table 4.11-1.

Electrical and Natural Gas Service

The Pacific Gas and Electric Company (PG&E) is obligated by California Public Utilities Commission (CPUC) Rule 15 to extend services to all new developments. However, PG&E is not required to distribute the services throughout the project site; it is only responsible for getting the electricity to the project site.

Table 4.11-1
Oakley Park Facilities Inventory

Facility	Park Acreage		
	Improved	**Unimproved**	**Total**
Neighborhood Parks [1]			
Claremont Bay Park	.25 acres		.25 acres
Crockett Neighborhood Park	4.66 acres		4.66 acres
Heather Park	.16 acres		.16 acres
Holly Creek Neighborhood Park		6.7 acres	6.7 acres
Laurel/Nutmeg		2.56 acres	2.56 acres
Laurel Road at Marsh Creek Park Site		9 acres	9 acres
Main Street Park	.4 acres		.4 acres
Marsh Creek Glenn Park	2.4 acres		2.4 acres
Patriot Park	.2 acres		.2 acres
Stonewood Park		1.95 acres	1.95 acres
Teakwood Basin Park		5.2 acres	5.2 acres
SUBTOTAL	**8.07 acres**	**25.41 acres**	**33.48 acres**
Joint-Use School [2]			
Freedom High School	9 acres	3 acres	12 acres
Gehringer Elementary School	4.2 acres		4.2 acres
Laurel Elementary School	4 acres		4 acres
Oakley Elementary School	4 acres		4 acres
O'Hara Park Middle School	17.5 acres		17.5 acres
Vintage Parkway Elementary School Park	4.37 acres		4.37 acres
SUBTOTAL	**43.07 acres**	**3 acres**	**46.07 acres**
Civic, Sports, Recreation, Activities/Community Parks			
Civic Center and Plaza		1.0 acre	1.0 acre
Freedom Soccer Fields Park	8.48 acres		8.48 acres
Laurel Ballfields Park	13.63 acres		13.63 acres
Laurel Crest Park Site		10 acres	10 acres
Laurel Road at Marsh Creek Park Site		9 acres	9 acres
Moura Park Site	1.5 acres	4.5 acres	6 acres
SUBTOTAL	**23.61 acres**	**24.5 acres**	**48.11 acres**
Open Space			
Del Antico Basin Site		2.95 acres	2.95 acres
Las Dunas Basin Site		1.0 acre	1.0 acre
Live Oak Basin Site			
SUBTOTAL	**0.0 acres**	**3.95 acres**	**3.95 acres**
Regional Parks [3]			
Antioch Oakley Regional Shoreline	.81 acres		.81 acres
Big Break Regional Park		43.14 acres	43.14 acres
Legless Lizard Preserve		.62 acres	.62 acres
SUBTOTAL	**.81 acres**	**43.76 acres**	**44.57 acres**
Total Park Acres	**75.56 acres**	**100.62 acres**	**175.56 acres**
Acres required for city population (27,000) [4]	135 acres		135acres
Acres per 1,000 people [4]	**2.43 acres**	**4.23 acres**	**6.75 acres**
Park acres required at 2020 Build-out (68,371) (City pop.: 49,388; Expansion Areas pop.:18,983)	342.27 acres		**342.27 acres**

1. Includes parks and playfields made available through joint-use agreements between the City and the Flood Control District.
2. Includes parks and playfields available through joint-use agreements between the City, the Flood Control District and the School District.
3. Acreage noted for Regional Parks is 11 percent of total acreage of regional park sites within Oakley, based on Oakley's participation in East Contra Costa County regional parks funding programs.
4. Figures based on city park standard of five total park acres per 1,000 people (two acres per 1,000 for community parks and one acre per 1,000 for special purpose facilities).

Source: Oakley 2020 General Plan, p. 7-15, and the City of Oakley Parks & Recreation Department.

Oakley is positioned within PG&E's Delta Distribution Planning Area (DPA), which covers the eastern portion of the County from Bay Point to Discovery Bay. Electric transmission and distribution facilities are located throughout the DPA, with electric transmission lines (generally energized at 21,000 volts) crossing the western area of Oakley. However, individual sets of facilities are not dedicated to serving Oakley exclusively. Electric distribution facilities consist of overhead and underground lines and associated line equipment such as transformers and switches. Existing gas facilities include gas transmission lines in the western portion of Oakley. Distribution gas mains are located in the roads serving residential and commercial facilities.

Telephone Service

AT&T currently serves the City of Oakley for all telephone needs. AT&T's existing facilities are able to supply services to the City, and are comprised of one central office in Oakley and two main feeder routes consisting of both aerial and underground lines.

REGULATORY CONTEXT

Existing policies, laws and regulations that would apply to the proposed project are summarized below.

Federal Regulations

Clean Water Act (CWA) / National Pollutant Discharge Elimination System Permits (NPDES)

The CWA is the cornerstone of water quality protection in the United States. The statute employs a variety of regulatory and nonregulatory tools to sharply reduce direct pollutants discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." The CWA regulates discharges from "non-point source" and traditional "point source" facilities, such as municipal sewage plants and industrial facilities. Discharging pollutants from a point source to the waters of the United States is illegal under the CWA. Section 402 of the Act creates the NPDES regulatory program. Point sources must obtain a discharge permit from the proper authority (usually a state, sometimes EPA, a tribe, or a territory). NPDES permits cover industrial and municipal discharges, discharges from storm sewer systems in larger cities, stormwater associated with numerous kinds of industrial activity, runoff from construction sites disturbing more than one acre, mining operations, and animal feedlots and aquaculture facilities above certain thresholds. All so-called "indirect" dischargers are not required to obtain NPDES permits. An indirect discharger is one that sends wastewater into a City sewer system, so the water eventually goes to a sewage treatment plant. Though not regulated under NPDES, "indirect" discharges are covered by another CWA program, called pretreatment. "Indirect" dischargers send their wastewater into a city sewer system, which carries wastewater to the municipal sewage treatment plant, through which the wastewater passes before entering surface water. Permit requirements for treatment are expressed as end-of-pipe conditions. This set of numbers reflects levels of three key parameters: (1) biochemical oxygen demand (BOD), (2)

total suspended solids (TSS), and (3) pH acid/base balance. These levels can be achieved by well-operated sewage plants employing "secondary" treatment. Primary treatment involves screening and settling, while secondary treatment uses biological treatment in the form of "activated sludge."

National Pretreatment Program

The National Pretreatment Program is a cooperative effort of federal, State, and local regulatory environmental agencies established to protect water quality. The program is designed to reduce the level of pollutants discharged by industry and other non-domestic wastewater sources into municipal sewer systems, and thereby, reduce the amount of pollutants released into the environment through wastewater. The objectives of the program are to protect the Publicly Owned Treatment Works (POTW) from pollutants that may interfere with plant operation, to prevent pollutants that may pass through untreated from being introduced into the POTW, and to improve opportunities for the POTW to reuse wastewater and sludges that are generated. The term "pretreatment" refers to the requirement that non-domestic sources discharging wastewater to POTWs control their discharges, and meet limits established by EPA, the State or local authority on the amount of pollutants allowed to be discharged. The control of the pollutants may necessitate treatment prior to discharge to the POTW (therefore, the term "pretreatment"). Limits may be met by the non-domestic source through pollution prevention techniques (product substitution recycle and reuse of materials) or treatment of the wastewater.

The Federal Safe Drinking Water Act (SDWA), which was enacted in 1974, gives the United States Environmental Protection Agency (EPA) the authority to set standards for contaminants in drinking water supplies. The SDWA was amended in 1986 and amended and reauthorized in 1996. For each of the 83 contaminants listed in the SDWA, the EPA sets a maximum contaminant level or treatment technique for contaminants in drinking water.

State Regulations

Fire Services

Uniform Fire Code

The Uniform Fire Code contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The Code contains specialized technical regulations related to fire and life safety.

California Health and Safety Code

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code, include regulations for building standards (as also set forth in the California Building

Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

Schools

California Code of Regulations

The California Code of Regulations, Title 5 Education Code, governs all aspects of education within the State.

Proposition 1A/Senate Bill 50

Proposition 1A/Senate Bill (SB) 50 (Chapter 407, Statutes of 1998) is a school construction measure authorizing the expenditure of State bonds totaling $9.2 billion through 2002, primarily for modernization and rehabilitation of older school facilities and construction of new school facilities. $2.5 billion is for higher education facilities and $6.7 billion is for K-12 facilities. Proposition 1A/SB 50 implemented the following significant fee reforms by amending the laws governing developer fees and school mitigation:

- Establishes the base (statutory) amount (indexed for inflation) of allowable developer fees at $1.93 per square foot for residential construction and $0.31 per square foot for commercial construction;
- Prohibits school districts, cities, and counties from imposing school impact mitigation fees or other requirements in excess of or in addition to those provided in the statute; and
- Suspends for a period of at least eight years (2006) a series of court decisions allowing cities and counties to deny or condition development approvals on grounds of inadequate school facilities when acting on certain types of entitlements.

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]). Additionally, a local agency cannot require participation in a Mello-Roos for school facilities; however, the statutory fee is reduced by the amount of any voluntary participation in a Mello-Roos. ***Satisfaction of the Proposition 1A/SB 50 statutory requirements by a developer is deemed to be "full and complete mitigation."*** The law identifies certain circumstances under which the statutory fee can be exceeded, including preparation and adoption of a "needs analysis," eligibility for State funding, and satisfaction of two of four requirements (post-January 1, 2000) identified in the law including year-round enrollment, general obligation bond measure on the ballot over the last four years that received 50 percent plus one of the votes cast, 20 percent of the classes in portable classrooms, or specified outstanding debt. Assuming a district qualifies for exceeding the statutory fee, the law establishes ultimate fee caps of 50 percent of costs where the State makes a 50 percent match, or 100 percent of costs where the State match is unavailable. District certification of payment of the applicable fee is required before the City or County can issue the building permit.

Proposition 55

Proposition 55 is a school construction measure passed in 2004 authorizing the sale of approximately $12.3 billion in bonds to fund qualified K-12 education facilities to relieve overcrowding and to repair older schools. Funds target areas of the greatest need and must be spent according to strict accountability measures. These bonds would be used only for eligible projects. Approximately ten billion dollars would be allocated to K-12 schools, with the remaining 2.3 billion allocated to higher education facilities.

Department of Education Standards

The California Department of Education published the Guide to School Site Analysis and Development to establish a valid technique for determining acreage for new school development. Rather than assigning a strict student/acreage ratio, this guide provides flexible formulas that permit each district to tailor the Department's ratios as necessary to accommodate each district's individual conditions. The Department of Education also recommends that a site utilization study be prepared for the site, based on these formulas.

Energy

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned electric, telecommunications, natural gas, water and passenger transportation companies, in addition to household goods movers, and the safety of rail transit. Regarding underground gas and oil lines, the CPUC passed GO 112-E, Rules Governing Design, Construction, Testing, Maintenance, and Operations of Utility Gas Gathering, Transmission, and Distribution Piping Systems.

Local Regulations

The following are the local government environmental goals and policies relevant to the CEQA review process.

City of Oakley General Plan

The following applicable goals and policies are from the Oakley 2020 General Plan *Growth Management Element:*

Wastewater Services

Goal 4.9 Assure the provision of sewer collection, treatment and disposal facilities that are adequate to meet the current and projected needs of existing and future residents.

Policy 4.9.1 Coordinate future development with the Ironhouse Sanitary District to ensure facilities are available for proper wastewater disposal.

Policy 4.9.2 Wastewater treatment should preserve, and to the extent feasible, enhance water quality and the natural environment.

Policy 4.9.4 Reduce the need for sewer system improvements by requiring new development to incorporate water conservation measures, which reduce flows into the sanitary sewer system.

Law Enforcement

Goal 4.5 Provide a high standard of police protection services for all citizens and properties throughout Oakley.

Policy 4.5.1 Police patrol beats shall be configured to assure minimum response times and efficient use of resources.

Policy 4.5.2 Incorporate police protection standards and requirements into the land use planning process.

Policy 4.5.3 Encourage public participation in crime prevention activities.

Policy 4.5.4 The city shall strive to provide sufficient personnel and capital facilities to ensure adequate police protection and appropriate response times.

Policy 4.5.5 Require that the Community Development Department refer, as appropriate, development proposals to the Police Department for review and comments.

Public Schools

Goal 4.6 Assure the provision of adequate primary and secondary schools in optimal locations to serve planned growth.

Policy 4.6.3 To the extent possible, new residential development, General Plan Amendments, or Rezoning shall, in the absence of the Planning Agency's satisfaction that there are overriding considerations (i.e., provision of low or moderate cost housing), be required to adequately mitigate impacts on primary and secondary school facilities.

Policy 4.6.5 Ensure that school facility impact fees are collected and shall work with developers and school districts to establish mitigation measures to ensure the availability of adequate school facilities.

Policy 4.6.6 Work with the school districts to consider alternative funding programs for school facility construction and provision of educational programs.

Policy 4.6.7 The hearing body reviewing residential projects shall consider the availability of educational facilities and impact on school capacities.

Policy 4.6.8 School site donation by developers may be encouraged through the use of density transfer or other appropriate land use alternatives.

The following applicable goals and policies are from the Oakley 2020 General Plan Parks and Recreation Element:

General Parks and Recreation

Goal 7.1 Develop and maintain a system of parks, recreational facilities and open space areas to meet the needs of the City of Oakley.

Policy 7.1.1 Develop and maintain a park system that provides 5 acres of parkland per 1,000 residents.

Policy 7.1.2 Offer a wide variety of indoor and outdoor recreational opportunities in proximity to all residents of the city, enabling residents to participate in activities that will enhance the quality of life in the community.

Policy 7.1.3 Provide a full range of park and recreation facilities and programs for all community residents.

Policy 7.1.4 Provide recreation services that enhance the quality of life and meet the changing needs of residents.

Policy 7.1.5 Maintain and improve existing parks and develop new neighborhood and community parks in new residential neighborhoods as growth occurs.

Policy 7.1.7 Provide sufficient playfields within the city to accommodate both practice and competitive demands for organized and informal activity.

Policy 7.1.10 Consider multiple uses for open space land (i.e. land use buffer zones and green-ways for trails and linear parks, flood control basins for basin and park joint use, and school sites for neighborhood/community park joint use).

Policy 7.1.13 Consider multiple uses for open space land (i.e. land use buffer zones and green-ways for trails and linear parks, flood control basins for basin and park joint use, and school sites for neighborhood/community park joint use).

Policy 7.1.19 Require all development to dedicate parkland and pay in lieu and/or impact fees sufficient to meet the added demand for parkland facilities.

Neighborhood Parks, Playfields, and Recreation Centers

Goal 7.3 Provide a network of neighborhood parks to adequately service the various neighborhoods within the City of Oakley.

Policy 7.3.1 Provide area for neighborhood parks at a rate of 2 acres per 1,000 residents.

Policy 7.3.2 Where 2 acre parcels are not available, provide pocket parks and neighborhood parks at a rate of no less than 1 acre per 1,000 residents in older or in-fill neighborhoods.

Policy 7.3.3 Provide for 2 acres of developed neighborhood park per 1,000 residents from all new residential subdivisions through Land Dedication In-Lieu fees and/or Park Impact fees.

Policy 7.3.5 Focus on development of parks, not leftover residual space. Parks should not be used as buffers for surrounding developments nor used to separate buildings from the street. Views from surrounding streets should be considered in location of the park site and individual park features.

Policy 7.3.6 Front at least 50% of a park's frontage onto a public street. For perimeters not bound by a street, woodlands, creeks, agricultural uses or other significant open space features are desired over backyard fences. Where backyard fences are unavoidable, they should be screened through the use of trees and shrubs. Surrounding buildings should have windows and entries onto the park.

Policy 7.3.7 Design neighborhood parks to conserve natural features including creeks, heritage trees, and significant habitats. However, parkland dedicated for active recreation should not have biological and/or ecological restrictions on land usage.

Policy 7.3.8 Locate neighborhood parks no more than ¼ mile walking distance for most residents. Avoid major street crossing for most residents to access a neighborhood park.

Policy 7.3.9 Design and locate neighborhood parks based on a preferred size of 5 to 6 acres with a minimum size of 2 acres. The park size of 5 to 6 acres would allow for the incorporation of lawn play areas of sufficient size to accommodate informal field sports.

Policy 7.3.10 Suitability of potential neighborhood park sites to be determined by the following guidelines:

- Grade land to have appropriate slope to support active recreation activities.
- Eliminate or avoid biological or ecological restrictions on land usage.
- Design the ratio of park width and length to be no thinner than 1:3 to promote functional usages of park.

Policy 7.3.11 Design neighborhood parks to meet the specific needs of the neighborhood that it serves. Appropriate features include, but are not limited to:

- Multi-purpose lawn areas for informal play
- Picnic and gathering areas
- Small play structures, with separate structures for pre-school and school-aged children
- Small court game areas
- No parking facilities
- No permanent restroom facilities

Trails

Goal 7.5 Establish and maintain a comprehensive system of local and regional trails linking open space, neighborhood parks, community parks and recreation centers, libraries and schools, public transportation nodes, governmental buildings and commercial uses throughout Oakley to provide for pedestrian, equestrian and bicycle circulation.

Policy 7.5.1 Construct trails to provide transportation, exercise, and connection to nature and leisure opportunities for Oakley residents.

Policy 7.5.2 Construct short feeder trails to connect proposed developments to the regional trail system.

Policy 7.5.3 Provide easements to connect new neighborhoods to such amenities as parks, neighborhoods, and commercial centers of not less than 20 feet in width.

Policy 7.5.4 Provide public greenbelt corridors along major arterials of not less than 40 feet in width.

Policy 7.5.5 Provide easements along stream corridors of not less than 100 feet in length and 20 feet in width.

Policy 7.5.8 Construct trails, whenever possible, to be accessible to persons with disabilities.

Policy 7.5.9 Construct trails to provide for proper grading, drainage and erosion control.

Policy 7.5.13 Provide trail fences, directional signage, gates and bollards to protect the safety of trail users and adjacent properties. Provide equestrian trails to connect stables or ranchette development with regional trails.

Oakley Parks Master Plan

Parks planning for Oakley was initiated in 1988 when the Contra Costa County Board of Supervisors adopted the first Oakley Parks Master Plan. The 1988 plan attempted to establish goals and priorities for parks in the Oakley community. The 1988 plan was not utilized effectively and therefore development did not accomplish the outlined goals.

Following revision of the County General Plan in 1991, the Oakley Parks Master Plan was updated to maintain conformance with the County General Plan. The updated Oakley Parks Master Plan adopted in 1993, took a realistic look at parkland opportunities and strategies needed to achieve the goals of the community. The 1993 plan contained updated technical data, new maps, inventories of existing facilities, population projections and neighborhood analysis, as well as park standards and prototypes. The 1993 plan provided a guide to the planning and development of future parks and recreational facilities in the Oakley community, with implementation to occur as funds became available.

In 1999, the newly incorporated City of Oakley became responsible for the provision of local parks. At that time, the City initiated an update of the Oakley Parks and Recreation Master Plan. Information and policy direction compiled for the new Master Plan has provided the foundation for the Parks and Recreation Element of the Oakley 2020 General Plan.

The updated Oakley Parks and Recreation Master Plan was adopted in 2003. The new Parks and Recreation Master Plan dovetails with the City's General Plan and provides the detailed implementation programs needed to expand local public recreational opportunities, in conformance with the findings of the study.

Impacts and Mitigation Measures

Standards of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to the public services and utilities of the proposed project area would be considered significant if the proposed project would:

- Adversely impact the wastewater delivery system and increase the wastewater capacity beyond the ability of the wastewater treatment plant;
- Increase the demand for additional law enforcement or fire protection services beyond the ability of the existing departments to provide adequate service;
- Increase the total number of students beyond the capacity of the local school districts;
- Increase the demand for recreational uses beyond the existing or proposed parks and recreational facilities;
- Exceed the available provisions of local solid waste disposal/recycling agencies; or
- Increase the demand for electrical, gas, and phone services beyond their ability to provide service.

Method of Analysis

The following section evaluates the impacts of the proposed project on the existing public services that would occur if the project as currently proposed went into effect. Impact significance is determined by comparing project conditions to the existing conditions. The responsible agencies for each service have been contacted regarding the potential impacts on their facilities.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project.

4.11-1 Impacts related to adequate wastewater treatment and infrastructure capacity.

Ironhouse Sanitary District (ISD) provides wastewater treatment for the project area. Ironhouse Sanitary District's new Wastewater Treatment Facility (WTF) has a capacity of three million gallons per day (mgd). The capacity is based on supplying wastewater services to the entirety of ISD's jurisdictional area at capacity, based on the buildout anticipated in the City of Oakley General Plan. The current average dry weather flow into the WTF is approximately 2.6 mgd. Although the design capacity is 3.0 mgd, due to increased biochemical oxygen demand (BOD), ISD's WTF is rapidly approaching capacity. In order to provide adequate capacity (3.0 mgd) until a new wastewater treatment facility is constructed and operable, ISD is removing solids from the treatment cells and effluent storage ponds on an annual basis.

The base average dry weather wastewater generation from the project's 578 residential units and 23.74 acres of commercial uses is illustrated in Table 4.11-2.

Table 4.11-2
Estimated Wastewater Generation for the Proposed Project

Residential	578 Units x 225 Gallons Per Dwelling Unit	130,050 Gallons Per Day
Commercial	23.74 acres x 2,250 Gallons Per Acre	84,915 Gallons per Day
Groundwater Infiltration (High Groundwater)	120 Acres x 300 Gallons Per Day Per Acre	36,000 Gallons Per Day
Total		**250,965 Gallons Per Day (0.25 mgd)**

Notes:
1. Figures are based on 225 gallons per residential dwelling unit and 300 gallons per acre infiltration estimates.
2. Average Commercial Demand of 2,250 Gallons per Acre is based on Diablo Water District standards.

It should be noted that ISD is currently designing a new 4.3 mgd wastewater treatment plant. The applicant will be required to pay applicable trunkline and plant capacity fees for the new wastewater treatment facility.

Currently, properties connected to the system on Cypress Road pump their wastewater to the treatment plant through an existing 14-inch forcemain in Cypress Road. The forcemain connects to an existing gravity main in SR 4 that flows to the treatment plant (See Figure 4.11-1).

A regional pump station would be constructed on the proposed project site. The pump station is envisioned to serve all of the original Dutch Slough properties, as well as areas south of Cypress Road, and would flow from the Cypress Grove Subdivision.

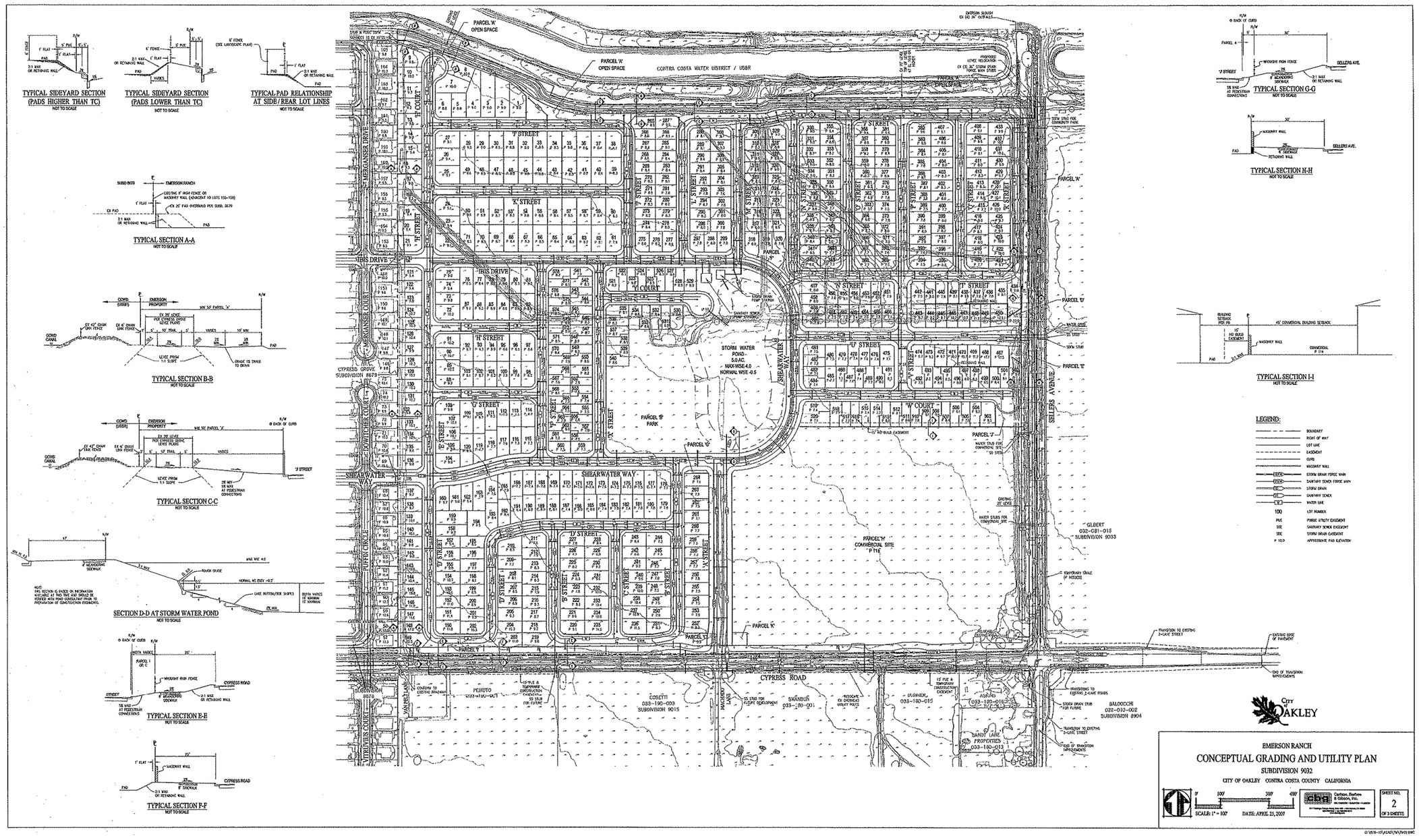
The proposed project requires the construction of a 14-inch forcemain. The new forcemain is proposed to begin east of Jersey Island Road and run down Cypress Road, turn north on Sellers to the USBR canal ROW and be located in the ROW, and then cross over onto ISD property at the junction of Marsh Creek and the Contra Costa Canal.

In addition to the forcemain, the project would be required to contribute to the upsizing of the current 18-inch sewer trunk to a 36-inch sewer trunk.

Because ISD has adequate capacity to serve the proposed project and because the project would be required to pay fees should additional service be needed (i.e., connections, plant expansion and maintenance), the proposed project would have a ***less-than-significant*** impact on the wastewater system.

Mitigation Measure(s)
None required.

Figure 4.11-1
Emerson Property Master Infrastructure Sanitary Sewer



4.11-2 Need for additional waste disposal/recycling services.

Currently, the residents of the City of Oakley privately contract with Oakley Disposal Service for solid waste disposal and recycling services. New residents would also contract with Oakley Disposal Service and pay the appropriate fees. Oakley Disposal provides both solid waste disposal service and recycling services. Solid waste collected within City limits is taken to the Pittsburg Recycling Center and Transfer Station for separation and all non-recyclable waste is hauled to the Potrero Hills Landfill.

The Potrero Hills Landfill is located two miles southeast of Suisun City. The facility is permitted to accept waste until 2015 with a potential expansion for an additional fifty years (until 2065).

The curbside recyclable material collected in Oakley is transported to the Concord Facility for recycling, which is managed by Mount Diablo Recycling, an affiliate of Oakley Disposal Services. The recyclable materials are separated and transported to the appropriate market.

The addition of new residents resulting from development of the proposed housing units, as well as the development of a commercial center on the project site, would necessitate increased waste disposal and recycling personnel and equipment.

However, because the Oakley Disposal Service, the Recycling Center, and the Potrero Hills Landfill have adequate capacity to serve the project, and the new residents would pay fees for the waste service, the addition of new residents would be accommodated by the new fees. Therefore, the proposed project would have a ***less-than-significant*** impact on solid waste disposal and recycling.

Mitigation Measure(s)
None required.

4.11-3 Adequate ratio of law enforcement personnel to residents.

Table 5.3 of the 2001 *Oakley 2020 General Plan Background Report* indicates that Oakley had a ratio of officers to population of 0.74 officers per 1,000 residents (19 sworn staff divided by 25,625 persons). As a comparison, Antioch has a ratio of 1.24 officers per 1,000 residents (105 sworn staff divided by 84,500 persons) and Pittsburg has a ratio of 1.36 officers per 1,000 residents (74 sworn staff divided by 54,400 persons). The Oakley Police Department has limited ability to fund expanded services due to a limited budget.[7] Oakley is taking steps to secure dedicated future funding for police services. However, it is anticipated that the necessary revenue building may take several years. The City Manager and Police Chief continue to seek grants and other types of funding. The City is concerned that future growth in the Planning Area would make adequate coverage of the citizen's police protection needs more difficult. To this end, the City has adopted Ordinance 86-01, which requires each project to pay a fee toward maintaining police services. Each project is required to participate in the provision of funding to

maintain police services by voting to approve a special tax for the parcels created by the subdivision approval.

Implementation of the proposed project would increase the population of the City of Oakley and would result in the need for more law enforcement personnel; therefore, a ***potentially significant*** impact to law enforcement facilities would occur.

Mitigation Measure(s):
Implementation of the following mitigation measure would reduce the above impacts to a *less-than-significant* level.

4.11-3 *Prior to approval of the final map for the proposed project, the landowner shall participate in the provision of funding to maintain police services by voting to approve a special tax for the parcels within the project site. The tax shall be the per parcel annual amount (with appropriate future cost of living adjustment) as established at the time of voting by the City Council. The election to provide for the tax shall be completed prior to issuance of permits. Should the buildings be ready for occupancy prior to the City receiving the first disbursement from the tax bill, the project proponent shall be responsible for paying the pro-rata share for the remainder of the tax year prior to the City conducting a final inspection.*

4.11-4 Adequate ratio of fire department personnel to residents.

The City of Oakley receives fire protection from the East Contra Costa Fire Prevention Department (ECCFPD). The ECCFPD was formed in 2002 as a consolidation of three fire districts, including the Oakley / Knightsen Fire Protection District which used to provide services to the City of Oakley. The district's eight stations currently serve a 250 square-mile area and maintain over 83 emergency staff. The district currently maintains a ratio of .61 sworn personnel per 1,000 citizens within the fire district.

The ECCFPD strives to achieve a standard five-minute response time 90 percent of the time (Contra Costa County General Plan 7-25). In 2006, the district received a total of 4,807 emergency calls and maintained an average response time of six minutes 38 seconds. Oakley is served by Fire Station 93, which is located at 215 Second Street within the City of Oakley.

Although the Oakley General Plan states that Station 93 was well situated to meet the service needs of the City of Oakley until the year 2004, the City has continued to grow and requires further protection to provide adequate coverage. The proposed project would contribute to the growth of the City of Oakley, thereby making adequate fire protection difficult. The proposed project would therefore have a ***potentially significant*** impact on fire protection personnel and/or equipment.

Mitigation Measure(s)
Implementation of Mitigation Measure 4.6-7(a) through (d) in Chapter 4.6, Hazards, of this Draft EIR would reduce the magnitude of impacts related to wildland fires. Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.11-4(a) *Prior to the issuance of building permits, the project proponent shall pay a fair share of costs for new fire protection facilities and services, consistent with fire impact fees adopted by the City of Oakley.*

4.11-4(b) *Prior to approval of the building plans, the project applicant shall provide proof to the Community Development Department that fire flow requirements shall be met.*

4.11-5 Adequate capacity for students enrolled in school districts within the project area.

At this time, student enrollment for the OUESD does not exceed capacity (enrollment is at approximately 85 percent of existing capacity). Given the recent (2006/2007) completion of Iron House Elementary School, which can house 625 students, the recent completion (2007/2008) of Almond Grove Elementary School, which can house 600 students, and the recently received financial hardship funding for the 600 student Summerlake Elementary School and the third middle school (25-acre site on Brownstone Road), the OUESD will have adequate capacity to house elementary and middle school students over the next few years.

Residential subdivision maps approved by the City, but not yet recorded or constructed, have been factored in by the OUESD in school site needs assessments. Based on the projected information, OUESD believes additional school sites will eventually be needed to accommodate growth.

The OUESD current student yield rate is 0.482 for Grades K-5 and 0.238 for Grades 6-8. Based on these factors, the OUESD student generation for the proposed project, which would include 578 single-family units, is 279 students in Grades K-5 and 138 students in Grades 6-8. Two other properties within the Dutch Slough area will generate students. The Gilbert Ranch project is estimated to generate 244 students in Grades K-5 and the Burroughs Property project is estimated to generate 84 students in grades K-5. The OUESD and the developers in the Dutch Slough area have been working together to evaluate various elementary school sites, but a specific site has not been agreed upon with the current land owners and developers in the Dutch Slough area.

The Liberty Union High School District is currently operating above capacity.

The project applicant would be required per SB 50 and AB 16 to pay school impact fees. Levels of developer fee contribution are determined by the State Allocation Board and increase annually. Current State statutes dictate that school districts have the authority to levy fees (known as statutory or Level I fees) on new development at rates of $2.14 per

square foot for new residential and $0.34 per square foot for commercial and industrial development. However, should the property owner not pay a fair-share of school costs, a ***potentially significant*** impact would result.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.11-5 *Prior to issuance of final building permit, or as otherwise provided by State law, the proposed project property owner shall pay appropriate SB 50 and AB 16 school impact fees.*

4.11-6 Adequate provision of parks and recreation space for new residents.

The anticipated growth of the City population as a result of the proposed development is the determining factor in the amount of park space that is required to be included in the proposed development. The Oakley 2020 General Plan requires six acres of parkland per every 1,000 residents (Oakley 2020 General Plan, p. 7-3).

Of the six required acres of parkland, three acres must be community parks, two acres must be neighborhood parks, and one acre must be open space and greenbelt (Oakley 2020 General Plan, p. 7-4). The Oakley 2020 General Plan (p. 10-17) uses a ratio of 3.26 residents per single-family dwelling unit to estimate the population of the City of Oakley should all residential land in Oakley be built out to the maximum capacity. Using these numbers, the proposed project's maximum of 578 residential units would add a maximum of 1,885 residents to the City of Oakley. As a result, 11.3 acres of recreation space would be required. The project includes a four-acre park for multi-use playfields located in the center of the community, plus a park surrounding the stormwater pond located in the development.

In addition, the proposed project would contribute to the construction of trails along the north and south sides of Cypress Road, the east side of Sellers Avenue, the north edge of the property adjacent to the CCWD/USBR canal, and on certain local streets in the project site. This trail system would provide pedestrian access to and from the Delta Vista Middle School, the Iron House Elementary School, the neighborhood parks, ponds, and the proposed 55-acre City Park north of the CCWD/USBR canal. A trail would be located along the northern boundary of the development adjacent to the CCWD/USBR canal. This trail would connect to the trail being constructed by the adjacent Cypress Grove development to the west, which provides access to the existing Marsh Creek Trail and links to an existing regional trail system. The trail would include a pedestrian bridge spanning Dutch Slough between the Gilbert and Burroughs properties, and would be constructed to connect to Sellers Road at the eastern boundary of the project site.

It should be noted that the Gilbert property, the Emerson property, the Burroughs property, the Wetlands Restoration Project site north of the Contra Costa Canal, and the 55-acre site immediately north of the Gilbert and Emerson properties currently held in

escrow for transfer to the City of Oakley for community park uses originally formed an approximately 1,500-acre area (the M-8 Area), the entirety of which was designated for mixed-use development in 1990 under the Contra Costa County General Plan. In 1997, the County approved development agreements providing vested rights to develop 4,500 to 5,000 dwelling units throughout the entire M-8 Area.

In 2001, the original owner of the Emerson property, together with the owners of the Gilbert and Burroughs properties, the California Costal Conservancy, the National Heritage Institute, and the Conservation Fund, applied to Cal-Fed for a proposal to sell a 1,200 acre portion of the M-8 Area north of the Contra Costa Canal to the California Department of Water Resources (DWR) for the creation of the Dutch Slough Tidal marsh Restoration Project, despite the existing vested rights allowing development of that acreage. The property owners indicated that their intention to develop the remaining 300 acres of the M-8 Area south of the Canal, including the Emerson property.

In Fall 2002, the City, the property owners, the California Coastal Conservancy, the Natural Heritage Institute, and the Conservation Fund entered into several memoranda of understandings (MOUs) regarding the disposition of the M-8 Area and the future planning for the southern portion, including the Emerson property. The City and the property owners also entered into new development agreements that allowed for development of approximately 1,200 residential units on only 271 acres. This drastically reduced the number of units compared to the 4,500 to 5,000 allowed under the original County Development Agreements, and resulted in clustering of development within a smaller area at a greater density. The MOU between the City and the property owners also provided that approximately 90 acres of the M-8 Area would be transferred to the City for development of a community park and public recreational facilities.

The preservation of these park and open space lands immediately north of the Project site reduced the ratio of parkland available to be provided on-site due to the clustered approach to development within the M-8 Area described above. However, the MOUs provided that the property owners of the Emerson, Gilbert and Burroughs Properties would grant the City trail easements over approximately 10 acres of the Dutch Slough Tidal Marsh Restoration Project site conveyed to DWR. The amended development agreements entered into pursuant to the MOUs also require the developers of these properties to provide paved access to the Community Center site north of the Contra Costa canal transferred to the City. In addition, the MOUs require the California Coastal Conservancy, the natural Heritage Institute, and the Conservation Fund to collaborate with the City, DWR, and the public in a master planning process for the Restoration Project Site to balance wetland restoration objectives with public access and community recreational uses.

The land provided for parks in the proposed development is five acres. When including the acreage of the trails and parkland surrounding the stormwater pond on the Emerson property, the total parks and recreational space provided by the proposed project equates to approximately one third of the 12.95 acres required by the standards set forth in the Oakley 2020 General Plan documents.

The Public Facilities Impact Fee includes community parks, neighborhood parks and open space components. To complete the obligation of the project to dedicate and improve parkland, the project applicant would be required to pay the remaining park in-lieu fee to facilitate the provision of the community park facilities to be located north of the CCWD/USBR canal. However, should the fee not be paid, a ***potentially significant*** impact would result.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.11-6 *Prior to issuance of building permits, the proposed project property owner shall pay the remaining park in-lieu fee to facilitate the provision of the community park facilities to be located north of the CCWD/USBR canal.*

Cumulative Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region.

4.11-7 Cumulative impacts to public services and facilities.

The proposed project would increase the demand for public services and facilities, but would not create cumulative impacts on most of the public services because typically, each project pays for required services, thereby fully mitigating the impacts on public services.

However, the Ironhouse Sanitary District has indicated that flow from the Emerson property in concert with the additional services that would be required by the neighboring Gilbert and Burroughs properties when developed, combine with flows from East Cypress Corridor and Bethel Island would cumulatively necessitate upsizing the current 18-inch trunk sewer in SR 4, which conveys flows to the wastewater treatment plant, to a 36-inch trunk sewer. The project would thus result in ***potentially significant*** cumulative impacts to wastewater facilities.

Mitigation Measure(s)
Implementation of the following measure would reduce cumulative impacts to wastewater facilities to a *less-than-significant* level.

4.11-7 *Prior to the issuance of building permits, the project proponent shall pay a fair share of costs for new wastewater collection facilities, as determined by the Ironhouse Sanitary District.*

Endnotes

[1] City of Oakley. *Oakley 2020 General Plan Background Report*. September, 2001
[2] Contra Costa County. *Contra Costa County General Plan.* 1996
[3] Contra Costa County. *Contra Costa County General Plan Draft EIR.* September 1990.
[4] City of Oakley. *City of Oakley 2020 General Plan*. August 30, 2002.
[5] City of Oakley.*City of Oakley 2020 General Plan Draft EIR.* September 2002.
[6] Association of Bay Area Governments. *City of Oakley Census 2000*. http://census.abag.ca.gov/cities/ Oakley.htm.
[7] City of Oakley. *City of Oakley General Plan EIR*. September 2002.

5. ALTERNATIVES ANALYSIS

5. ALTERNATIVES ANALYSIS

INTRODUCTION

The primary intent of the alternatives analysis in an EIR, as stated in Section 15126.6(a) of the CEQA Guidelines, is to "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives."

The following are the objectives for the project:

- Implement the City's General Plan goals by providing for residential development for which adequate services can be provided in a timely manner.

- Implement and comply with the previously approved Development Agreement for the Emerson property, which granted to the landowner vested rights to develop the property.

- Develop the Emerson property in accordance with the Dutch Slough Planning Framework and the Memorandums of Understanding and Development Agreements entered into in 2002 and 2003.

- Provide an economically viable commercial center to serve the residents of the Emerson Property project, as well as the residents of Cypress Corridor, and to reduce the need to travel for commercial services.

- Create an inviting village setting comprised of distinct, yet integrated, neighborhoods, with a central park and commercial center, all of which would provide a desirable small town atmosphere and attractive lifestyle choice for residents.

- Facilitate the interaction of neighborhood residents through provision of an attractive park and a network of trails.

- Provide the infrastructure necessary for the delivery of safe and reliable public services including water, sewer, drainage, and roadway infrastructure improvements that enhance the entire Oakley community.

- Provide safe, convenient transportation access for pedestrians, bicyclists, transit riders, and motorists between parks and nearby schools, as well as to existing and future transit corridors, using street designs that balance the needs of pedestrians and motorists.

- Target pedestrian orientation as a key element within the development and facilitate access to potential nearby future transit corridors.

- Create an economically viable project that provides a fair-share contribution of infrastructure on a pro rata basis to the community through the payment of fees and/or reimbursement agreements and/or construction of required capital improvements, while creating revenue through the sale of housing of the types and styles that current and future citizens of Oakley desire.

- Provide a variety of desirable housing types and densities consistent with City policies that meet the housing needs of existing and future Oakley residents. Provide a mix of housing choices and affordability levels interspersed among the neighborhoods so as to create ongoing housing opportunities for local school districts, and/or City health and safety personnel.

- Draw upon the agricultural character of Oakley and the adjacent Delta area in establishing the future character of the development projects within the Oakley area.

- Develop the project areas consistent with land uses and policies defined in the Development Agreement.

- Advance the City's vision for Cypress Corridor by incorporating design principles and including a variety of architectural styles and home sizes that create a neighborhood with attractive land plans and that serve a variety of households.

- Provide access to the Wetlands Restoration Project areas to the north of the proposed project site.

- Provide increased CCWD/USBR Canal safety.

The CEQA Guidelines further state that "the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." The feasibility of an alternative may be determined based on a variety of factors including, but not limited to, site suitability, economic viability, availability of infrastructure, General Plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and site accessibility and control.

CEQA provides the following guidelines for discussing alternatives to a proposed project:

> - An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives (CEQA Guidelines Section15126.6[a]).

- Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly (CEQA Guidelines Section15126.6[b]).

- The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination [. . .] Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts (CEQA Guidelines Section15126.6[c]).

- The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison (CEQA Guidelines Section15126.6[d]).

- The specific alternative of "no project" shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decisionmakers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline (CEQA Guidelines Section15126.6[e][1]).

- If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (CEQA Guidelines Section15126.6[e][2]).

In addition, Section 15126.6 (d) of the CEQA Guidelines states, "If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed."

Table 5-2, at the end of the chapter, summarizes the level of significance for the impacts of the proposed project and each of the project alternatives.

Selection of Alternatives

The requirement that an EIR evaluate alternatives to the proposed project or alternatives to the location of the proposed project is a broad one; the primary intent of the alternatives analysis is to disclose other ways that the objectives of the project could be attained while reducing the magnitude of, or avoiding, the environmental impacts of the proposed project. Alternatives that are included and evaluated in the EIR must be feasible alternatives. However, the Public Resources Code and the CEQA Guidelines require the EIR to "set forth only those alternatives necessary to permit a reasoned choice." The CEQA Guidelines provide a definition for "a range of reasonable alternatives" and thus limit the number and type of alternatives that may need to be evaluated in a given EIR. According to the CEQA Guidelines Section 15126.6[f]:

> The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

First and foremost, alternatives in an EIR must be feasible. In the context of CEQA Public Resources Code Section 21061.1, "feasible" is defined as:

> ...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

Finally, an EIR is not required to analyze alternatives when the effects of the alternative "cannot be reasonably ascertained and whose implementation is remote and speculative."

Alternatives Considered But Dismissed

Off-Site Alternative

One of the requirements of CEQA is the assessment of the comparable environmental impacts of alternative locations for the "project." Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR. Although Off-Site locations may exist that would be suitable for the proposed project, these Off-Site locations are not owned or controlled by the applicants. In addition, impacts related to traffic and associated air and noise would remain on any site, although their extent cannot be determined. The Off-Site Alternative is thus dismissed from further analysis.

Alternatives Considered in this EIR

For this EIR, the alternatives considered include the following:

- No Project/No Development Alternative;
- Minimum Density Clustered Development Alternative;
- All Residential Alternative; and

- On-Site School Alternative.

It should be noted the project applicant is vested with the right to develop the project site consistent with the densities included in the existing General Plan, Memoranda of Understanding, and Development Agreement.

No Project/No Development Alternative

Section 15126.6(e)(1) of the State CEQA Guidelines requires that a "no project alternative" be evaluated in comparison to the proposed project. Because the proposed project is not a revision of an existing land use or regulatory plan or policy, the No Project Alternative in this case is an alternative under which the project would not be developed. This non-development alternative is characterized primarily by the benefits of continued open space in the project area. While this alternative would not meet project objectives, CEQA requires that the no project/no development alternative be addressed.

Land Use and Agricultural Resources

Under the No Project/No Development Alternative, the project site would remain an undeveloped area of the City of Oakley; therefore, impacts related to consumption of use of raw land would be eliminated. However, the land use designations for the project site would remain Single Family Medium, Single Family High, Multi-Family High, and Commercial. These land use designations, which are included in the City of Oakley General Plan 2020 Land Use Diagram (Figure 2-2 of the General Plan) are inconsistent with current land uses, which include open space and light agriculture. In addition, the zoning designation of Heavy Agriculture would remain inconsistent with the General Plan designation. Therefore, the No Project/No Development Alternative would have more impacts related to consistency with the current General Plan than the proposed project.

The project area is currently open land being utilized for agricultural purposes. Under the No Project/No Development Alternative, the project site would remain an undeveloped area of the City of Oakley, and the impacts related to the loss of existing agricultural resources would be eliminated. Under this alternative, the land use impacts would be greater than under the proposed project, but impacts to agricultural resources would be fewer. Therefore, overall impacts to Land Use and Agricultural Resources would be fewer, as compared to the proposed project.

Traffic and Circulation

The No Project/No Development Alternative would not cause a traffic increase in the surrounding areas because homes would not be constructed under the alternative. Therefore, unlike the proposed project, the No Project/No Development Alternative would not have impacts to traffic and thus would have fewer impacts than the proposed project.

Air Quality

The proposed project would create air quality impacts from both the construction of homes and the additional vehicles from residents of the project. Under the No Project/No Development Alternative, homes associated with buildout of the Emerson Property project would not be constructed; therefore, construction-related air quality impacts would not occur. In addition, the number of vehicles would not increase. While the existing air quality impacts associated with agricultural operations would remain, this alternative would have fewer impacts than the proposed project.

Noise

The proposed project would cause an increase in noise levels due to construction of homes and intersection traffic. The noise impacts would not exist under the No Project/No Development Alternative. Therefore, this alternative would maintain ambient noise levels at their present level and result in fewer impacts when compared to the proposed project.

Hazards

Under the No Project/No Development Alternative, the use of the project site would not change. The project area has been used for grazing and light agricultural use for decades, and the presence of pesticides would remain. However, the project site is currently vacant land and few sensitive receptors exist in the project area. Therefore, compared to the proposed project, the No Project/No Development Alternative would have fewer impacts relating to on-site hazards than the proposed project.

Biological Resources

The No Project/No Development Alternative would not result in development of the project site and would thus not disturb the existing biological resources. The No Project/No Development Alternative would, therefore, have fewer impacts than the proposed project.

Geology and Soils

The existing geological and soil conditions under the No Project/No Development Alternative would not change. Because this alternative would not result in any construction on the site, impacts related to geology would not occur.

Historical and Cultural Resources

The No Project/No Development Alternative would cause fewer impacts to cultural resources than the proposed project because the cultural resources would not be disturbed by construction activities. In addition, the No Project/No Development Alternative would not necessitate the relocation of the historic Iron House School. Therefore, although cultural resources could be disturbed by the grazing activities, impacts to historical and cultural resources would be markedly reduced compared to the proposed project.

Hydrology, Water Supply and Water Quality

The No Project/No Development Alternative would not result in construction that could change the existing drainage pattern for the project area. The No Project/No Development Alternative would not generate urban runoff from impervious surfaces such as roadways and rooftops that would affect water quality in the area; however, the proposed project would include the construction of additional infrastructure, such as the on-site detention basin, to control runoff from the proposed project site. In addition, this alternative would not include the addition of any new construction and would not result impacts in regard to increased demand on existing water supplies. Therefore, the No Project/No Development Alternative would result in fewer impacts on hydrology and water quality than the proposed project.

Public Services and Utilities

The No Project/No Development Alternative would not result in the construction of new homes that would require additional public services and utilities in the project area. It should be noted however that the elimination of the proposed project would likely result in a reduction in the likelihood that the trails along the CCWD/USBR canal and the park facilities north of the canal would be constructed. Therefore, overall this alternative would not impact existing public services and utilities, as compared to the proposed project; however, future park amenities could be reduced.

Minimum Density Clustered Development Alternative

The Minimum Density Clustered Development Alternative would reduce the total number of units on the proposed project site to 564 total units, the lowest density allowable by the General Plan designation for the proposed project site. The commercial land uses would be reduced to 5.7 acres, in conformance with the existing General Plan designation. In addition, the park uses would remain the same under this alternative. However, the residences would be clustered into denser groupings, creating additional open space and greenbelt areas.

Land Use and Agricultural Resources

The Minimum Density Clustered Development Alternative would include the development of approximately 564 units and 5.7 acres of commercial space on land that is currently zoned for Commercial, Single Family Medium Density, Single Family High Density, and Multi-Family High Density uses. The Minimum Density Clustered Development Alternative would create more open space on the proposed project site by clustering the development into higher density areas. Therefore, the land uses would be consistent with the existing General Plan designations.

The Minimum Density Clustered Development Alternative would not reduce the loss of agricultural land. The total loss of agricultural land would remain. In addition, compatibility issues with surrounding land uses would still exist. However, this alternative would not require a General Plan Amendment to redesignate a portion of the southeast corner of the site for commercial uses. Therefore, the Minimum Density Clustered Development Alternative would be considered to have reduced impacts as compared to those associated with the proposed project.

Traffic and Circulation

The Minimum Density Clustered Development Alternative would include the development of fewer residences than the proposed project. In addition, the commercial portion of the proposed project would also be reduced from 23.74 acres to 5.7 acres, a reduction of 76 percent. Assuming that the commercial area is developed at a similar floor to area ratio, the Alternative would result in approximately 9,069 fewer trips. It should be noted that the trip comparisons do not take into account pass-by traffic reductions. Similarly, the reduction in housing units would reduce residential traffic by approximately 144 trips per day. Therefore, the Minimum Density Clustered Development Alternative would result in the generation of approximately 9,213 fewer total daily vehicle trips and would result in fewer impacts to the project site and surrounding area, as compared to the proposed project.

Air Quality

Buildout of the Minimum Density Clustered Development Alternative would result in fewer total residences and commercial area. As discussed above, the Alternative would result in a substantial reduction in vehicle trips when compared to the proposed project. In addition, because the project would be consistent with the General Plan, the development of the project site would be in conformance with the regional air quality attainment plan. Furthermore, the operational emissions associated with the Alternative have been previously addressed in the General Plan EIR. As a result, the significant and unavoidable impact associated with the proposed project would be reduced to a less-than-significant level, as the proposed project would not increase emissions beyond what was previously analyzed the General Plan EIR.

Noise

Buildout of the Minimum Density Clustered Development Alternative would result in fewer total residences and a reduced commercial area as compared to the proposed project. Although the Minimum Density Clustered Development Alternative could result in an increase in the housing density associated with the project at some locations, noise associated with traffic and land uses would be expected to decrease due to the decrease in total vehicle trips associated with the project. In addition, impacts to future residential land uses as a result of their proximity to the commercial portion of the proposed project would be lessened through design changes that would allow wider buffer zones between the commercial and residential portions of the proposed project. Therefore, the Minimum Density Clustered Development Alternative would be expected to have fewer impacts than the proposed project with regard to noise impacts. It should be noted that while the character of the noise environment would still be anticipated to permanently change from rural to a noise environment represented by a more suburban setting; the project would be consistent with the General Plan. The General Plan EIR previously addressed impacts to the ambient noise environment resulting from buildout of the General Plan; as the proposed project would not increase noise levels beyond what was previously analyzed the impact would be less-than-significant.

Hazards

The Minimum Density Clustered Development Alternative would result in the addition of fewer total residents, residences, and commercial area to the Emerson property as compared to the proposed project. The Minimum Density Clustered Development Alternative would introduce fewer sensitive receptors in close proximity to existing or potential hazardous materials, such as existing natural gas wells and potential soil contamination. Therefore, this alternative would have slightly fewer impacts than the proposed project with regard to hazards.

Biological Resources

The Minimum Density Clustered Development Alternative would result in an increase in open space. When compared to the proposed project, the addition of open space associated with this alternative would result in fewer detrimental impacts to the Emerson property in regard to biological resources, because sensitive resources, such as special-status species and habitats, could be avoided through clustered site design. Therefore, the implementation of the Minimum Density Clustered Development Alternative would result in fewer total impacts to biological resources.

Geology and Soils

The geological impacts generated from the development of the project site under the Minimum Density Clustered Development Alternative would be similar to those generated by the proposed project. Although this alternative would result in a decrease in total developed land that would be affected by geological impacts, the residences would still be subject to liquefaction and soil erosion; therefore, development of this alternative would have similar impacts, as compared to the proposed project.

Historical and Cultural Resources

Although the total acreage developed would be reduced under the Minimum Density Clustered Development Alternative, development would still occur on the project site. However, the clustered development would enable the proposed project to be modified to avoid the relocation of the historic Iron House School, which currently exists on the project site. Because less land would be graded under this alternative, the potential for uncovering currently unknown and undiscovered cultural resources on the project site would be reduced. Therefore, the Minimum Density Clustered Development Alternative would have fewer total impacts regarding historical and cultural resources than the proposed project.

Hydrology, Water Supply and Water Quality

The Minimum Density Clustered Development Alternative would develop fewer residential units on the project site compared to the proposed project, and would result in more open land and fewer impervious surfaces such as roadways and hardscaping. The decrease in impervious surfaces associated with residential development on the site would reduce the potential impacts to the stormwater drainage system and, ultimately, water quality. Additionally, this alternative

would include the development of fewer residences than the proposed project and would have fewer impacts with regard to water supply. Therefore, impacts would be fewer than the proposed project.

Public Services and Utilities

The implementation of the Minimum Density Clustered Development Alternative would result in fewer total residents and commercial square footage than associated with the proposed project. Therefore, this alternative would not create as large of a demand on public services and utilities as the proposed project. However, the Minimum Density Clustered Development Alternative would result in an increase in open space, which would require increased maintenance. Therefore, impacts associated with public services and utilities would be similar to those associated with the proposed project.

All Residential Alternative

The All Residential Alternative would eliminate the commercial portion of the proposed project, and assumes that the commercial center included in the proposed project would be relocated to the Burroughs property, east of the proposed project site. Under this alternative, the proposed project would include a total of 863 residential units, the maximum allowable under the Development Agreement for the proposed project.

Land Use and Agricultural Resources

The All Residential Alternative would include development of the residential portion of the proposed project to the maximum density allowed under the Development Agreement and would, therefore, be consistent with the planned land uses for the proposed project site. The All Residential Alternative would not reduce the loss of agricultural land. The total loss of agricultural land would remain. However, compatibility issues related to this alternative would be fewer than those related to the proposed project, because this alternative would not include commercial land uses. Therefore, the All Residential Alternative would be considered to have fewer total impacts, as compared to the proposed project.

Traffic and Circulation

Although the All Residential Alternative would eliminate the commercial areas associated with the proposed project, the Alternative would include the development of more residences than the proposed project. The addition of these residences would be expected to result in a total of approximately 8,259 daily vehicle trips, as opposed to the 13,408 daily trips associated with the proposed project. Therefore, the Alternative would fewer total traffic impacts when compared to the proposed project.

Air Quality

Buildout of the All Residential Alternative would result in the elimination of the commercial development associated with the proposed project site. The All Residential Alternative would

result in more total residences but fewer total vehicle trips than the proposed project. Therefore, impacts related to both regional and local air quality during the operational stage would be the fewer than those associated with the proposed project. However, project-level impacts related to regional air pollutant emissions and cumulative air quality impacts would remain significant and unavoidable under this alternative.

Noise

Buildout of the All Residential Alternative would result in more total residences and fewer total vehicle trips than the proposed project. In addition, the All Residential Alternative would result in a decrease in noise associated with on-site commercial uses, such as HVAC units. Therefore, the All Residential Alternative would be expected to have fewer impacts than the proposed project with regard to increased noise. It should be noted that the character of the noise environment would still be anticipated to permanently change from rural to a noise environment represented by a more suburban setting; therefore a significant and unavoidable cumulative impact would still be expected to result.

Hazards

The All Residential Alternative would result in the addition of more total residents and residences to the Emerson property than the proposed project. The All Residential Alternative would introduce more sensitive receptors in close proximity to existing or potential hazardous materials, such as on-site natural gas wells and potential soil contamination. Therefore, this alternative would have greater impacts than the proposed project in regard to hazards.

Biological Resources

The All Residential Alternative would not include the development of commercial uses on the proposed project site, and would instead increase the total number of housing units proposed for the site. Development of the site would still potentially disturb special-status species and/or habitats on the project site; therefore, the All Residential Alternative would create impacts similar to those associated with the proposed project.

Geology and Soils

The geological impacts generated from the development of the project site under the All Residential Alternative would be similar to those generated by the proposed project. Although the All Residential Alternative would result in an elimination of commercial uses on the project site, the alternative would still include the development of the southeast portion of the project site. The residences associated with the alternative would still be subject to liquefaction and soil erosion; therefore, development of the alternative would have similar impacts, as compared to the proposed project.

Historical and Cultural Resources

The total acreage developed under the All Residential Alternative would be the same as the proposed project and development would still occur on the project site. Therefore, because this

alternative would involve grading and earthmoving activities similar to the proposed project and on a similar scale as the proposed project, the total impacts related to this alternative would be the same as those anticipated for the proposed project. Impacts to historical resources would remain significant and unavoidable.

Hydrology, Water Supply and Water Quality

The All Residential Alternative would eliminate the commercial portion of the proposed project site and increase the total number of residences associated with the project. This alternative would involve the development of the same total area as the proposed project, and impacts related to impervious surfaces and impacts associated with water quality would remain unchanged. Additionally, because residential land uses have a higher demand for water than commercial areas, impacts related to water supply would be expected to increase, because the number of residences on the project site would increase under this alternative. Therefore, while impacts related to water quality and hydrology on the site would remain unchanged, impacts associated with water supply would be expected to increase, resulting in greater impacts, as compared to the proposed project.

Public Services and Utilities

The implementation of the All Residential Alternative would result in an increased number of residents, as compared to the proposed project. Therefore, an increase in population on the project site and, in turn, an increased need for public services and utilities associated with residential units would be expected under this alternative. Therefore, impacts associated with public services and utilities would be greater, as compared to the proposed project.

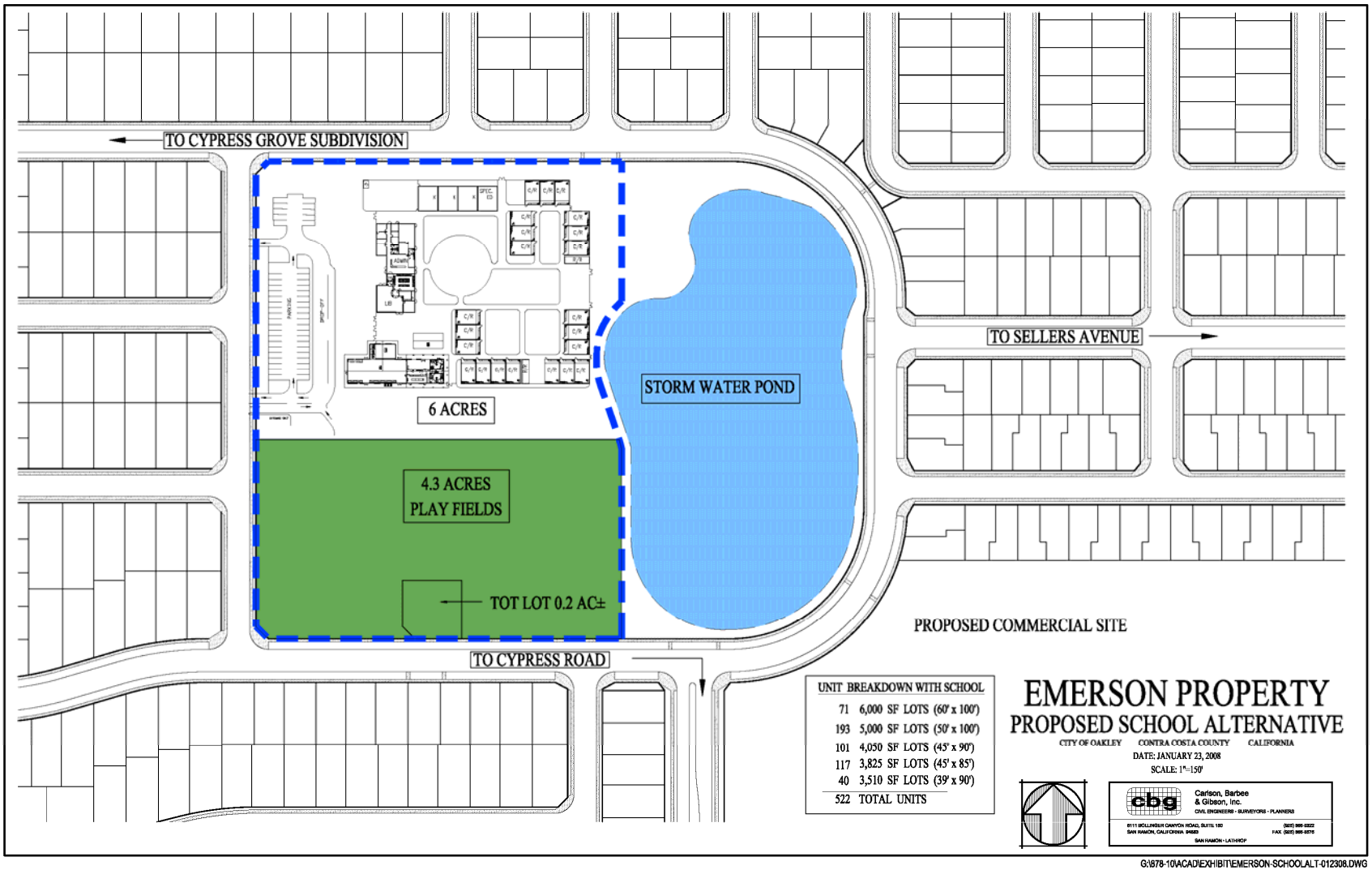
On-Site School Alternative

The On-Site School Alternative would include an elementary school with play fields and a tot lot on an approximately 10-acre portion of the proposed project site. Under this alternative, the residential component of the proposed project would be reduced from 578 single-family units to 522 single-family units. In addition, under this alternative, the project would include less acreage for parks/open space. In addition, under this alternative, the 23.74-acre commercial component and the approximately six-acre stormwater pond would remain (See Figure 5-1).

Land Use and Agricultural Resources

The On-Site School Alternative would include the development of an elementary school on approximately 10 acres of the project site, which would result in the development of fewer residential units. However, The On-Site School Alternative would not reduce the loss of agricultural land because the entire project site would still be developed with urban uses. In addition, land use compatibility issues related to this alternative would be similar to those associated with the proposed project because, similar to residential uses, the school would be considered a sensitive receptor to the commercial uses that would be located to the southeast. Therefore, the On-Site School Alternative would result in impacts similar to those associated with the proposed project.

Figure 5-1
On-Site School Alternative



Traffic and Circulation

Although the On-Site School Alternative would include the development of fewer residences than the proposed project, this alternative would include increased vehicle trips associated with the elementary school. The traffic report prepared by Abrams Associates, Inc. included an analysis of the potential trip generation effects of constructing a new elementary school in the project area. The analysis indicates that a large portion of the new elementary school's students would come from the planned homes in the Cypress corridor; therefore, many of the school trips in question would already be using Cypress Road and would not be new trips to the area. In addition, the analysis states that a school would not significantly affect the PM peak hour commute, which is the critical hour in this area. The traffic analysis concluded that a new elementary school in the project area would not result in a substantial increase in vehicle trips generated during the critical peak hour; therefore, traffic impacts under this alternative be expected to be similar to those associated with the proposed project.

Air Quality

Compared to the proposed project, buildout of the On-Site School Alternative would result in the construction of fewer residences on the proposed project site, but would include the construction of an elementary school and would result in a similar number of total vehicle trips. As shown in Table 5-1, under the On-Site School Alternative, regional emissions of ROG would be slightly higher than those associated with the proposed project, and regional emissions of NO_X and PM_{10} would be slightly lower. Overall, impacts related to both regional and local air quality during both the construction and operational stages would be similar to those associated with the proposed project. In addition, project-level impacts related to regional air pollutant emissions and cumulative air quality impacts would remain significant and unavoidable under this alternative.

Table 5-1
Project Regional Emissions (Pounds Per Day)

	Reactive Organic Gases	Nitrogen Oxides	PM_{10}
Proposed Project:			
Vehicular Emissions	114.6	119.3	155.2
Area Source Emissions	43.9	10.2	47.4
Total	158.5	129.5	202.6
School Alternative:			
Vehicular Emissions	121.1	119.3	154.9
Area Source Emissions	40.1	9.9	42.7
Total	161.2	129.2	197.6
BAAQMD Significance Threshold	80.0	80.0	80.0

Source: Don Ballanti, June 2008.

Noise

Although the On-Site School Alternative would include the development of fewer residences than the proposed project, this alternative could include increased noise associated with the elementary school. The school would be constructed in areas adjacent to proposed residential land uses, and would generate noise when students arrive and depart, as well as when outdoor activity areas are used. Noise would occur in more concentrated periods of time for the school, as compared to a community park, as noise generating activity would occur mainly around arrival, recess, lunch, and leaving school. However, it should be noted that the noise analysis did not determine that substantial adverse impacts would occur to residential uses due to noise levels associated with the school. Therefore, the On-Site School Alternative would result in slightly greater impacts related to increased noise levels in the project vicinity; however, not to a significant level. It should be noted that the character of the noise environment would still be anticipated to permanently change from rural to a noise environment represented by a more suburban setting; therefore, a significant and unavoidable cumulative impact would still be expected to result.

Hazards

The On-Site School Alternative would result in the addition of fewer residents and residences to the Emerson property than the proposed project. However, this alternative would result in the introduction of a school and associated students, which would be considered sensitive receptors, to the project area. These sensitive receptors would potentially be in close proximity to existing or potential hazardous materials, such as on-site natural gas wells and potential soil contamination. Therefore, this alternative would result in greater impacts in regard to hazards, as compared to the proposed project. However, the impacts would still be able to be reduced to a less-than-significant level with implementation of mitigation measures.

Biological Resources

The On-Site School Alternative would include the development of an elementary school on the project site, and would include a decreased number of residential units on the project site. Development of the project site would still potentially disturb special-status species and/or habitats on the site; therefore, the On-Site School Alternative would create impacts similar to those associated with the proposed project.

Geology and Soils

The geological impacts generated from the development of the project site under the On-Site School Alternative would be similar to those generated by the proposed project. Although the On-Site School Alternative would result in a decrease in total residential units on the project site, the alternative would still include the development of the entire project site with residential, commercial, and school land uses. The residences, commercial center, and school would still be subject to liquefaction and soil erosion; therefore, development of the alternative would have similar impacts, as compared to the proposed project.

Historical and Cultural Resources

The total acreage developed under the On-Site School Alternative would be the same as the proposed project and development would still occur on the project site. Therefore, because this alternative would involve grading and earthmoving activities similar to the proposed project and on a similar scale as the proposed project, the total impacts related to this alternative would be the same as those anticipated for the proposed project. Impacts to historical resources would remain significant and unavoidable.

Hydrology, Water Supply and Water Quality

The On-Site School Alternative would include the construction of an elementary school on the project site and would decrease the total number of residential units associated with the project. This alternative would involve the development of the same total area as the proposed project; therefore, impacts related to an increased amount of impervious surfaces, as well as impacts associated with water quality, would remain unchanged. Impacts related to water supply would be expected to decrease slightly, because the number of residences on the project site would decrease under this alternative. Therefore, impacts related to hydrology and water quality would be similar to those associated with the proposed project, while a slightly reduced impact to water supply would be expected. Overall, as compared to the proposed project, impacts would be similar.

Public Services and Utilities

The implementation of the On-Site School Alternative would result in a decreased number of residents when compared to the proposed project. Under this alternative, the construction of an elementary school would introduce students to the project area, potentially creating an increased need for public services and utilities, such as additional law enforcement and fire personnel, water supply, and wastewater treatment. However, under the On-Site School Alternative, impacts related to the provision of adequate school facilities would be fewer because the alternative would provide an elementary school. Therefore, under the On-Site School Alternative, impacts associated with public services and utilities would be roughly similar, as compared to the proposed project.

Environmentally Superior Alternative

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. Section 15126(e)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states, "[…] if the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

Designating a superior alternative depends in large part on what environmental effects are determined most important. This EIR does not presume to make this determination; rather, the determinations of which impacts are more important, are left to the reader and the decision makers. Finally, it should be noted that the environmental considerations are one portion of the

factors that must be considered by the public and the decision makers in deliberations on the proposed project and the alternatives. Other factors of importance include urban design, economics, social factors, and fiscal considerations.

For this project, the environmentally superior alternative would result in development of the site under the Minimum Density Clustered Development Alternative. Under the Minimum Density Clustered Development Alternative, impacts to land uses would be reduced because the project site would be developed in conformance with the General Plan designations. In addition, because fewer residents would occupy the area, fewer vehicle trips would be made, thereby reducing traffic, air quality, and noise impacts. It should be noted that although the magnitude of the air quality and noise impacts would be reduced, both would remain significant and unavoidable. In addition, hydrology, water supply, and water quality impacts would be reduced under the Minimum Density Clustered Development Alternative because fewer impervious surfaces would be created compared to the proposed project, due to the existence of less rooftops. Finally, impacts related to on-site hazards would be reduced because fewer people would be exposed to potential hazards such as pesticides and existing natural gas wells, and impacts to cultural resources would be reduced due to less site pads being graded and the decreased risk of disturbance of cultural resources. Therefore, although impacts related to agricultural resources, biological resources, geology and soils, and public services and utilities would still occur, the Minimum Density Clustered Development Alternative is considered the environmentally superior alternative.

Table 5-2
Comparison of Environmental Impacts from the Proposed Project and Project Alternatives

Resource Area	Proposed Project (PP)	No Project/No Development Alternative	Minimum Density Clustered Development Alternative	All Residential Alternative	On-Site School Alternative
Land Use and Agricultural Resources	Less-Than-Significant With Mitigation	Fewer	Equal	Fewer	Equal
Traffic and Circulation	Less-Than-Significant With Mitigation	Fewer	Fewer	Fewer	Equal
Air Quality	Significant and Unavoidable (Cumulative Operational Emissions)	Fewer	Fewer	Fewer*	Equal*
Noise	Significant and Unavoidable (Cumulative Operational Noise)	Fewer	Fewer	Fewer*	Greater*
Hazards	Less-Than-Significant With Mitigation	Fewer	Fewer	Greater	Greater
Biological Resources	Less-Than-Significant With Mitigation	Fewer	Fewer	Equal	Equal
Geology and Soils	Less-Than-Significant With Mitigation	None	Equal	Equal	Equal
Historical and Cultural Resources	Less-Than-Significant With Mitigation	Fewer	Fewer	Equal*	Equal*
Hydrology, Water Quality, and Water Supply	Less-Than-Significant With Mitigation	Fewer	Fewer	Greater	Equal
Public Services and Utilities	Less-Than-Significant With Mitigation	None	Equal	Greater	Fewer

No Impact = "None" Less Than PP = "Less" Equal to PP = "Equal" Greater Than PP = "Greater"

* Significant and unavoidable impact determined for the proposed project would still be expected to occur.

6. STATUTORILY REQUIRED SECTIONS

6. STATUTORILY REQUIRED SECTIONS

6.0 Introduction

The Statutorily Required Sections chapter includes brief discussions regarding those topics that are required to be included in an EIR, pursuant to CEQA Guidelines Section 15126.2. The chapter includes a discussion of the proposed project's potential to induce economic or population growth; in addition, the chapter includes lists of significant irreversible environmental changes, cumulative impacts, and significant and unavoidable impacts caused by the proposed project.

6.1 Growth-Inducing Impacts

An EIR must discuss the ways in which a proposed project could foster economic or population growth in the vicinity of the project and how that growth would, in turn, affect the surrounding environment (See CEQA Guidelines Section15126.2[d]). Growth can be induced in a number of ways, including through the elimination of obstacles to growth, or through the stimulation of economic activity within the region. The discussion of the removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth unforeseen at the time of project approval.

Several issues must be considered when assessing the growth-inducing effects, these include the following:

> **Elimination of Obstacles to Growth:** The extent to which infrastructure capacity provided to accommodate the proposed projects would allow additional development in surrounding areas; and
>
> **Economic Effects:** The extent to which development of the proposed projects could cause increased activity in the local or regional economy.

The elimination of either physical or regulatory obstacles to growth is considered to be a growth-inducing effect. A physical obstacle to growth typically involves the lack of public service infrastructure. The extension of public service infrastructure, including roadways, water mains, and sewer lines, into areas that would not be currently provided with these services, would be expected to support new development. Similarly, the elimination or change to a regulatory obstacle, including existing growth and development policies, could result in new growth.

As of the 2000 U.S. Census, the population of the City of Oakley was 25,619. Development of the proposed project would include 578 single-family residential units on the Emerson property. Utilizing the maximum persons-per-dwelling unit (approximately 3.2 persons-per-dwelling unit as estimated by the City of Oakley Community Development Department and as set out in the

Oakley 2020 General Plan [p. 10-17]), the buildout of the entire proposed project would result in an estimated increase of 1,850 residents to the City of Oakley. The project would, therefore, result in a substantial increase in the population of the City of Oakley.

However, the planning decision to convert the proposed project site for development purposes was made in 1990 when Contra Costa County certified a countywide General Plan EIR and adopted the 1990-2005 General Plan Update redesignating the project site for development as part of an approximate 1,500-acre area from Agriculture to Mixed Use (M-8) development within the County's Urban Limit Line. In 1997, the County for CEQA purposes relied upon the General Plan EIR and approved development agreements providing vested rights to develop the M-8 area. Following annexation of the M-8 area, which included the project site, to the City of Oakley in 1999, the City prepared and certified the initial Oakley General Plan EIR. Therefore, because the growth associated with the proposed project would be consistent with the growth anticipated by the General Plan and the designated land uses for the proposed project area, the proposed project would not be expected to generate any new growth-inducing impacts beyond those anticipated by the City of Oakley General Plan EIR.

6.2 Cumulative Impacts

An EIR must discuss the "cumulative impacts" of a project when the project's incremental effect is cumulatively considerable. This means that the incremental effects of the individual project would be considerable when viewed in connection with the effects of other current and probable future projects (Section 15065[c]).

CEQA Guidelines Section 15355 defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." This Section further states "Individual effects may be changes resulting from a single project or a number of separate projects." Additionally, "The cumulative impact from several projects is [defined as] the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

Section 15130(a)(3) states also that an EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable, and thus not significant, if a project is required to implement or fund the project's fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

Finally, Section 15130(b) indicates that the level of detail of the cumulative analysis need not be as great as for the project impact analyses, that analysis should reflect the severity of the impacts and their likelihood of occurrence, and that the analysis should be focused, practical, and reasonable. To be adequate, a discussion of cumulative effects must include the following elements:

> (1) Either (a) a list of past, present and probable future projects, including, if necessary, those outside the agency's control, or (b) a summary of projections contained in an

adopted general plan or related planning document, or in a prior certified EIR, which described or evaluated regional or area-wide conditions contributing to the cumulative impact, provide that such documents are reference and made available for public inspection at a specified location;

(2) A summary of the individual projects' environmental effects, with specific reference to additional information and stating where such information is available; and

(3) A reasonable analysis of all of the relevant projects' cumulative impacts, with an examination of reasonable, feasible options for mitigating or avoiding the project's contribution to such effects (Section 15130[b]).

For some projects, the only feasible mitigation measures will involve the adoption of ordinances or regulations, rather than the imposition of conditions on a project-by-project basis (Section 15130[c]).

The cumulative analysis for this EIR is based on the City of Oakley 2020 General Plan EIR and the list of present and probable future projects found in Table 6-1. The proposed Emerson Property project, in conjunction with development in the vicinity of the project site and within the region, would contribute to cumulative environmental impacts.

Cumulative Impacts

Cumulative impacts are analyzed in each of the technical chapters of this Draft EIR (Chapters 4.2 through 4.11) and are summarized below.

Land Use and Agricultural Resources

The land use impact analysis includes a discussion of the existing and planned land uses in the project area. The Draft EIR found that increases in the intensity of land uses in the region as a result of the proposed project would be a cumulative impact. However, the 2020 General Plan designates the proposed project area for urban development and anticipates residential growth in the area. Additionally, all development proposed and constructed within the City is reviewed for consistency with Citywide land use controls and development standards. Because the City anticipates the construction of a residential development on the proposed project site, the cumulative effects in regards to land use are less-than-significant.

Table 6-1 Emerson Property Cumulative Project List			
Project	**Land Use**	**Sq. Ft./Units**	**Status**
City of Oakley			
Big Break Regional Park	N/A	N/A	Approved
Civic Center DPPhase III (Black Bear Diner)	Commercial	6000 s.f.	Approved
Civic Center DPPhase II	N/A	10,000 s.f. addition	Approved
Paul's Automotive	Commercial	10,125 s.f. + existing bldgs	Approved
S+S Retail Center/ Boparai Plaza	Commercial	14,700 s.f.	Approved
Safeway	Commercial	85,000 s.f.	Approved
Popeye's Restaurant and Retail Center	Commercial/Restaurant	6,000 s.f.	Approved
Cellular Tower Expansion	N/A	N/A	Approved
Delta Family Bible Church	N/A	19, 970 s.f.	Approved
Wendy's	Restaurant	3,179 s.f.	Approved
Hardcastle RV & Storage Center	Commercial	5,321 s.f.	Approved
Oakley Village Retail	Commercial	6,545 s. f.	Approved
Immanuel Baptist Church	Church	19,218 s.f.	Approved
SpareTime Sports Club	Commercial	58,322 s. f.	Approved
Empire Station Mixed Use Project 3 Office Buildings	Office/Commercial	9,000 s.f.	Approved
Tre - Sorrelle Wine Tasting	Commercial	Outdoor Venue	Approved
Horizon Towers - Stealth Cellular Antenna	N/A	N/A	Approved

(Continued on next page)

Table 6-1 (continued)
Emerson Property Cumulative Project List

Project	Land Use	Sq. Ft./Units	Status
Laurel Plaza	Commercial	56,528 s. f.	Approved
Neroly Commercial Center (Phase II of Spare Time)	Commercial	116,899 s. f.	Approved
Delta Community Church	Church	4 modular bldgs (3,840 s. f.)	Application Received
Oakley Village Light Industrial Park	Retail Storage	Retail/Office 72,964 s.f. Mini Storage 158,801 s.f.	Application Received
Main Street at Laurel Road (Designer's Collaborative)	Commercial	30,177 s.f.	Application Received
T-Mobile Cell Tower	N/A	N/A	Application Received
Oak Leaf Center	Commercial	27,000 s. f.	Application Received
Brownstone Gardens	Outdoor Venue	Outdoor Venue	Application Received
Emerson Commercial Center	Commercial	10.5 acres	Application Received
Bethel Island Boat Storage	N/A	147,220 s. f.	Application Received
Gamespeed	Commercial	7,000 s.f.	Application Received
Oakley Station Shopping Center (Home Depot)	Commercial	102,513 s.f.	Application Received
Oakley Downtown Commercial Center	Commercial	40,000 s.f.	Application Received
Foundation Constructors New Corp Office Building	Office	18,634 s.f. shop and office building	Application Received
7426/7590/7655/ 7760	Residential	177 units	Approved
7599	Residential	11 units	Approved
7662	Residential	215 units	Approved
8530	Residential	67 units	Approved

(Continued on next page)

Table 6-1 (continued)
Emerson Property Cumulative Project List

Project	Land Use	Sq. Ft./Units	Status
8790	Residential	23 units	Approved
8541	Residential	354 units	Approved
8541	Residential	121 units	Approved
8541	Residential	86 units	Approved
8541	Residential	147 units	Approved
8656	Residential	6 units	Approved
8734	Residential	28 units	Approved
8737	Residential	172 units	Approved
8790	Residential	23 units	Approved
8731	Residential	396 units	Approved
8823	Residential	6 units	Approved
8843	Residential	13 units	Approved
8836	Residential	16 units	Approved
MS 04-978	Residential	3 units	Approved
MS 04-980	Residential	3 units	Approved
8916	Residential	41 units	Approved
8876	Residential	21 units	Approved
MS 03-978	Residential	4 units	Approved
8728	Residential	30 units	Approved

(Continued on next page)

Table 6-1 (continued) Emerson Property Cumulative Project List			
Project	**Land Use**	**Sq. Ft./Units**	**Status**
8981	Residential	17 units	Approved
8973	Residential	176 units	Approved
8736	Residential	44 units	Approved
MS 05-978	Residential	4 units	Approved
MS 04-977	Residential	3 units	Approved
9027	Residential	116 units	Approved
8904	Residential	97 units	Approved
8985	Residential	11 units	Approved
9015	Residential	98 units	Approved
9016	Residential	78 units	Approved
9080	Residential	26 units	Approved
MS 06-976	Residential	2 units	Approved
MS 06-977	Residential	2 units	Approved
9014	Residential	20 units	Approved
9043	Residential	16 units	Approved
9044	Residential	20 units	Approved
Corp for Better Housing	Residential	162 Sr/154 Fam Apts	Approved
9030	Residential	6 units	Approved
8803	Residential	50 units	Approved
8975	Residential	75 units	Approved

(Continued on next page)

Table 6-1 (continued) Emerson Property Cumulative Project List			
Project	**Land Use**	**Sq. Ft./Units**	**Status**
MS 06-979	Residential	3 units	Approved
8807	Residential	50 units	Approved
MS 06-982	Residential	4 units	Approved
8955	Residential	449 units	Approved
8900	Residential	179 units	Approved
MS 06-978	Residential	4 units	Approved
9033	Residential	506 units	Approved
8787	Residential	60 units	Application Received
8980	Residential	96 units	Application Received
9088	Residential	N/A	Application Received
9032	Residential	624 units	Application Received
9034	Residential	176 units	Application Received
9052	Residential	5 units	Application Received
9084	Residential	1,329 units	Application Received
9156	Residential	1,121 units	Application Received
9191	Residential	47 townhouses	Application Received
9185	Residential	25 units	Application Received
MS 07-977	Residential	3 units	Application Received
MS 08-977	Residential	4 units	Application Received
MS 08-978	Residential	4 units	Application Received

(Continued on next page)

Table 6-1 (continued) Emerson Property Cumulative Project List			
Project	**Land Use**	**Sq. Ft./Units**	**Status**
9183	Residential	28 units	Application Received
City of Brentwood			
CUP 94-7A	Commercial	98,366 sq. ft.	Planning
DR O4-02	Industrial	24,000 sq. ft. on 2.5 acres	Approved
DR 04-13	Non-residential	17,600 sq. ft.	Approved
DR 04-19	Non-residential	20,500 sq. ft.	Approved
DR 04-23	Non-residential	14,300 sq. ft	Approved
DR 04-14	Non-residential	18,000 sq. ft.	Approved
DR 04-15	Non-residential	18,600 sq. ft.	Approved
CUP 01-25	Non-residential	60,000 sq. ft. on 4 acres	Approved
DR 04-16	Non-residential	18,600 sq. ft.	Approved
DR 04-18	Non-residential	20,700 sq. ft.	Approved
TSM 8416	Residential	133 units on 25.74 acres	Under Construction
DR 04-06	Non-residential	56,490 sq. ft. on 3 acres	Under Construction
DP773009	Residential	4.02 acres	N/A
LP012109C (Public golf course w/ 100 space campground)	Recreation	299 acres	N/A
LP042304	Commercial	240-space boat storage facility	N/A
Contra Costa County			
SD6013	Residential	560 units on 300 acres	N/A

(Continued on next page)

Table 6-1 (continued) Emerson Property Cumulative Project List			
Project	**Land Use**	**Sq. Ft./Units**	**Status**
SD8220	Mixed-use	90 acres	N/A

Source: City of Oakley, Community Development Department, July 2008.

The agricultural impact analysis includes a discussion of the cumulative effects due to the loss of agricultural land in the area. The Contra Costa General Plan incorporates an Urban Limit Line (ULL) and has established minimum lot sizes for prime agricultural lands that are outside of the ULL. The entire Oakley Planning Area is within the ULL, and therefore, the land use for the proposed project would be within the scope of the project area's intended land use for both the County and the City. In addition, the land uses associated with the proposed project are consistent with the original County mixed-use designation as well as consistent with the uses set forth in the Development Agreement for the Emerson site. Because the project area is within the ULL and urban growth is anticipated and because the proposed development is consistent with the land use designations associated with the proposed project, the cumulative effect of the proposed project with regard to agricultural land use would be less-than-significant.

Traffic and Circulation

The Traffic and Circulation chapter of this Draft EIR found that the proposed project would cumulatively impact the intersections of West Cypress / O'Hara Avenue and Laurel Road / Empire Avenue. Under cumulative conditions, the development of the proposed project is expected to decrease the levels of service (LOS) at these intersections to unacceptable levels. As discussed in Impact 4.3-8, payment of necessary traffic improvement fees would reduce the cumulative increase in traffic at these intersections to a less-than-significant level.

Air Quality

The discussion of air quality impacts included in this Draft EIR found that increases in vehicle traffic as a result of the proposed project would contribute cumulatively to the degradation of regional air quality. The addition of the proposed project's 578 residential units would result in significant project-level and cumulative impacts to air quality. The implementation of the mitigation measure specified in the Air Quality chapter (Chapter 4.4) would decrease the overall effect, but would not reduce this cumulative impact to a less-than-significant level. Therefore, the proposed project's cumulative effects on air quality would be significant and unavoidable.

Noise

The noise analysis determined that the proposed project would be expected to result in a cumulative increase in noise levels of as much as eight dB L_{dn} along Cypress Road and eight to 10 dB L_{dn} along Sellers Avenue. In addition, cumulative traffic noise levels are anticipated to increase by five to seven dBA L_{dn} under cumulative plus project conditions along Cypress Road between Main Street and Sellers Avenue. One dB of the five to seven dB increase would be attributed to the project, which would result in adverse impacts at receivers along Cypress Road.

Because the project would result in a noise increase of one dB or greater, the project would have a significant cumulative impact related to noise levels at existing residences to the south of the project site. The noise analysis determined that implementation of mitigation measures would not be reasonable or feasible to reduce project-generated traffic noise at all affected receivers; therefore, the project's cumulative impact related to noise levels in the project vicinity would be significant and unavoidable.

Hazards

The discussion of on-site hazards included in this Draft EIR concludes that impacts related to hazardous materials are usually site-specific, and therefore are not affected by cumulative development. All of the impacts associated with hazardous materials on the proposed project site were found to be less-than-significant with the implementation of mitigation measures. Current and future surrounding developments are subject to the same federal, State, and local hazardous material management requirements as the proposed project, and therefore, any potential hazards on the proposed project site or any future adjacent sites would be required to be mitigated to a less-than-significant level. Therefore, the cumulative impacts from hazards as a result of the development of the proposed project site would be less-than-significant.

Biological Resources

The analysis of the proposed project's biological impacts found that the development of the Emerson Property project would contribute to the potentially significant cumulative loss of several special-status species and their habitat. This cumulative impact would be reduced to a less-than-significant level through the implementation of required mitigation measures.

Geology and Soils

The discussion of the proposed project's cumulative effects related to geology and soils found that the impacts that would be introduced due to the proposed project, such as an increased number of structures that would be exposed to seismic risks, erosion, and other topographic alterations, would be site-specific and generally would not combine with other effects to create negative cumulative impacts to the area. Therefore, the Draft EIR found that the Emerson Property project would result in less-than-significant cumulative impacts.

Historical and Cultural Resources

The Historical and Cultural Resources chapter of this Draft EIR found that, although the proposed project area does not contain a large number of known prehistoric sites or artifacts, the archaeological sensitivity of the proposed project area is still a factor. The potential for archaeological resources exists at any location, and therefore the development of the proposed project was found to have a potentially significant cumulative impact with regard to the degradation of cultural resources in the area. However, this impact was found to be mitigable to less-than-significant with the implementation of Mitigation Measures 4.9-2(a) and (b) from the Historical and Cultural Resources chapter of this EIR.

Hydrology, Water Supply, and Water Quality

The discussion of cumulative Hydrology and Water Quality impacts of the proposed project found that the development of the proposed project would increase the total impervious surfaces in the area and result in an increase in stormwater drainage into the existing drainage system. However, the EIR found that the stormwater management system for the proposed project, which includes a stormwater lake, would reduce this effect to a less-than-significant level.

Additionally, the EIR also discussed the proposed project's potential for decreasing the water quality downstream of the proposed project site by increasing the sediment load in area waterways and introducing an increase in pollutants as a result of urban runoff. However, the proposed stormwater lake and infrastructure for the project would filter pollutants before they enter Emerson Slough, resulting in a less-than-significant cumulative impact.

Public Services and Utilities

The Draft EIR's discussion of the cumulative effects of the proposed project on public services and utilities found that although most of the cumulative public services impacts would be mitigated to a less-than-significant level through the payment of applicable fees at the project level, cumulative impacts to wastewater collection facilities would be potentially significant. This impact is less-than-significant with implementation of mitigation identified in the Public Services and Utilities chapter.

6.3 Significant Irreversible Environmental Changes

The State CEQA Guidelines mandate that an EIR address any significant irreversible environmental changes, which would be involved if the proposed project is implemented (CEQA Guidelines, Section 15126.2[c]). An impact would fall into this category if any of the following would occur:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of a project would generally commit future generations to similar uses (e.g., a highway provides access to a previously remote area);
- The project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
- The phasing of the proposed consumption of resources is not justified (e.g., the project involves a wasteful use of energy).

The development of the proposed project would result in the irreversible conversion of approximately 120 acres of vacant land to urban uses. The site is currently agricultural land, sparsely occupied with rural buildings and has been designated in the General Plan for future residential and commercial uses. The proposed Emerson Property project would likely result in, or contribute to, the following irreversible environmental changes:

- Conversion of existing undeveloped land to suburban land uses, thus precluding alternative land uses in the future;
- Conversion of existing biological habitats and irreversible loss of habitat;
- Widening and extension of Sellers Road adjacent to the proposed project area;
- Placement of roadway access points to provide access to future developments at the adjacent Gilbert site;
- Irreversible consumption of goods and services associated with the future population; and
- Irreversible consumption of energy and natural resources associated with the future population.

6.4 Significant Unavoidable Impacts

According to CEQA Guidelines, a Draft EIR must include a description of those impacts identified as significant and unavoidable should the proposed action be implemented (CEQA Guidelines §15126.2[b].) Such impacts would be considered unavoidable when the determination is made that either mitigation is not feasible or only partial mitigation is feasible such that the impact is not reduced to a level that is less-than-significant. This section identifies significant impacts that could not be eliminated or reduced to a less-than-significant level by mitigations imposed by the City. The final determination of the significance of impacts and the feasibility of mitigation measures would be made by the City as part of the City's certification action.

The significant and unavoidable impacts of the Emerson Property project are listed below.

Air Quality

The discussion of Air Quality impacts, found in Chapter 4.4 of this Draft EIR, identified the following as significant and unavoidable impacts:

- Increased vehicle trips, which would increase total daily emissions to levels above thresholds set by the Bay Area Air Quality Management District (BAAQMD).
- Cumulative effects relating to increases in daily vehicle emissions resulting in a degradation of regional air quality.

Although implementation of mitigation measures would reduce the magnitude of this impact by 10 to 20 percent, emissions would still be above BAAQMD thresholds and measures to fully mitigate this impact were not identified. Therefore, this impact would remain significant and unavoidable.

Noise

The discussion of Noise impacts, found in Chapter 4.5 of this Draft EIR, identified the following as significant and unavoidable impacts:

- Cumulative impacts related to permanent noise increases at existing residences to the south of the project site.

Historical and Cultural Resources

The discussion of impacts to Historical and Cultural Resources, found in Chapter 4.9 of this EIR, identified the following as significant and unavoidable impacts:

- Impacts related to a substantial adverse change in the significance of a historical resource.

7. EIR AUTHORS / PERSONS CONSULTED

7. EIR AUTHORS / PERSONS CONSULTED

Lead Agency

Rebecca Willis, Community Development Director	City of Oakley
Jason Vogan, City Engineer	City of Oakley
Ken Strelo, Senior Planner	City of Oakley

Environmental Impact Report Consultants

C. Timothy Raney, AICP, President	Raney Planning & Management, Inc.
Cindy Gnos, AICP, Vice President	Raney Planning & Management, Inc.
Nick Pappani, Division Manager	Raney Planning & Management, Inc.
Rod Stinson, Assistant Division Manager	Raney Planning & Management, Inc.
Antonio Garza, Associate	Raney Planning & Management, Inc.
Ariel Calvert, Associate	Raney Planning & Management, Inc.
David Lee, Associate	Raney Planning & Management, Inc.

Project Engineers

Dave Carlson, PE	Carlson, Barbee & Gibson, Inc.
Lew Carpenter, PE	Carlson, Barbee & Gibson, Inc.
Sandra Pellegrino, PE	Carlson, Barbee & Gibson, Inc.

Traffic Analysis

Steve Abrams	Abrams Associates

Air Analysis

Don Ballanti	Certified Consulting Meteorologist

Noise Analysis

Michael Thill	Illingworth & Rodkin
Rich Illingworth	Illingworth & Rodkin

Hazards and Mineral Resources Analysis

Brian Flaherty	ENGEO, Inc.
Casey Lee Jensen	ENGEO, Inc.

Biological Resources Analysis

Whitney Fiore	Sycamore Associates

Geology and Soils Analysis

Gary H. Gulseth, GE	Kleinfelder
Paul C. Guern, GE	ENGEO, Inc.
Steve Harris, PE	ENGEO, Inc.

Cultural Resources Analysis

Colin Busby	Basin Research Associates

Hydrological Analysis

Hilary Ewing	Balance Hydrologics, Inc.
Edward D. Ballman, PE	Balance Hydrologics, Inc.
Eric Riedner	Balance Hydrologics, Inc.

8. REFERENCES

8. REFERENCES

Abrams Associates Traffic Engineering. *Emerson Traffic Study*. June 2008.

Association of Bay Area Governments. *City of Oakley Census 2000.* http://census.abag.ca.gov/cities/Oakley.htm. Accessed March 2008.

Balance Hydrologics, Inc. *Preliminary Stormwater Management Plan for the Emerson Property, City of Oakley, California.* October 2005.

Ballanti, Don. *Air Quality Impact Analysis for the Proposed Emerson Ranch Project*. June 2008.

Basin Research Associates. *Archaeological Resources Assessment for the Emerson Property.* 2004.

California Air Resources Board. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October 2000.

California Department of Conservation. *Farmland Mapping and Monitoring Program, Soil Candidate Listing for Prime Farmland and Farmland of Statewide Importance, Contra Costa County*. 2004.

City of Oakley. *City of Oakley 2020 General Plan Background Report*. September 2001.

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

City of Oakley. *Dutch Slough Planning Framework Study.* September 12, 2005.

City of Oakley. *Initial Study/Negative Declaration for Dutch Slough Development Agreement*. July 16, 2003.

City of Oakley. *Oakley 2020 General Plan Draft and Final Environmental Impact Report.* September 2002.

Contra Costa County. *Contra Costa County General Plan 1995 – 2010*. July 1996.

Contra Costa County. *Contra Costa County General Plan Draft Environmental Impact Report.* September 1990.

Development Agreement Between the City of Oakley and Emerson Dairy Incorporated, December 2003.

Emerson, Gilbert, Burroughs, and Tonka Energy, Inc. *Agreement Regarding Restrictions on Surface Entry and Plugging and Abandonment and Joint Escrow Instruction.* September 2003.

EDAW. *Initial Study/Proposed Mitigated Negative Declaration for the Contra Costa Canal Easement Project*. April 2006.

ENGEO Inc. *Environmental Site Assessment Update, Southern 140 Acres, Emerson Property.* June, 2004.

ENGEO, Inc. *Geotechnical Exploration Report: Southern 140 Acres, Emerson Property.* March 2005.

ENGEO, Inc. *Groundwater Study, Emerson and Burroughs Properties, Contra Costa County, California.* October 27, 2005.

ENGEO, Inc. *Phase 1 Environmental Site Assessment, Emerson and Burroughs Properties.* August 1999.

Enrollment Projection Consultants. *Projected Enrollments, 2002 to 2020 in the Antioch Unified School District*. January 2003.

The European Fuel Oxygenates Association. www.efoa.org. September 2004.

Fehr & Peers Associates. East Cypress Road Specific Plan – Draft Traffic Study. March 2005.

Illingworth & Rodkin. *Emerson Property Project Environmental Noise Assessment*. June 10, 2008.

Jones and Stokes Associates. *Software User's Guide: URBEMIS2002 for Windows with Enhanced Construction Module, Version 7.4.* May 2003.

Kleinfelder. *Geology report for the Dutch Slough Properties Draft EIR*. November 18, 2005.

Lowney Associates. *Phase I Environmental Site Assessment and Limited Soil Quality Evaluation.* September 3, 2004.

Sycamore Associates. *Biological Resources Section*. February 2007.

Sycamore Associates. *Tree Survey Report*. March 2005.

Tetra Tech EM Inc. *Phase I Environmental Assessment and Limited Phase II Environmental Site Assessment.* June 23, 2005.

USDA Soil Conservation Service. *Contra Costa County Soil Survey.* 1973.

APPENDIX A

DATE: May 23, 2007

TO: Responsible Agencies, Trustee Agencies, and Interested Persons

FROM: Rochelle Henson, Senior Planner
City of Oakley

SUBJECT: REVISED NOTICE OF PREPRARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED EMERSON PROPERTY PROJECT

The City of Oakley Community Development Department is the lead agency for the preparation of an Environmental Impact Report (EIR) for the proposed Emerson Property project. The scope of the EIR has been proposed based upon a determination by the City of Oakley. The City of Oakley has directed the preparation of this EIR in compliance with the California Environmental Quality Act (CEQA).

Once a decision is made to prepare an EIR, the lead agency must prepare an NOP to inform all responsible and trustee agencies that an EIR would be prepared (CEQA Guidelines Section 15082). The purpose of the NOP is to provide agencies with sufficient information describing both the proposed project and the potential environmental effects to enable the agencies to make a meaningful response as to the scope and content of the information to be included in the EIR. The City of Oakley is also soliciting comments on the scope of the EIR from interested persons.

BACKGROUND

The planning decision to convert the proposed project site for development purposes was made in 1990 when Contra Costa County certified a countywide General Plan EIR and adopted the 1990-2005 General Plan Update redesignating the project site for development as part of an approximate 1,500-acre area from Agriculture to Mixed Use (M-8) development within the County's Urban Limit Line. In 1997, the County for CEQA purposes relied upon the General Plan EIR and approved development agreements providing vested rights to develop the M-8 area. Following annexation of the M-8 area, which included the project site, to the City of Oakley in 1999, the City prepared and certified the initial Oakley General Plan EIR.

In the fall of 2001, the original owner of the Emerson property, along with the original adjacent landowners Gilbert and Burroughs, submitted an application to Cal-Fed seeking funding for a proposal to sell portions of their properties north of the Contra Costa Canal for the purpose of creating the Dutch Slough Tidal Marsh Restoration Project. The owners further indicated their intention to develop the remaining land to the south of the Canal.

On September 23, 2002, the Oakley City Council approved a Memorandum of Understanding (MOU) between the City and the property owners summarizing the terms of basic understanding between the City and the owners regarding the disposition of the northern and southern portions of the Dutch Slough Properties and future planning for the southern properties. As part of the Southern Property Disposition Agreement, the property owners agreed to transfer ownership of portions of the southern properties and northern properties to the City. Portions of the northern properties were to be transferred to the City for developing a 55-acre community park and related public recreational facilities.

On December 16, 2002, the City Council adopted the Oakley 2020 General Plan, approving urban land use designations for the southern properties, consistent with the terms of the MOU. This approval encompassed the owners' proposal for a combination of residential and commercial development on the southern properties. In August of 2003, the MOU was supplemented by Development Agreements between the City of Oakley and the Dutch Slough property owners to formalize and secure the rights and obligations created in the MOU, General Plan, and Cal-Fed transaction.

In 2003, Cal-Fed purchased the northern portion of the Emerson, Gilbert and Burroughs properties (north of the Contra Costa Canal). Representatives of the Department of Water Resources have indicated that the site will be reclaimed as wetlands, as part of a three-phase project.

On July 31, 2006 a Draft Environment Impact Report (DEIR) was circulated for the Dutch Slough Properties project, which included the Emerson property. However, on November 28, 2006 the City of Oakley withdrew the Dutch Slough Properties DEIR. The MOU and Development Agreement remain applicable to the Emerson property and adjacent properties (Gilbert and Burroughs).

An application has now been submitted for the development of the Emerson property portion of the withdrawn Dutch Slough Properties project. Thus, an EIR is being prepared for the Emerson property only and is known as the Emerson Property project.

PROJECT DESCRIPTION

Project Location and Setting

The proposed 140-acre Emerson Property project would be developed in the City of Oakley, Contra Costa County, California (see Figure 1) and would include approximately 662 residential units, the majority of these units are planned to be single-family dwellings, and a commercial center.

The Emerson Property project site is on the north side of Cypress Road, east of the approved and partially developed Cypress Grove project, Delta Vista Middle School and Iron House Elementary School (see Figure 2). The project site is bounded on the north by the Contra Costa Water District Canal (CCWD/USBR Canal). A 55-acre portion of land immediately to the north of the CCWD/USBR canal and the project site at the end of Sellers Avenue is held in escrow, pursuant to a Memorandum of Understanding and Development Agreement, for future conveyance to the City of Oakley as a community park. Also to the north of the CCWD/USBR Canal is open space currently owned by the State of California. The project site is bordered on the immediate east by Sellers Avenue. The Gilbert property is immediately east of Sellers Avenue and is analyzed by its own EIR.

The Emerson property is Assessor Parcel Number 037-192-015 and 037-192-023.

Project Entitlements

The entitlements requested with this application include:

- Certification of an Environmental Impact Report;
- Rezone to Planned Development (P-1);
- Approval of Parcel Maps;
- Approval of Vesting Tentative Map;
- Approval of Design Review;
- Approval of a Development Plan for the commercial center; and
- Acquisition of right of way and easements.

Project Components

The proposed land plan for the Emerson Property project site includes residential development, a commercial center, trails, parks, levees, a storm water detention pond, as well as the infrastructure improvements

necessary to accommodate the new development. For purposes of the CEQA analysis in the project-level EIR, the project applications reflect the following:

Residential Development

The proposed land plan for the Emerson Property project would primarily include single-family dwelling units (a total of approximately 662 units). The neighborhoods would be woven together into a comprehensive community through the use of traffic and pedestrian circulation, parks and open spaces, coordinated landscape treatments and complimentary architectural styles (see Figure 3).

DeNova Homes plans to develop the Emerson property site (Subdivision 9032). The development would include approximately 662 single-family residential units. The Emerson Property would consist of five neighborhoods. The proposed lot sizes range from approximately 3,500 square feet to 6,000 square feet (Maximum lot is 7,000 square feet).

Commercial Development

The Project proposes the development of an approximately 10.5-acre neighborhood shopping center located at the southeast corner of the project site adjacent to Cypress Road and Sellers Avenue. The site would have signalized access to Cypress Road, accommodating a neighborhood center of approximately 120,000 square feet. Anticipated uses may include a major grocery store as anchor tenant, a gas station in the southwest corner of the commercial site, additional space for a variety of neighborhood and community serving uses, and two smaller pads located near Cypress Road for restaurants, banks or similar uses. The center would be designed to complement the architectural character of the neighborhood and provide appropriate landscaping and buffers.

Infrastructure

The primary infrastructure systems would be sized to meet demands created by build out of the proposed project and surrounding area. Consistent with the City's General Plan and the project Development Agreement, infrastructure has been upgraded to accommodate future growth anticipated in the City's General Plan and General Plan EIR (e.g., roadway design, drainage, etc.). The infrastructure systems that would be constructed as a part of the project include storm drainage, wastewater, water supply, roadways, and a system of parks and trails.

The General Plan 2020 EIR analyzed the larger area-wide infrastructure systems, and project-level EIRs for the development to the west recently addressed the coordinated infrastructure needs for the Cypress Corridor. The Cypress Lakes community by Shea Homes has been separately analyzed under a certified project-level EIR. In addition, development of the adjacent Gilbert Property has been analyzed in a DEIR currently under public review. The Emerson Property project-level EIR would appropriately address the integrated and coordinated infrastructure relationships raised by the project, including updates to the pending projects in the vicinity of the project site.

Storm Drain

The design of the storm water management facilities for the Emerson Property project would be developed to control peak storm water flows, improve the quality of the storm water runoff before being discharged from the site, and to protect the homes from flooding during large storm events. A storm water pond would be located in the central portion of the Emerson property. The pond's surface area would be approximately five acres and would be pumped into the existing outfalls to Emerson Slough, which is consistent with the area's drainage shed. The pond would be sized to accommodate developed flows for the proposed project as well as the existing flows from properties to the south. As the properties to the south develop, additional ponds or below grade detention would need to be constructed within those properties to detain storm flows. The outfalls have already been comprehensively studied and analyzed for CEQA purposes and permitted by the City of Oakley under the entitlements for the Cypress Grove subdivision to the west (8678, 8679 and 8680), which have been constructed. As a result, these outfalls are not considered part of the proposed project.

Levees

The site is subject to inundation risks from the Sacramento/San Joaquin Delta, which has a 100-year flood elevation of 7 feet above mean sea level (MSL). An existing levee system was constructed along the north and east sides of the Emerson property by the Cypress Grove Project. The existing levee constructed by the Cypress Grove project along Sellers Avenue may be modified by this development to cross Sellers Avenue and connect into the proposed Gilbert levee system, eliminating the requirement for levees along both sides of Sellers Avenue. The levee will be built to an elevation of 10 feet above msl to protect against a flood elevation of 7 feet, with an additional 3 feet of freeboard. The remainder of the project perimeter along Cypress Road, is higher than 10 feet msl and does not require further flood protection.

Wastewater

The Ironhouse Sanitary District (ISD) is responsible for provision of services to the entire Cypress Corridor area and would provide wastewater service to the project site. ISD is the successor to the former Contra Costa County Sanitation District No. 15 and the Oakley-Bethel Island Wastewater Management Authority, which merged and reorganized as ISD in 1992. ISD owns and operates the wastewater collection, treatment, storage, and disposal facilities for the City of Oakley, unincorporated eastern Contra Costa County communities including Bethel Island, and the area in between. ISD staff is currently updating their wastewater master plan and conducting CEQA review covering the master plan, for which all components of the wastewater treatment facilities are being evaluated. This plan is intended to develop sufficient wastewater system facilities to accommodate the entire jurisdiction—of which Cypress Corridor is only one part—at build out of the General Plan. The wastewater system is composed of collection, treatment, and disposal sub-systems.

Currently, properties connected to the system on Cypress Road pump their sewage to the treatment plant through an existing 14-inch force main in Cypress Road. The force main connects to an existing 18-inch gravity main in State Route 4 (SR 4) that flows to the treatment plant. Ironhouse Sanitary District has anticipated that a second force main, estimated at 14 inches, may be needed to serve ultimate City buildout and the ISD service boundary. This line may be constructed in Cypress Road or along the northern trail corridor adjacent to the CCWD/USBR right of way. The Emerson Property project may accommodate a portion of this improvement within the project boundary.

The Emerson Project would construct a sanitary sewer pump station onsite to collect onsite sewer flows and pump them into the existing 14-inch force main located in Cypress Road.

Water Supply

The Diablo Water District maintains the existing water supply and infrastructure in the City of Oakley and has provided a Water Supply Assessment indicating that adequate supply exists to serve the proposed development. The Diablo Water District is a water retailer and is provided water by CCWD/USBR, acting as a water wholesaler. Water mains for the Emerson properties project would be constructed in accordance with Diablo Water District's master plan and dedicated to the District upon completion. To serve the project area, a 20-inch water main has been constructed in Cypress Road from SR 4 to Sellers Avenue, and a 24-inch water main has been constructed in Cypress Road from Sellers Avenue to the Cypress Lakes community by Shea Homes, and has been separately analyzed under the certified project EIR for the Shea Cypress Lakes project.

The Emerson Property is located within the boundaries of CCWD Service Area A. Service Area A is the Los Vaqueros Project (LVP) Planning Area for receiving LVP water quality benefits.

The proposed project would also need a source of water for the recharge of the storm water pond during the dry season and for irrigation of common area landscaping, including the park. The project would get this water from one of two potential sources. One potential source is groundwater, which would require the construction of a well in the park/storm water pond area. The other possible source is through the use of water from the Emerson Slough. The Emerson homebuilders are considering the possibility of entering into an agreement with the City of Oakley to continue to use this riparian water right for lake recharge and irrigation purposes.

Project Site Access

The Emerson Project residential development would have a signalized primary entrance on Cypress Road at Machado Lane and a secondary entrance on Sellers Avenue. The project would also connect to two of the Cypress Grove streets to the west. The Emerson commercial site would have signalized primary access on Cypress Road, and a secondary right in right out access on Cypress Road. Pedestrian access would be provided between the residential and commercial uses.

Roadway Improvements

Consistent with the Oakley 2020 General Plan, roadway infrastructure would be constructed to meet the needs of new residential neighborhoods and provide access to this portion of Oakley. Street widths would be designed in accordance with traffic studies completed for the project as well as the Oakley 2020 General Plan. The proposed project includes both on-site and off-site roadway improvements.

Cypress Road will be designed to provide an ultimate four-lane divided arterial from Cypress Grove to Sellers Avenue with a landscaped median, as well as landscaping corridors and trails on the north side of the road. The Emerson Property project is proposing to provide an increment of this improvement by constructing two westbound lanes with a landscaped median and one new eastbound lane along the entire property frontage.

Sellers Avenue will be designed as an ultimate four-lane divided road from Cypress Road to the project boundary with the CCWD/USBR Right of Way. The Emerson Property project includes the construction of one southbound lane plus half of the median improvements as a portion of the project.

Local streets would be designed and constructed per City of Oakley standards.

Roadway improvements would include the following:

- Right of way and easement acquisition on the south side of Cypress Road and along Sellers Avenue south of Cypress Road;
- Removal of structures;
- Transition of Cypress Road to the existing two-lane road to the east of the Sellers Avenue;
- Property dedication and improvement of Sellers Avenue north to the CCWD/USBR Right of Way;
- Modification of existing traffic signals at Sellers Avenue and installation of new traffic signals at entries;
- Intersection improvements at Machado Lane and Sellers Avenue including transitions to the south;
- Modification of existing driveways to adjacent properties;
- Overhead and underground utility relocation as needed; and
- Modifications of utility services including drainage, irrigation, power, telephone, cable, etc. to adjacent properties.

Community Components

The Park Impact Fee Program includes community parks, neighborhood parks and open space components. The developers shall construct the neighborhood parks and open space trails to meet the City requirements. To complete the obligation of the project to dedicate and improve parkland, the project would pay the remaining park in-lieu fee to facilitate the provision of the community park facilities to be located north of the CCWD/USBR canal.

Parks

The park system within the Emerson Property would consist of an approximately 4-acre park in the center of the community adjacent to the stormwater pond.

Trails

The proposed project would contribute to the construction of trails along the north side of Cypress Road, west side of Sellers Avenue, along the north edge of the property adjacent to the CCWD/USBR canal and on certain local streets in the project site. The Emerson Property would provide its portion of the trail system in substantial conformance with the planning framework. The trail would ultimately provide pedestrian circulation to and from the Delta Vista Middle School, the Iron House Elementary School, the neighborhood parks and the future 55-acre City Park north of the CCWD/USBR canal.

A trail would be located along the northern boundary of the development just south of the CCWD/USBR canal. This trail would connect to the trail constructed by the Cypress Grove development to the west, which in turn provides access to the existing Marsh Creek Trail, and links to an existing regional trail system and the trails proposed for the Gilbert Property to the east.

The Cypress Grove project has constructed a fence along the CCWD/USBR right of way and a safety "liner" fence adjacent to the canal in the CCWD/USBR right of way.

ENVIRONMENTAL EFFECTS

The City has reviewed the proposed Emerson Property project and has determined that the EIR should address the following issues. The initial study will address all of the issues not addressed in the EIR.

Each of the following issue chapters will include a discussion of the existing setting, thresholds of significance, specific impacts, mitigation measures, and monitoring strategies. Because the proposed project is consistent with the Oakley General Plan, the environmental impact discussions within the Emerson Property project EIR will tier from the General Plan EIR analysis and conclusions.

Aesthetics

The Aesthetics chapter will summarize the existing regional and project area aesthetics and visual setting. Project-specific aesthetic issues such as the effect on scenic vistas, trees, historic buildings, scenic highways, existing visual character or quality of the site and surrounding areas, and light and glare from both the residential and commercial portions of the project will all be addressed. This chapter will include an analysis of the existing setting, identify the thresholds of significance, identify impacts, and identify mitigation measures and monitoring strategies.

Land Use and Agricultural Resources (including Williamson Act contracts)

The Land Use chapter will evaluate the consistency of the proposed project with the City of Oakley's adopted plans and policies. RP&M will review the City's adopted General Plan and Zoning Ordinance, as well as any other appropriate documents, to address consistency issues. The chapter will further assess the compatibility of the proposed project with the surrounding land uses, both existing and proposed. The land use chapter will identify land use impacts regarding any inconsistencies or incompatibilities with adopted plans and policies created by the approval of the proposed project. This chapter of the EIR will also summarize the status of the existing agricultural resources of the site and the site vicinity, including identification of any prime/unique farmland or farmland of Statewide Importance on the project site. Any conflicts with existing zoning for agricultural use, Williamson Act, or right-to-farm ordinances applicable to the project site will also be identified. The analysis will further include a discussion regarding conversion of farmland to non-agricultural uses. This chapter of the EIR will include an analysis of the existing setting, identification of the thresholds of significance, identification of impacts, and the development of mitigation measures and monitoring strategies.

Traffic and Circulation

Traffic impacts of the proposed project will be analyzed under as many as three different development alternatives and a No Project alternative. The chapter will also include evaluation of the operations at each of

the study intersections for five different scenarios. The scenarios include an evaluation of the existing conditions, existing plus planned and approved projects (Background) conditions, Background plus project conditions, cumulative without project conditions, and cumulative with project conditions. In addition, a detailed site circulation and access review will be conducted to determine the adequacy of the proposed site plan in accordance with generally accepted traffic engineering standards. Emergency access, transit, pedestrian, and bicycle facilities will also be discussed and analyzed to ensure adequacy of the proposed facilities based upon existing City of Oakley plans. This chapter of the EIR will also include an analysis of the existing setting, identification of the thresholds of significance, identification of impacts, and the development of mitigation measures and monitoring strategies. The traffic chapter will be based on a report prepared according to the Contra Costa Transportation Authority (CCTA) Technical Procedures dated September 17, 1997. The report will address all of the growth management issues that are required by Measure "C" of the CCTA.

Air Quality

The Air Quality chapter will summarize the regional air quality setting, with a description of the climate and meteorology of the project area, historical air quality data, and current efforts to attain and maintain the State and federal air quality standards. The chapter will summarize air quality data from the closest monitoring site to the project site. The chapter will also quantify agricultural emissions from current use of the project site, and identify all sensitive receptors for air pollutants in the vicinity of the project or along roads providing access to the site. The air quality consultant will use the URBEMIS2002 computer program to prepare an analysis of regional changes in vehicle emissions and operational emissions from the project. The CALINE-4 computer model will be used to perform micro-scale modeling of carbon monoxide levels near intersections selected as having the greatest potential of carbon monoxide problems. In addition, emissions from construction equipment exhaust and windblown dust will be identified. The potential for windblown dust or other construction impacts will be evaluated based upon prevailing wind patterns, surrounding land uses, and the soils of the area. The level of significance of impacts identified in the analyses will be determined using the thresholds of significance recommended by the Bay Area Air Quality Management District, and mitigation measures and monitoring strategies will be recommended for all impacts identified to be significant.

Noise

The Noise chapter will include an analysis of the existing setting, identification of the thresholds of significance, identification of impacts, and the development of mitigation measures and monitoring strategies. All significant noise impacts due to and upon the proposed project will be identified and analyzed. Particular attention will be paid to traffic noise impacts associated with increased traffic on the local roadway network, and the potential for future noise impacts at any noise sensitive land uses located in the project vicinity. In addition, the noise impacts associated with the commercial portion of the project will be evaluated for impacts to both on-site and off-site residences. The noise report will also evaluate potential noise impacts associated with construction activities. Appropriate and practical recommendations for noise control, which are aimed at reducing any identified potential noise impacts to a level of insignificance, will be included in the noise report and subsequently incorporated into the Noise chapter of the EIR. The chapter will summarize regional and local noise setting information, identify relevant regulatory setting information, and identify changes in ambient noise characteristics and the effects on sensitive receptors due to the proposed project.

Hazards

The Hazards section of the EIR will assess existing features of the project site, and will determine if the proposed project would exacerbate or create hazardous conditions in the area, or if the project would bring people into contact with hazardous materials or substances (i.e., the proposed gas station). The section will identify any such hazardous materials or substances that may be present at the project site or adjacent sites and designate mitigation measures designed to reduce their impacts to a less-than-significant level. The hazards discussion will be based primarily on the Phase I Environmental Site Assessment prepared for the Emerson Property.

Biological Resources

The Biological Resources chapter will be based on a biological resources assessment prepared for the project site. The Biological Resources chapter of the EIR will include a description of the potential effects on plant communities, wildlife, and wetlands, including adverse effects on rare, endangered, candidate, sensitive, and special-status species that are identified during site reconnaissance. The section will describe the impact the project would have on biological resources identified by the biologist and assign mitigation measures, if feasible, to limit the impacts to a less-than-significant level. In addition, this chapter will identify the required permits relating to biological resources.

Geology

The Geology section will describe the setting and summarize the potential effects from earthquakes, landslides, and liquefaction as well as identify any unique geological features within the project site. The chapter will address the need for grading on the project site and the associated impacts. Further, this section will include an analysis of the existing setting, identification of the thresholds of significance, identification of impacts, and the development of mitigation measures and monitoring strategies. The section will rely upon a technical soils report prepared for the Emerson Property.

Historical and Cultural Resources

The Historical and Cultural Resources chapter will summarize the setting, and briefly describe the potential construction-related effects on historical, archaeological, and paleontological resources. The chapter of the EIR will include an analysis of the existing setting, identification of the thresholds of significance, identification of impacts, and the development of mitigation measures and monitoring strategies.

Hydrology, Water Supply, and Water Quality

The Hydrology and Water Quality section of the EIR will describe the existing setting and the project's potential effects on water quality, storm drainage, and groundwater supply. Potential impacts will be analyzed and identified. The section will address any issues that arise with regard to water quality, drainage patterns, erosion, siltation and other effects on existing watercourses, and the potential of placing people or structures in danger from flooding. Mitigation measures designed to reduce impacts to a less-than-significant level, if feasible, will be assigned to counteract any potential impacts that are identified in the analysis.

Water Supply Assessment

The Emerson Properties project is subject to Senate Bill 610 and Senate Bill 221, which require an assessment of the availability of potable water supply through the preparation of a Water Supply Assessment by the project's water purveyor. A Water Supply Assessment is required for new developments with over 500 units or a 10 percent increase in the number of service connections. A Water Supply Assessment report will be used in this section to assess the City's total projected available water supplies during normal, single dry, and multiple dry water years in five-year increments for a 20-year projection to meet the water demands of the proposed project in addition to the City's existing and planned future uses.

Public Services and Utilities (including parks and open space)

The Public Services and Utilities chapter will summarize setting information and identify potential new demand for services, including water supply, wastewater systems, solid waste disposal, law enforcement, fire protection, schools, libraries, parks and recreation, and electric power. This chapter will include an analysis of the existing setting, identification of the thresholds of significance, identification of impacts, and the development of mitigation measures and monitoring strategies. The analysis will be based on infrastructure reports prepared for the project. The section will include an analysis of the existing setting, identification of the thresholds of significance, identification of impacts, and the development of mitigation measures and monitoring strategies.

DISCUSSION OF CUMULATIVE IMPACTS

In accordance with Section 15130 of the CEQA Guidelines, an analysis of the cumulative impacts will be undertaken and discussed in the EIR. In addition, pursuant to CEQA Section 21100(B)(5), the EIR will also address the potential for growth inducing impacts of the proposed project focusing on whether there will be a removal of any impediments to growth associated with the proposed project.

SUBMITTING COMMENTS

To ensure that the full range of issues related to this proposed project are addressed and all significant issues are identified, written comments are invited from all interested parties. Written comments concerning the proposed EIR for the Emerson Property project should be directed to the name and address below:

Ms. Rochelle Henson
City of Oakley
3231 Main Street
Oakley, CA 94561
(925) 625-7000
(925) 625-9194 (fax)

Written comments are due to the City of Oakley at the location addressed above by 5:00 p.m. on June 22, 2007.

SCOPING MEETING

A public scoping meeting will be held on June 6, 2007 at 10:00 AM at 3231 Main Street, Oakley, regarding the proposed EIR for the Emerson Property project.

Figure 1 Regional Location Map

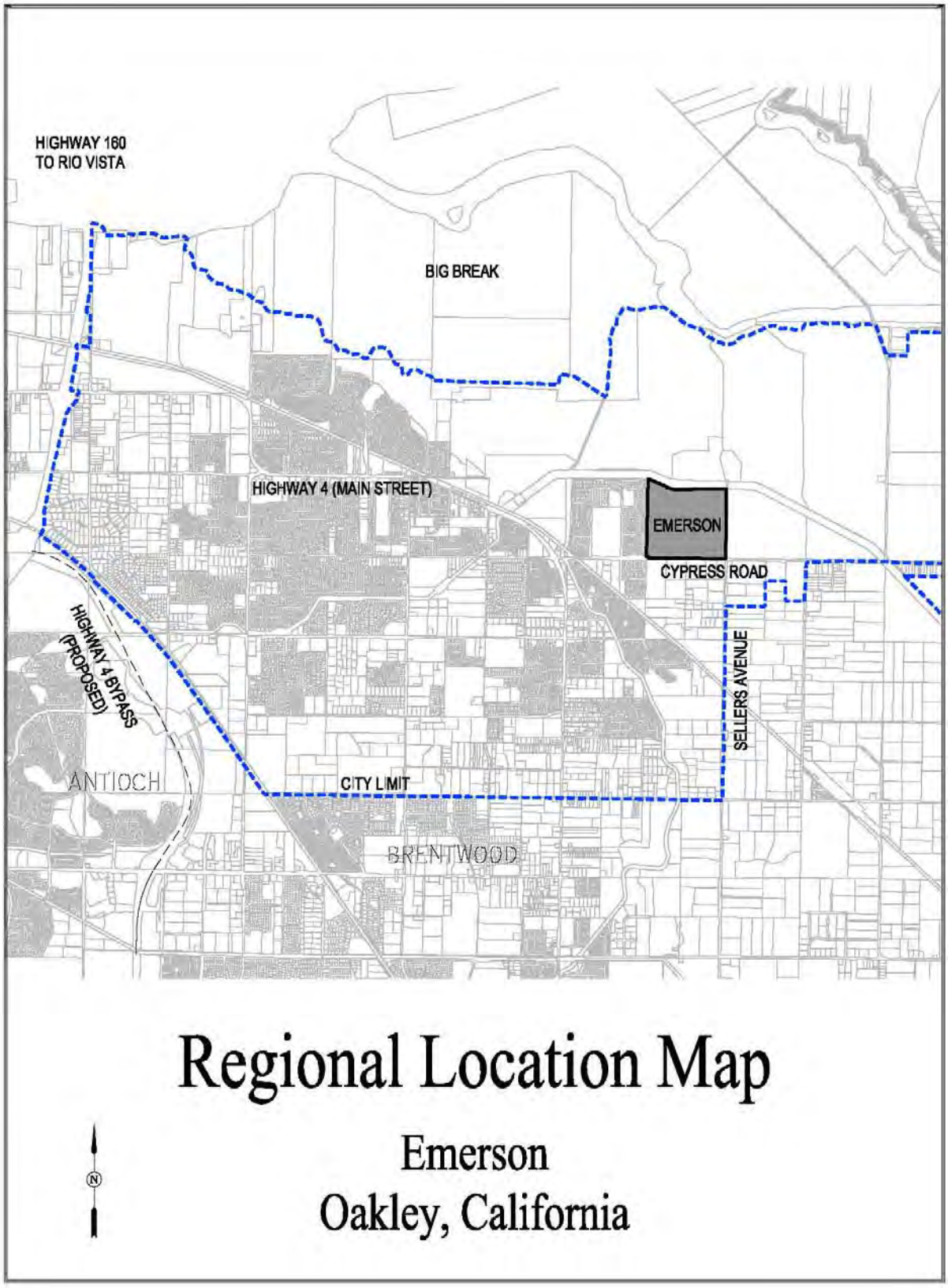


Figure 2 Project Location Map

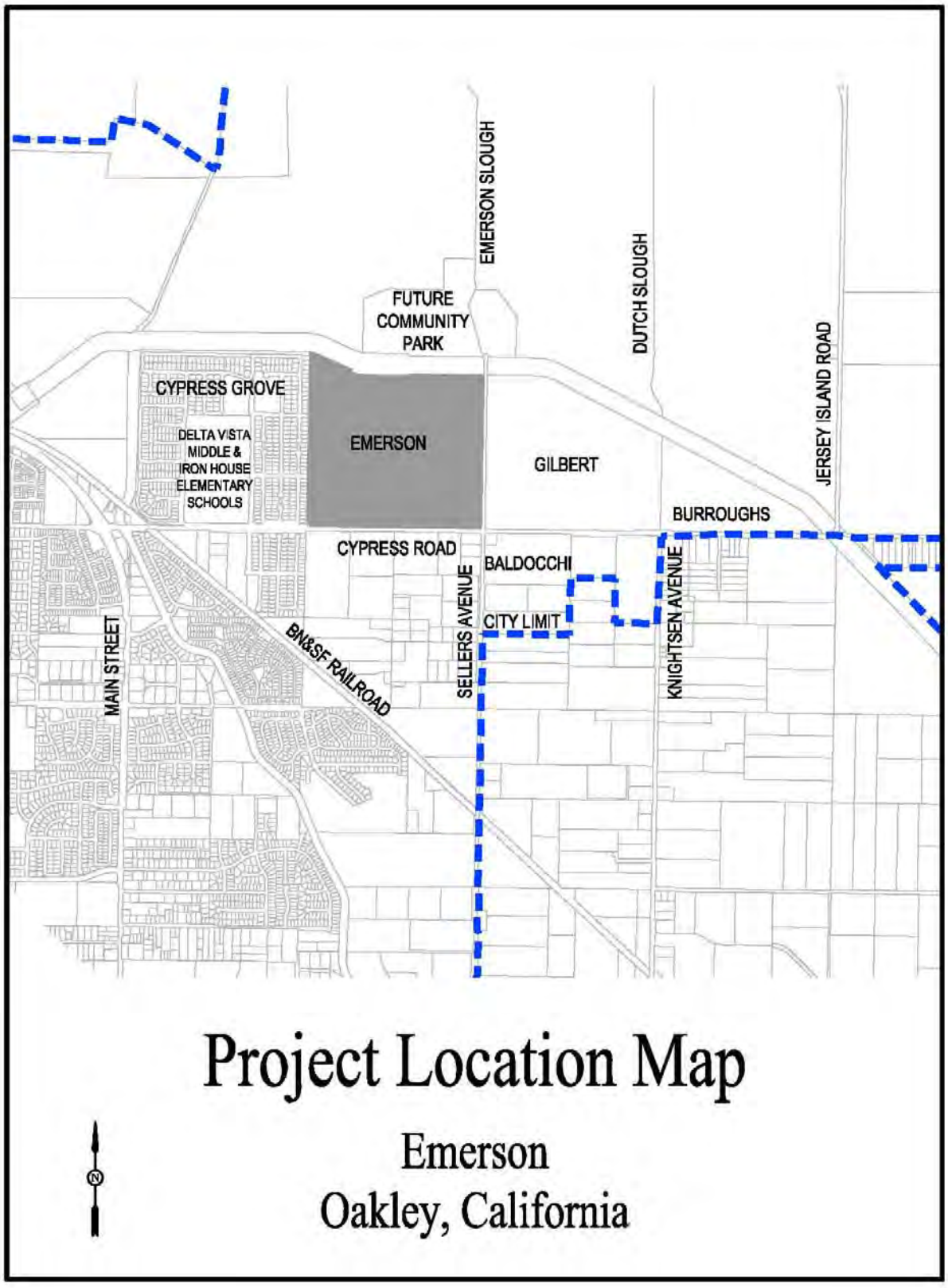
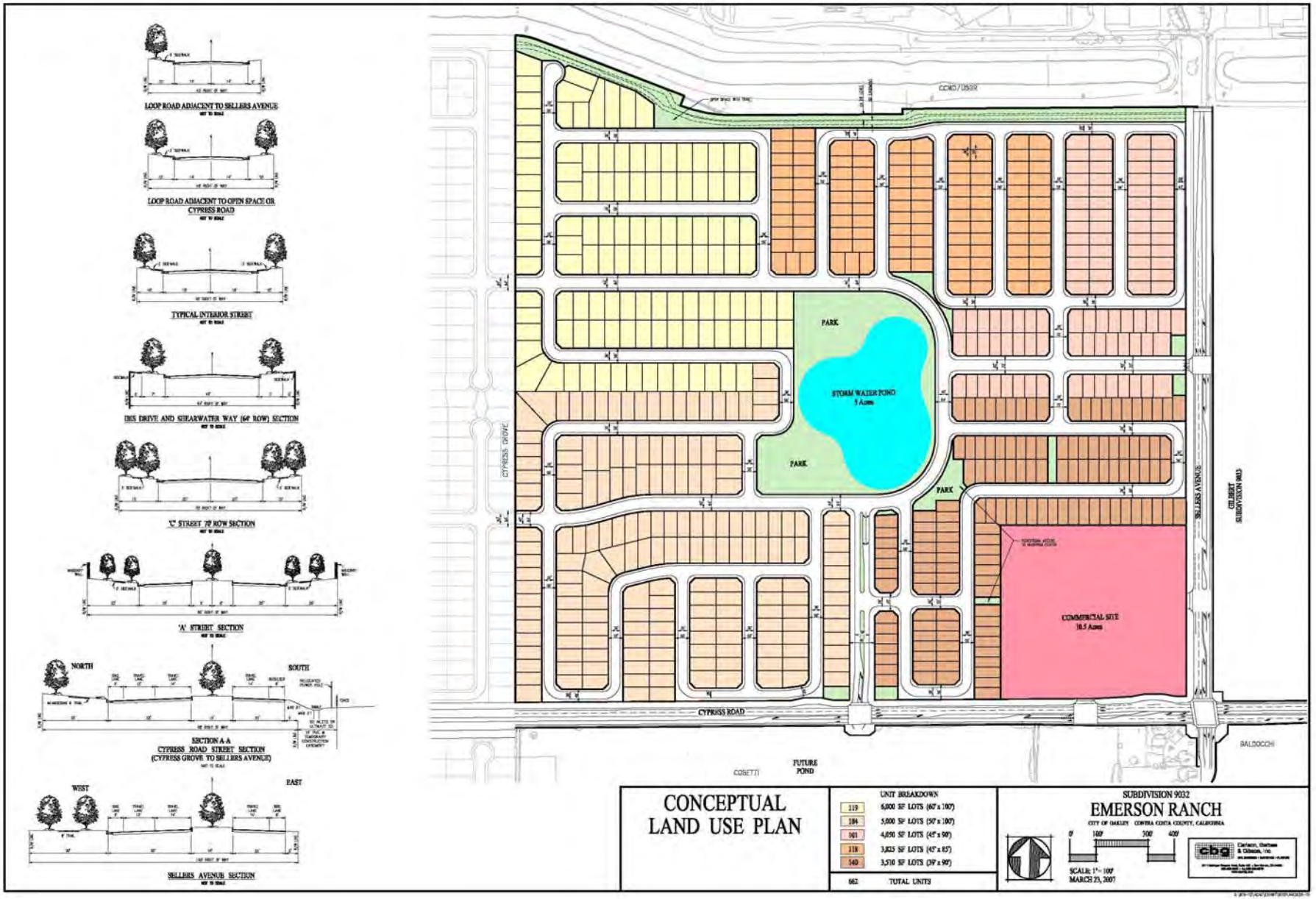


Figure 3 Site Plan



APPENDIX B

City of Oakley
Planning Department
3231 Main Street
Oakley, CA . 94561

May 25, 2007

RECEIVED
MAY 30 2007
CITY OF OAKLEY

Attention: Senior Planner Rochelle Henson

Regarding: EIR for Emerson Property Project, Comments , Concerns , and Questions

Please attach this letter to the EIR currently being conducted on the above mention property. Also it is requested that answers to questions provided be responded back to me either in form specifically or with a copy of the EIR.

In the letter dated May 14, 2007 to interested parties there are statements under " Water Supply " that refer to the retail supplier Diablo Water as being able to supply " adequate water by CCWD/USBR. However, just as in the Cypress Corridor EIR there is no mention of extracting ground water from under the Knightsen Community. The Cypress Corridor EIR specifically states that;

[illegible] existing wells. The DEIR concludes that, with these mitigation measures in place, the project's effects on groundwater and water quality will be less-than-significant. For Knightsen in particular, the project is anticipated to have no effect on the water quality or water wells of existing residences in Knightsen, as those wells are further away and upgradient of the project area. (See Response 48-11).

The above statements I believe are not only deceiving, in addition may have been provided intentionally as not to alert the Knightsen Community of the intent by Diablo Water to tap Knightsen's ground water supply for the purpose of supplying Oakley Development. The basis of this statement are due to the major pipeline project and Doyle Ave. well that were being planned and constructed during the very same period as the Cypress EIR was being compiled. Shortly after, the public found out that Diablo Water intended to run a main water line outside the urban limit line and into the heart of Knightsen for the purpose of extracting up to one million gallons a day. This water would be then blended and sold to Oakley residents and new development in the City of Oakley. The purpose as I understand was to eliminate and or reduce the high cost of water being purchased from the Contra Costa Water District.

In conclusion, the original EIR for the Cypress Corridor should be invalid or redone completely due to the lack of true intent and information as it relates to water supplies for the City of Oakley's development . Knightsen's water supply and quality are threatened by using groundwater as a source for this and other developments of this size in the Oakley Area.

The entire community of Knightsen relies solely on ground well water. Any depletion of this source will severely impact water quantity and quality. Lives, property, and lifestyle will be severely impacted by using Knightsen's aquifer as a supply source for this development. Please provide the following answers to the below concerns.

#1) Provide a list of all the water sources that may be used for this development.
(Including future potential or planned sources)

#2) State exactly how mitigation will be made to Knightsen Residents for the use of groundwater.

#3) Why is there no mention of the possibility of Knightsen ground water use for Oakley Development when it is now clear that Diablo Waters intent to use this source regularly ?

#4) What guarantees will be provided to Knightsen residents for reduced water quality and quantity created by this development ?

Another concern is Fire Suppression, A plan for a new fire station on Cypress was made as a condition of the Shea project several years ago. This station was to be built and staffed by the time of the first occupancy. The condition was relaxed to the six hundredth home. The station still has not been built. The Oakley area is currently not adequately supplying fire fighting standards as recommended by a report recently compiled for the district. This development will further deteriorate the current substandard fire suppression agency. What plan will be implemented to correct this situation or not affect it by developing six hundred more homes?

Thank You,

John A. Gonzales
P.O. Box 369
Knightsen, Ca. 94548

cc. Supervisor District III , Mary Piepho
Contra Costa Water District
Diablo Water District
Knightsen School District
Knightsen Community Services District
Contra Costa Community Development
Knightsen Town Advisory Council

DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5505
FAX (510) 286-5559
TTY (800) 735-2929

Flex your power!
Be energy efficient!

May 17, 2007

CC004973
CC-4-R34.92

Ms. Rochelle Henson
City of Oakley
3231 Main Street
Oakley, CA 94561

Dear Ms. Henson:

Emerson Property Project – Notice of Preparation

Thank you for including the California Department of Transportation (Department) in the early stages of the environmental review process for the above-referenced project. We have reviewed the Notice of Preparation for the Emerson Property Project Draft Environmental Impact Report and have the following comments to offer:

As lead agency, the City of Oakley is responsible for all project mitigation, including improvements to State Highways. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures. Any required roadway improvements should be completed prior to issuance of the project's building permit. While an encroachment permit is only required when the project involves work in the State Right of Way, the Department will not issue an encroachment permit until our concerns are adequately addressed.

The Department is primarily concerned with impacts to the State Highway system. Specifically, the detailed Traffic Impact Analysis (TIA) should identify impacts to Main Street (State Route 4) with and without the proposed Emerson Property Project traffic. The TIA should include, but is not limited to the following:

1. Information on the project's traffic impacts in terms of trip generation, distribution, and assignment. The assumptions and methodologies used in compiling this information should be addressed.

2. Average Daily Traffic (ADT) and AM and PM peak hour volumes on all significantly affected streets and highways, including crossroads and controlling intersections.

3. Schematic illustration of the traffic conditions for: 1) existing, 2) existing plus project, and 3) cumulative for the intersections in the project area.

4. Calculation of cumulative traffic volumes should consider all traffic-generating developments, both existing and future, that would affect the State Highway facilities being evaluated.

5. Mitigation measures should consider highway and non-highway improvements and services. Special attention should be given to the development of alternate solutions to circulation problems that do not rely on increased highway construction.

6. All mitigation measures proposed should be fully discussed, including financing, scheduling, implementation responsibilities, and lead agency monitoring.

We recommend you utilize Caltrans' *"Guide for the Preparation of Traffic Impact Studies"* which can be accessed from the following webpage:
http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf

We look forward to reviewing the TIA, including Technical Appendices, and Draft Environmental Impact Report for this project. We expect to receive a copy from the State Clearinghouse, but in order to expedite our review, you may send two copies in advance to:

Christian Bushong
Office of Transit and Community Planning
Department of Transportation, District 4
P.O. Box 23660
Oakland, CA 94623-0660

Please be advised that any work or traffic control within the State right-of-way (ROW) will require an encroachment permit from the Department. To apply for an encroachment permit, submit a completed encroachment permit application, environmental documentation, and five (5) sets of plans which clearly indicate State ROW to the following address:

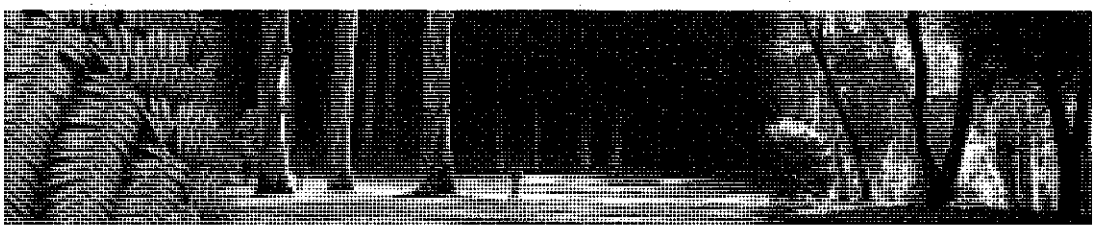
Mr. Michael Condie, District Office Chief
Office of Permits
California Department of Transportation, District 04
P. O. Box 23660
Oakland, Ca 94623-0660

Should you have any questions regarding this letter, please call Christian Bushong of my staff at (510) 286-5606.

Sincerely,

TIMOTHY C. SABLE
District Branch Chief
IGR/CEQA

c: State Clearinghouse



East Bay Regional Park District

2950 PERALTA OAKS COURT P.O. BOX 5381 OAKLAND CALIFORNIA 94605-0381 T. 510 635 0135 F. 510 569 4319 TDD. 510 633 0460 WWW.EBPARKS.ORG

May 22, 2007

RECEIVED
MAY 24 2007
CITY OF OAKLEY

Rochelle Henson
City of Oakley
3231 Main Street
Oakley, CA94561

RE: Delta DeAnza Regional Trail / Marsh Creek Regional Trail
Project Number PLN-2007-0380 Map 9032

Dear Ms. Henson:

East Bay Regional Park District appreciates the opportunity to comment on the NOP for the Emerson Property project, and to review the tentative subdivision map, preliminary grading plan, and demolition plan. Under the heading of "Trails," the Park District requests that the proposed trail running along the northern boundary of the development adjacent to the CCWD/USBR canal be designated as a segment of the Delta DeAnza Regional Trail, as shown in the 2003 Contra Costa Countywide Bicycle and Pedestrian Plan, TRANSPLAN's East County Bikeway Plan and East Bay Regional Park District's 1997 Park and Trail Master Plan. The trail should be constructed to EBRPD standards, 10' wide as shown on the tentative map. The project proponents should be conditioned to provide a funding mechanism for maintenance of the trails and open space.

The project should provide a safe crossing for pedestrians and cyclists where the trail crosses Sellers Road.

The Park District also supports the inclusion of connector trails to the proposed community park, the city park and local schools.

Yours truly,

Jim Townsend
Trails Development Program Manager

STATE OF CALIFORNIA Arnold Schwarzenegger, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

June 1, 2007

Rochelle Henson
City of Oakley
3231 Main Street
Oakley, CA 94561

RE: Emerson Property Project, SCH# 2007052073

Dear Ms. Henson:

As the state agency responsible for rail safety within California, we recommend that any development projects planned adjacent to or near the rail corridor in the City be planned with the safety of the rail corridor in mind. New developments may increase traffic volumes not only on streets and at intersections, but also at at-grade highway-rail crossings. This includes considering pedestrian circulation patterns/destinations with respect to railroad right-of-way.

Safety factors to consider include, but are not limited to, the planning for grade separations for major thoroughfares, improvements to existing at-grade highway-rail crossings due to increase in traffic volumes and appropriate fencing to limit the access of trespassers onto the railroad right-of-way.

Of specific concern is the potential impact from increased traffic from this, and the numerous other projects in the area on the existing at-grade highway-rail crossings on Cyprus Road and Sellers Avenue.

The above-mentioned safety improvements should be considered when approval is sought for the new development. Working with Commission staff early in the conceptual design phase will help improve the safety to motorists and pedestrians in the City.

If you have any questions in this matter, please call me at (415) 703-2795.

Very truly yours,

Kevin Boles
Environmental Specialist
Rail Crossings Engineering Section
Consumer Protection and Safety Division

cc: John Stilley, BNSF Railroad

Knightsen School District

1923 Delta Road • P.O. Box 265
Knightsen, California 94548
(925) 625-0073
Fax: (925) 625-8766

ADMINISTRATION
VICKEY RINEHART
SUPERINTENDENT

THERESA ESTRADA
PRINCIPAL

BOARD OF TRUSTEES
BARBARA CECCHINI
FRANKLIN DELL
JAMES FRANK
DOROTHY WALTER
LIESEL WILLIAMS

May 31, 2007

Rachelle Henson, Senior Planner
City of Oakley
3231 Main Street
Oakley, Ca. 94561

RE: Environmental Report Impact Report for the Proposed Emerson Project

The Knightsen Elementary School District continues to have concerns regarding the planning for water for the developments in Oakley, including the Emerson Project. In the EIR for the Cypress Lakes Corridor, Diablo Water District was identified as being the provider of water for the development. Also listed was the possible use of well water, but that use of well water was never addressed in that EIR. The only comment made in that EIR was that there would be no negative effect on the Knightsen wells because Knightsen is so far away from the new developments. What they did not investigate was the taking of water from a Knightsen well to serve Oakley.

Diablo Water District uses surface water, and blends it with water from the Contra Costa Water District. In order to save money, they are looking to take ground water out of wells to blend with their water and serve the community of Oakley, which includes the Cypress Lakes Corridor and the Emerson Project. Diablo Water is currently investigating which wells to pump to get water to blend, and one of the wells they are considering is the Knightsen Community Well, which was originally built to serve only 50 homes.

Diablo Water is considering putting a larger pump on the Knightsen Community Well and pumping one million gallons a day to Oakley. The Knightsen Community Well is located at a similar depth to the well for the Knightsen Elementary School District, and there is a great concern that the school well, which is only 3 blocks from the Community well, will be negatively impacted in quantity and/or quality of water. There is no other source for water for 500 children and 60 staff members than the one school well.

We ask that in the EIR for the Emerson Project, as well as any future investigations for new developments and tentative map approvals, that the use of well water by Diablo Water to "blend" water for community use be thoroughly investigated. The grave concerns by the Knightsen Community for the town well and individual wells have resulted in possible legal action being taken against Diablo Water. So this is a very serious matter that needs to be addressed now.

Knightsen Knights

Another issue of concern involves traffic from the Emerson Property. Many people will choose to come down Knightsen Avenue, and turn on Delta Road in front of Knightsen Elementary School to try to take a "short cut" to Byron Highway. The traffic in front of school is an issue now, especially because of our small, substandard roads. We ask that this traffic problem also be addressed in the study.

Thank you for attention to these concerns.

Sincerely,

Vickey Rinehart

Vickey Rinehart
Superintendent

Cc:
Mary Piepho, Supervisor
Mike Yeraka, Manager, Diablo Water
Paul Thompson, Esq.

Department of Toxic Substances Control

Maureen F. Gorsen, Director
700 Heinz Avenue
Berkeley, California 94710-2721

Linda S. Adams
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

May 30, 2007

Ms. Rochelle Henson
Senior Planner
City of Oakley
3231 Main Street
Oakley, California 94561

Dear Ms. Henson:

The Department of Toxic Substances Control (DTSC) has reviewed the Notice of Preparation (NOP) of an Environmental Impact Report of May 14, 2007 for the Emerson Property project (SCH# 2007052073). As you may be aware, DTSC oversees the cleanup of hazardous substance release sites pursuant to the California Health and Safety Code, Division 20, Chapter 6.8. As a potential Responsible Agency, DTSC is submitting comments to ensure that the California Environmental Quality Act (CEQA) documentation prepared for this project adequately addresses any remediation of hazardous substance releases that might be required as part of the project.

The NOP states that the proposed project consists of construction of 662 residential dwellings, a 4-acre park, trails, a neighborhood shopping center, and associated infrastructure, including storm drains, levees, wastewater infrastructure, water supply infrastructure, and roadway improvements on the Emerson Property. The 140-acre Emerson Property is located adjacent to the Contra Costa Canal in the City of Oakley.

In a September 14, 2006 letter containing comments on the Draft EIR for the now-withdrawn Dutch Slough Properties project, DTSC noted that several locations on the Emerson Property, including the area in the vicinity of the pesticide shed, were identified as having the potential for soil and/or groundwater contamination. DTSC recommended that soil in the area of the pesticide shed on the Emerson property be sampled to verify that no release of pesticides had occurred in the area and that there are currently no pesticides present at concentrations that pose a significant risk to human health. DTSC advised that the sampling should not be contingent on the observation of stained or odoriferous soil. DTSC reiterates this recommendation.

In addition, DTSC recommends that the analytical results of any soil or groundwater sampling conducted at the site be presented in the Draft EIR. Any human health screening levels, such as the California Human Health Screening Levels (CHHSLs), or

the U.S. Environmental Protection Agency, Region 9, Preliminary Remediation Goals (PRGs), or risk evaluations that are used in making a determination whether detected contaminants are found at concentrations that pose a risk to human health or the environment should be identified and summarized.

DTSC can assist your agency in overseeing characterization and cleanup activities through our Voluntary Cleanup Program. A fact sheet describing this program is enclosed. We are aware that projects such as this one are typically on a compressed schedule, and in an effort to use the available review time efficiently, we request that DTSC be included in any meetings where issues relevant to our statutory authority are discussed.

Please contact Eileen Belding by phone at (510) 540-3844 or by email at ebelding@dtsc.ca.gov if you have any questions regarding the information presented in this letter. Thank you in advance for your consideration of our comments.

Sincerely,

Mark Piros

Mark Piros, P.E., Unit Chief
Northern California - Coastal Cleanup Operations Branch

Enclosure

cc: without enclosure

Governor's Office of Planning and Research
State Clearinghouse
P. O. Box 3044
Sacramento, California 95812-3044

Guenther Moskat
CEQA Tracking Center
Department of Toxic Substances Control
P.O. Box 806
Sacramento, California 95812-0806

California Environmental Protection Agency

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

The Voluntary Cleanup Program

In 1993, the California Environmental Protection Agency's Department of Toxic Substances Control (DTSC) introduced this streamlined program to protect human health and the environment, ensure investigation and cleanup is conducted in an environmentally sound manner and facilitate the reuse and redevelopment of these same properties. Using this program, corporations, real estate developers, other private parties, and local and state agencies entering into Voluntary Cleanup Program agreements will be able to restore properties quickly and efficiently, rather than having their projects compete for DTSC's limited resources with other lower-priority hazardous waste sites. This fact sheet describes how the Voluntary Cleanup Program works.

Prior to initiation of the Voluntary Cleanup Program, project proponents had few options for DTSC involvement in cleaning up low-priority sites. DTSC's statutory mandate is to identify, prioritize, investigate and cleanup sites where releases of hazardous substances have occurred. For years, the mandate meant that, if the site presented grave threat to public health or the environment, then it was listed on the State Superfund list and the parties responsible conducted the cleanup under an enforcement order, or DTSC used state funds to do so. Because of staff resource limitations, DTSC was unable to provide oversight at sites which posed lesser risk or had lower priority.

DTSC long ago recognized that no one's interests are served by leaving sites contaminated and unusable. The Voluntary Cleanup Program allows motivated parties who are able to fund the cleanup – and DTSC's oversight – to move ahead at their own speed to investigate and remediate their sites. DTSC has found that working cooperatively with willing and able project proponents is a more efficient and cost-effective approach to site investigation and cleanup. There are four steps to this process:

- √ **Eligibility and Application**
- √ **Negotiating the Agreement**
- √ **Site Activities**
- √ **Certification and Property Restoration**

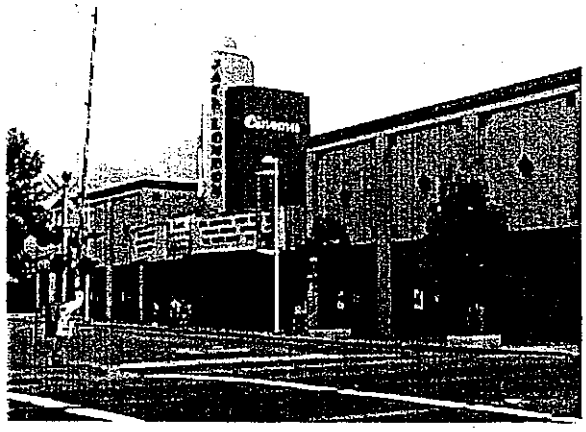
The rest of this fact sheet describes those steps and gives DTSC contacts.

August 1999

The Voluntary Cleanup Program

Step 1: Eligibility and Application

Most sites are eligible. The main exclusions are if the site is listed as a Federal or State Superfund site, is a military facility, or if it falls outside of DTSC's jurisdiction, as in the case where a site contains only leaking underground fuel tanks. Another possible limitation is if another agency currently has oversight, e.g. a county (for underground storage tanks). The current oversight agency must consent to transfer the cleanup responsibilities to DTSC before the proponent can enter into a Voluntary Cleanup Program agreement. Additionally, DTSC can enter into an agreement to work on a specified element of a cleanup (risk assessment or public participation, for example), if the primary oversight agency gives its consent. The standard application is attached to this fact sheet.



Jack London Square Theater, Oakland: Under the Voluntary Cleanup Program, a nine-screen theater was built atop a former Pacific Gas & Electric town gas site, creating a regional entertainment hub.

If neither of these exclusions apply, the proponent submits an application to DTSC, providing details about site conditions, proposed land use and potential community concerns. No fee is required to apply for the Voluntary Cleanup Program.

Romero Ranch, Santa Nella: A Voluntary Cleanup Agreement enabled the Nature Conservancy to use the land to preserve natural habitat and promote wildlife development rights.

Step 2: Negotiating the Agreement

Once DTSC accepts the application, the proponent meets with experienced DTSC professionals to negotiate the agreement. The agreement can range from services for an initial site assessment, to oversight and certification of a full site cleanup, based on the proponent's financial and scheduling objectives.

The Voluntary Cleanup Program agreement specifies the estimated DTSC costs, project scheduling, and DTSC services provided. Because every project must meet the same legal and technical cleanup requirements as State Superfund sites, and because DTSC staff provide oversight, the proponent is assured that the project will be completed in an environmentally sound manner.

August 1999

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF TOXIC SUBSTANCES CONTROL
SITE MITIGATION STATEWIDE CLEANUP OPERATIONS

VOLUNTARY CLEANUP PROGRAM APPLICATION

The purpose of this application is to obtain information necessary to determine the eligibility of the site for acceptance into the Voluntary Cleanup Program. Please use additional pages, as necessary, to complete your responses.

SECTION 1 PROPONENT INFORMATION

Proponent Name _____

Principal Contact Name

Phone ( )

Address _____

_____

Proponent's relationship to site

_____

_____

Brief statement of why the proponent is interested in DTSC services related to site

SECTION 2 SITE INFORMATION

Is this site listed on Calsites? ☐ Yes ☐ No
If Yes, provide specific name and number as listed

Name of Site _____

Address _____ City _____ County _____ ZIP _____

(Please attach a copy of an appropriate map page)

SECTION 2 SITE INFORMATION (continued)

Current Owner

Name _____

Address _____

Phone ( )

Background: Previous Business Operations

Name _____

Type _____

Years of Operation _____

If known, list all previous businesses operating on this property

_____

_____

_____

What hazardous substances/wastes have been associated with the site?

_____

_____

_____

What environmental media is/was/may be contaminated?

☐ Soil ☐ Air ☐ Groundwater ☐ Surface water

Has sampling or other investigation been conducted? ☐ Yes ☐ No

Specify

_____

_____

If Yes, what hazardous substances have been detected and what were their maximum concentrations?

_____

_____

_____

SECTION 2 SITE INFORMATION (continued)

Are any Federal, State or Local regulatory agencies currently involved with the site? ☐ Yes ☐ No
If Yes, state the involvement, and give contact names and telephone numbers

Agency	Involvement	Contact Name	Phone

What is the future proposed use of the site?

What oversight service is being requested of the Department?

☐ PEA ☐ RI/FS ☐ Removal Action ☐ Remedial Action ☐ RAP ☐ Certification
☐ Other (describe the proposed project)

Is there currently a potential of exposure of the community or workers to hazardous substances at the site?
☐ Yes ☐ No If Yes, explain

SECTION 3 COMMUNITY PROFILE INFORMATION

Describe the site property (include approximate size)

Describe the surrounding land use (including proximity to residential housing, schools, churches, etc.)

Describe the visibility of activities on the site to neighbors

SECTION 3 COMMUNITY PROFILE INFORMATION (continued)

What are the demographics of the community (e.g., socioeconomic level, ethnic composition, specific language considerations, etc.)?

Local Interest
Has there been any media coverage?

Past Public Involvement
Has there been any past public interest in the site as reflected by community meetings, ad hoc committees, workshops, fact sheets, newsletters, etc.?

Key Issues and Concerns
Have any specific concerns/issues been raised by the community regarding past operations or present activities at the site?

Are there any concerns/issues anticipated regarding site activities?

Are there any general environmental concerns/issues in the community relative to neighboring sites?

Key Contacts
Please attach a list of key contacts for this site, including: city manager; city planning department; county environmental health department, local elected officials; and any other community members interested in the site. (Please include addresses and phone numbers.)

SECTION 4 CERTIFICATION

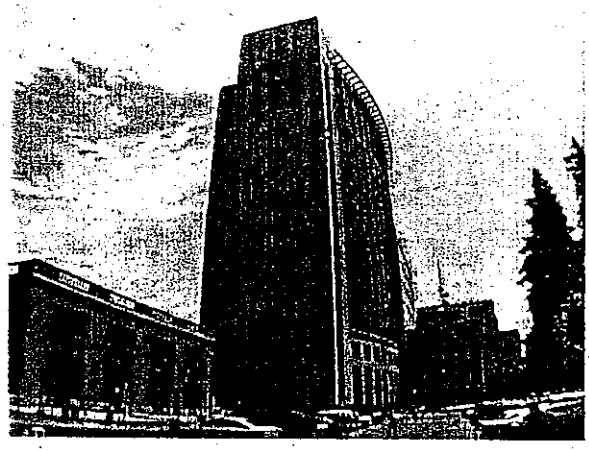
The signatories below are authorized representatives of the Project Proponent and certify that the preceding information is true to the best of their knowledge.

Proponent Representative Date Title

In the agreement, DTSC retains its authority to take enforcement action, if, during the investigation or cleanup, it determines that the site presents a serious health threat, and proper and timely action is not otherwise being taken. The agreement also allows the project proponent to terminate the Voluntary Cleanup Program agreement with 30 days written notice if they are not satisfied that it is meeting their needs.

Step 3: Site Activities

Prior to beginning any work, the proponent must have: signed the Voluntary Cleanup Program agreement; made the advance payment; and committed to paying all project costs, including those associated with DTSC's oversight. The project manager will track the project to make sure that DTSC is on schedule and within budget. DTSC will bill its costs quarterly so that large, unexpected balances should not occur.



The new Federal Courthouse, Sacramento: The largest construction project in the city's history benefited from the Voluntary Cleanup Program when cleaning up a railyard site.

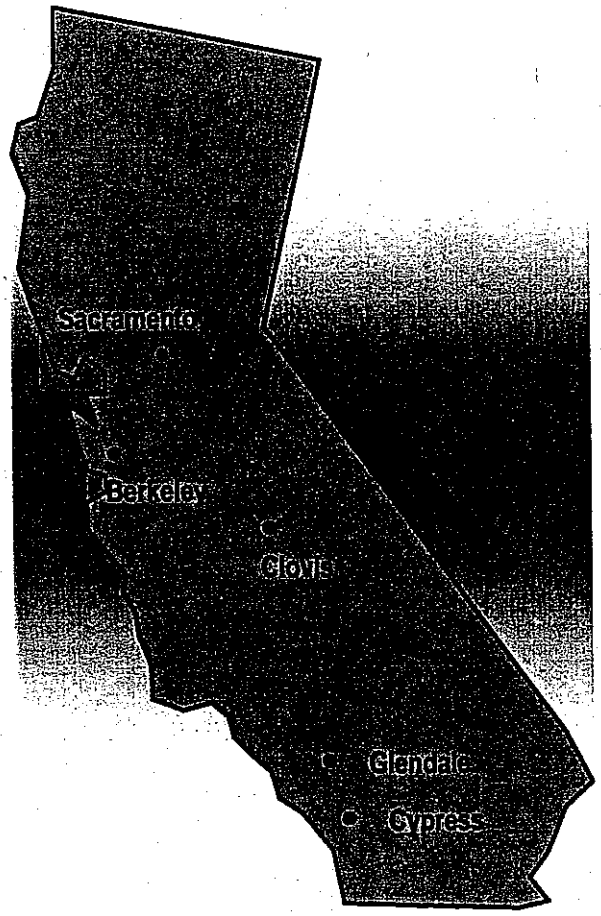
Once the proponent and DTSC have entered into a Voluntary Cleanup Program agreement, initial site assessment, site investigation or cleanup activities may begin. The proponent will find that DTSC's staff includes experts in every vital area. The assigned project manager is either a highly qualified Hazardous Substances Scientist or Hazardous Substances Engineer. That project manager has the support of well-trained DTSC toxicologists, geologists, engineers, industrial hygienists, specialists in public participation, and other technical experts.

The project manager may call on any of these specialists to join the team, providing guidance, review, comment and, as necessary, approval of individual documents and other work products. That team will also coordinate with other agencies, as appropriate, and will offer assistance in complying with other laws as needed to complete the project.

Step 4: Certification and Property Restoration

When remediation is complete, DTSC will issue either a site certification of completion or a "No Further Action" letter, depending on the project circumstances. Either means that what was, "The Site," is now property that is ready for redevelopment or other reuse.

To learn more about the Voluntary Cleanup Program, contact the DTSC representative in the Regional office nearest you:



DTSC office locations

North Coast California
Lynn Nakashima / Janet Naito
700 Heinz Avenue, Suite 200
Berkeley, California 94710-2721
(510) 540-3839 / (510) 540-3833

Central California
Megan Cambridge
10151 Croydon Way, Suite 3
Sacramento, California 95827
(916) 255-3727

Central California – Fresno Satellite
Tom Kovac
1515 Tollhouse Road
Clovis, California 93611
(209) 297-3939

Southern California (Glendale and Cypress)
Rick Jones
1011 Grandview Avenue
Glendale, California 91201
(818) 551-2862

Additional information on the Voluntary Cleanup Program and other DTSC Brownfields initiatives is available on DTSC's internet web page:

http://www.dtsc.ca.gov

State of California – The Resources Agency
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
POST OFFICE BOX 47
YOUNTVILLE, CALIFORNIA 94599
(707) 944-5500

ARNOLD SCHWARZENEGGER, Governor

May 30, 2007

Ms. Rochelle Henson
City of Oakley
3231 Main Street
Brentwood, CA 94561
Via Fax (925) 625-9194

Dear Ms. Henson:

Subject: Emerson Property Project-Notice of Preparation, City of Oakley, Contra Costa County

Department of Fish and Game (DFG) personnel have reviewed the Emerson Property Project Notice of Preparation (NOP) dated May 14, 2007, Oakley, Contra Costa County. The project proposes development of an approximate 140-acre parcel for 662 residential units and a commercial center.

The project site provides suitable habitat for native species and is the planning area of the draft Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP) for East Contra Costa County. To reduce unavoidable impacts to less than significant, land which contributes to local conservation of the affected species and habitat types will need to be acquired and managed in perpetuity.

As an alternative to the applicant independently proposing and implementing an off-site mitigation program that is located proximate to the project site and that addresses mitigation requirements, the applicant may propose to meet biological mitigation obligations through early compliance with the HCP/NCCP. Under such an alternative, the applicant could pay the fee anticipated under the HCP/NCCP. If necessary, the fee could be held in an interim account until the HCP/NCCP is finalized and then used by the local agencies implementing the HCP/NCCP to acquire and restore habitat in the first year of implementation.

This alternative may greatly assist successful implementation of an HCP/NCCP, which we believe holds enormous potential, allowing for orderly development while providing for meaningful habitat conservation in eastern Contra Costa County. For these reasons, DFG is willing to consider pre-payment of a fee in lieu of independent mitigation.

Seven local agencies have approved the HCP/NCCP effort, including the City of Oakley, and resource agencies that have permitting authority over the proposed project, including DFG and the U. S. Fish and Wildlife Service, are finalizing permits. Habitat models and the conservation strategy developed for the HCP/NCCP are available and should be used in planning and review of any interim projects in the area. The City of Oakley, as lead agency, should require mitigation that is consistent with the conservation strategy identified in the HCP/NCCP.

Again, all mitigation should be consistent with the conservation strategy outlined in the HCP/NCCP documents and the mitigation requirements should be specifically included in the

conditions of approval for this project. Avoidance of impacts only during the breeding season as currently described in the document do not lower the impacts to a level of less-than-significant as required by the California Environmental Quality Act (CEQA). Therefore, the CEQA document is inadequate as written and should not be adopted by the City of Oakley.

We appreciate your consideration of our comments. DFG personnel are available to discuss our concerns. If you have any questions regarding our comments, please call Janice Gan, Environmental Scientist, at (209) 835-6910; or Scott Wilson, Acting Environmental Program Manager, at (707) 944-5584.

Sincerely,

Charles Armor
Acting Regional Manager
Bay Delta Region

cc: Ms. Sheila Larsen
U. S. Fish and Wildlife Service
2800 Cottage Way, W2605
Sacramento, CA 95825

Mr. Ryan Olah
U. S. Fish and Wildlife Service
2800 Cottage Way, W2605
Sacramento, CA 95825

June 4, 2007

OAKLEY UNION
ELEMENTARY SCHOOL DISTRICT
91 Mercedes Lane
Oakley, CA 94561
Phone: 925.625.0700
Fax: 925.625.1863

Via Hand Delivery and U.S. Mail
Ms. Rochelle Henson
City of Oakley
3231 Main Street
Oakley, CA 94561

Re: NOP Response Emerson Project

Dear Ms. Henson:

Thank you for the opportunity to review the Notice of Preparation of an EIR for the Emerson project. This project proposes 662 single family housing units. The District's current student yield rate is 0.482 for K-5 and 0.238 for 6-8, which will generate the following number of students:

Grade Level	Units	Yield Rate	Students Generated
K-5	662	0.482	319
6-8	662	0.238	157

As you know, the District has been working with the developers in this area to provide an elementary school within the boundaries of the entire Dutch Slough area. The original Dutch Slough properties proposed 1,242 dwelling units. Based upon a K-5 yield rate of 0.482, nearly 600 elementary school students would be generated. A school site had been designated and the Dutch Slough properties had progressed to the point of an EIR being completed on the project; however, the overall Dutch Slough properties have been put on hold on November 28, 2006 as noted in your NOP. The school site that had been designated in the Gilbert Property has been eliminated and replaced with a community park and storm water retention pond. It is the District's position that there still needs to be an elementary school designated in this area in order to serve the entire Dutch Slough properties, as originally proposed. The cumulative new student impact associated with the Emerson Project and the Gilbert Projects are as follows:

Project	Grade Level	Projected Students
Emerson	K-5	319
Gilbert	K-5	244
Total		**563**

As an alternative to the school site originally designated in the Gilbert Property, the District has been contacted by the City of Oakley to consider the possibility of moving the school site just north adjacent to the Dutch Slough properties in an area being considered for a future regional park. In evaluation of this alternative, the City has provided an engineering report from ENGEO analyzing a number of school siting constraints. Before a formal evaluation of any alternative school site can be completed, the District will need to have a definite understanding of any mitigation and associated costs that might be necessary in relocating the school site. Any differences in cost between the original school site and an alternative school site for mitigating environmental and access issues will need to be included in the relocation agreement if the

District agrees with the new school site location. The Oakley Union Elementary School District Board of Education will need to make the final decision on any alternative school site located outside of the Emerson and Gilbert properties. The Oakley Union School District strongly urges that a school site be a neighborhood school where the students can easily access it without crossing major streets or having to cross a levy and water channel.

In summary, the District requests that the Draft EIR for the Emerson project discuss:

1. The number of students generated from this project.
2. The future school needs of the District and the cumulative affect from this project and other projects that are either approved, pending approval or are being proposed in the District.
3. The need for a new school site that would serve this project and all school alternative site locations.
4. The cost for providing school facilities for this project and the alternatives available to the District in funding these facilities.

The District feels that approval of this project without the designation of an acceptable school site would create a significant adverse impact.

Thank you very much. The District looks forward to working with you and the developers to resolve this issue.

Sincerely,

Richard K. Rogers, Ed.D.
Superintendent

Department of Energy
Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, California 95630-4710

MAY 23 2007

Ms. Rochell Henson
Senior Planner
City of Oakley
3231 Main Street
Oakley, CA 94561

Dear Ms. Henson:

Thank you for the opportunity to comment on the Notice of Preparation of an Environmental Impact Report for the Proposed Emerson Property Project. The United States Department of Energy, Western Area Power Administration (Western), does not have any objections to the proposed use of Western's Tracy-Contra Costa 69-kilovolt transmission line easement provided the project does not interfere with our easement rights and are in accordance with our general guidelines. The developers should obtain license agreements from Western prior to construction. Please have the developer submit the Project specific improvement plans to Western for review and approval prior to construction.

Enclosed is a copy of Western's general guidelines for the use of the easement area. If you have any questions, please contact Ms. Susan Sinclair at (916) 353-4600.

Sincerely,

Heidi R. Miller
Realty Specialist

Enclosure

WESTERN AREA POWER ADMINISTRATION
GENERAL GUIDELINES CONCERNING THE USE OF
ELECTRIC TRANSMISSION LINE RIGHTS-OF-WAY

RE: Tracy-Contra Costa 69-kV Transmission Line

Western Area Power Administration (Western) owns an easement along the length of the referenced transmission line. Western's rights within the easement include the right to construct, reconstruct, operate, maintain, and patrol the transmission line.

Rights usually reserved to the landowner include the right to cultivate, occupy, and use the land for any purpose that does not conflict with Western's use of its easement. To avoid potential conflicts, it is Western's policy to review all proposed uses within the transmission line easement. We consider (1) Safety of the public, (2) Safety of our Employees, (3) Restrictions covered in the easement, (4) Western's maintenance requirements, and (5) Protection of the transmission line structures and (6) Road or street crossings.

The outline below lists the considerations covered in the review. Please note that some items may overlap. This outline has been prepared only as a guide; each right-of-way encroachment is evaluated on an individual basis.

1. Safety Of The Public

   A. Approval depends, to a large extent, on the type and purpose of the development. Western takes our obligation to public safety very seriously. To insure our obligation, any use of the easement that will endanger the public will not be allowed or strongly discouraged (e.g., kite flying is prohibited).

   B. Metal fences must be grounded in accordance with applicable safety codes.

   C. Lighting standards shall not exceed a maximum height of 15 feet and not placed directly under the conductors (wires). All lighting standards must be grounded.

   D. All vegetation on the easement shall not exceed a maximum height of 12 feet at maturity.

   E. Structures are not allowed on the easement. Structures include, but are not limited to, buildings, sheds, swimming pools, basketball courts, tennis courts, gazebos, etc.

   F. No ground elevation changes are allowed which would reduce the ground to conductor clearance below 30 feet.

2. Safety Of Our Employees

Vegetation and encroachments into our right-of-way requires our crews to take action, which places them at risk. Therefore, any vegetation or encroachments that present a risk to our employees will not be allowed.

3. Restrictions Covered In The Easement

The easement prohibits the following: (1) any use that will interfere with or damage the equipment of the United States, (2) digging or drilling of a well, (3) erecting buildings or structures, (4) placing or piling up material within the easement boundaries. The easement gives Western the right to remove trees, brush or other objects interfering with the safe operation and maintenance of the line.

4. Maintenance Requirements

A. Berms shall not be placed next to the base of the transmission line tower.

B. Any proposed improvements to the easement (including grading, parking lot, lighting, landscaping, fences, etc.), must be reviewed by Western to assure that they will not interfere with the safe operation and maintenance of the transmission line.

C. A 14-foot gate is required in any fences that cut off access along our easement.

D. Thirty (30) feet of unobstructed access is to be maintained around towers.

5. Protection Of The Transmission Line Structure (Towers, Guy Wires, etc.)

A. If the proposed use increases the possibility of a motor vehicle hitting the transmission line structure, an appropriate guard rail shall be installed to protect the structure (e.g., parking lots or roads).

B. Trench digging, which would weaken or damage the structure, is prohibited.

C. No ground elevation changes are allowed within 20 feet of the structure, and in no case shall the conductor to ground clearance be reduced below code limitation.

6. Roads Or Street Crossings

Western's policy is to have roads or streets cross the easement at right angles, or as nearly at right angles as possible, so that a minimum area of the road or street lies within the transmission line easement.

Requests for permission to use the transmission line right-of-way should be submitted to: Western Area Power Administration, Sierra Nevada Regional Office, Attn: Realty Officer, 114 Parkshore Drive, Folsom, CA 95630.

FAX
(925) 625-0169

IRONHOUSE SANITARY DISTRICT
450 Walnut Meadows Drive • P.O. Box 1105 • Oakley, CA 94561

Telephone
(925) 625-2279

May 23, 2007

Ms. Rochelle Henson
City of Oakley
3231 Main Street
Oakley, CA 94561

SUBJECT: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED EMERSON PROPERTY PROJECT

Dear Ms. Henson,

The brief write-up in the NOP regarding the wastewater system is incorrect. The current thinking for the Emerson Property is for flows from the project to be routed to a new Regional Pump Station currently proposed on the Gilbert Property. Individual pump stations pumping into the existing 14-inch forcemain is not acceptable to Ironhouse Sanitary District (ISD).

Attached to this letter are comments ISD provided when reviewing the Tentative Vesting Map for the Emerson Property. ISD would appreciate these comments being addressed in the Environmental Impact Report.

If you wish to discuss the project further, please call.

Sincerely,
IRONHOUSE SANITARY DISTRICT

Jennifer M. Skrel
District Engineer

STATE OF CALIFORNIA—THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, *Governor*

DELTA PROTECTION COMMISSION
14215 RIVER ROAD
P.O. BOX 530
WALNUT GROVE, CA 95690
Phone (916) 776-2290
FAX (916) 776-2293
E-Mail: dpc@citlink.net Home Page: www.delta.ca.gov

June 19, 2007

RECEIVED
JUN 22 2007
CITY OF OAKLEY

Ms. Rochelle Henson, Senior Planner
City of Oakley
3231 Main Street
Oakley, California 94561

Dear Ms. Henson:

Subject: Notice of Preparation for Emerson Property Project, City of Oakley, Contra Costa County, (SCH #2007052073)

The staff of the Delta Protection Commission (Commission) has reviewed the subject document. From the information provided, the proposed project would be located in the Secondary Zone of the Legal Delta. However, any potential impacts to the resources of the Primary Zone of the Legal Delta resulting from activities in the Secondary Zone should be identified and analyzed. Therefore, the following comments are provided for consideration during the environmental review and project approval process.

The Delta Protection Act (Act) was enacted in 1992 in recognition of the increasing threats to the resources of the Primary Zone of the Delta from urban and suburban encroachment having the potential to impact agriculture, wildlife habitat, and recreation uses. Pursuant to the Act, a Land Use and Resource Management Plan (Management Plan) for the Primary Zone was completed and adopted by the Commission in 1995.

The Management Plan sets out findings, policies, and recommendations resulting from background studies in the areas of environment, utilities and infrastructure, land use, agriculture, water, recreation and access, levees, and marine patrol/boater education/safety programs. As mandated by the Act, the policies of the Management Plan are incorporated in the General Plans of local entities having jurisdiction within the Primary Zone, including Contra Costa County. The Act and Management Plan are available at the Commission's website, www.delta.ca.gov.

The sections of the Management Plan that are applicable to this proposal include, but are not limited to:

Land Use:

- Policy 3: New residential, recreational, commercial, or industrial development shall ensure that appropriate buffer areas are provided by those proposing new development to prevent conflicts between any proposed use and existing agricultural use. Buffers shall adequately protect integrity of land for existing and future agricultural uses. Buffers may include berms and vegetation, as well as setbacks of 500 to 1,000 feet.

- Recommendation 5: To the extent possible, any development in the Secondary Zone should include an appropriate buffer zone to prevent impacts of such development on the lands in the Primary Zone. Local governments should consider needs of agriculture in determining such a buffer.

Water:
- Recommendation 2: Delta water rights should be respected and protected.

Levees:
- Policy 1: Local governments shall ensure that Delta levees are maintained to protect human life, to provide flood protection, to protect private and public property, to protect historic structures and communities, to protect riparian and upland habitat, to promote interstate and intrastate commerce, to protect water quality in the State and federal water projects, and to protect recreational use of the Delta area. Delta levee maintenance and rehabilitation shall be given priority over other uses of the levee areas. To the extent levee integrity is not jeopardized, other uses, including support of vegetation for wildlife habitat, shall be allowed.
- Policy 5: Local governments shall use their authority to control levee encroachments that are detrimental to levee maintenance.

Recreation and Access
- Policy 3: Local governments shall develop siting criteria for recreation projects which will ensure minimal adverse impacts on: agricultural land uses, levees, and public drinking water supply intakes, and identified sensitive wetland and habitat areas.
- Policy 9: Local governments shall encourage new recreation facilities that take advantage of the Delta's unique characteristics.
- Recommendation 3: New projects in the Secondary Zone, adjacent to the Primary Zone, should include commercial and public recreation facilities which allow safe, supervised access to and along the Delta waterways (pedestrian and bike trails, launch ramps including small boat launch ramps, windsurfing access, overlooks, nature observation areas, interpretive information, picnic areas, etc.).
- Recommendation 7: Local governments should develop design guidelines for new or enlarged recreation facilities to protect adjacent agricultural land uses.

Thank you for the opportunity to review and submit comments on this project. Please continue to send me information on the project as the review process progresses. You may contact me at (916) 776-2290 or lindadpc@citlink.net if you have any questions about the Commission or the contents provided herein.

Sincerely,

Linda Fiack

Linda Fiack
Executive Director

cc: State Clearinghouse

STATE OF CALIFORNIA, RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

DEPARTMENT OF CONSERVATION

DIVISION OF LAND RESOURCE PROTECTION

801 K STREET • MS 18-01 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 324-0850 • FAX 916 / 327-3430 • TDD 916 / 324-2555 • WEBSITE conservation.ca.gov

June 18, 2007

VIA FACSIMILE (925) 625-9194
Rochelle Henson
City of Oakley
3231 Main Street
Oakley, CA 94561

Subject: Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the Emerson Property Project **SCH#2007052073**

Dear Ms. Henson:

The Department of Conservation's Division of Land Resource Protection (Division) monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. The Division has reviewed the above NOP and offers the following recommendations for the DEIR with respect to the project's potential impacts on agricultural land.

The proposed project involves development of 140 acres for residential, commercial, trails, parks, levees, storm water detention pond, and related infrastructure. The NOP notes that the Land Use chapter of the DEIR would evaluate land use and agricultural resources. Therefore, the Division recommends that, at a minimum, the following items be specifically addressed to document and treat the project impacts on agricultural land and land use.

Agricultural Setting of the Project
The DEIR should describe the project setting in terms of the actual and potential agricultural productivity of the land. The Division's Contra Costa Important Farmland Map, which defines farmland according to soil attributes and land use, may be used for this purpose. In addition, we recommend including the following information to characterize the agricultural land resource setting of the project.

- Current and past agricultural use of the project area. Include data on the types of crops grown, and crop yields and farmgate sales values.
- To help describe the full agricultural resource value of the soils on the site, we recommend the use of economic multipliers to assess the total contribution of the site's potential or actual agricultural production to the local, regional and state

economies. State and Federal agencies such as the UC Cooperative Extension Service and USDA are sources of economic multipliers.

Project Impacts on Agricultural Land

- Type, amount, and location of farmland conversion resulting directly and indirectly (growth-inducement) from project implementation.
- Impacts on current and future agricultural operations; e.g., land-use conflicts, increases in land values and taxes, vandalism, etc.
- Incremental project impacts leading to cumulatively considerable impacts on agricultural land. This would include impacts from the proposed project as well as impacts from past, current and probable future projects.

Impacts on agricultural resources may also be quantified and qualified by use of established thresholds of significance (California Code of Regulations Section 15064.7). The Division has developed a California version of the USDA Land Evaluation and Site Assessment (LESA) Model, a semi-quantitative rating system for establishing the environmental significance of project-specific impacts on farmland. The model may also be used to rate the relative value of alternative project sites. The LESA Model is available on the Division's website noted later in this letter.

Mitigation Measures and Alternatives

Feasible alternatives to the project's location or configuration that would lessen or avoid farmland conversion impacts should be considered in the DEIR. Similarly, while the direct conversion of agricultural land is often deemed to be an unavoidable impact by California Environmental Quality Act (CEQA) analyses, mitigation measures must nevertheless be considered. The Division recommends the consideration of the purchase of agricultural conservation easements on land of at least equal quality and size as partial compensation for the direct loss of agricultural land, as well as for the mitigation of growth inducing and cumulative impacts on agricultural land. We highlight this measure because of its growing acceptance and use by lead agencies as mitigation under CEQA.

Mitigation using conservation easements can be implemented by at least two alternative approaches: the outright purchase of conservation easements tied to the project, or via the donation of mitigation fees to a local, regional or statewide organization or agency, including land trusts and conservancies, whose purpose includes the purchase, holding and maintenance of agricultural conservation easements. For example, the California Farmland Conservancy Program is authorized to accept donations of funds if the Department of Conservation is the designated beneficiary and it agrees to use the funds for purposes of the program in a county specified by the donor. Whatever the approach, the conversion of agricultural land should be deemed an impact of at least

regional significance and the search for mitigation lands conducted regionally, and not limited strictly to lands within the Oakley area.

Information about conservation easements is available on the Division's website, or by contacting the Division at the address and phone number listed below. The Division's website address is

http://www.conservation.ca.gov/DLRP/

The following mitigation measures could also be considered:

- Increasing home density or clustering residential units to allow a greater portion of the development site to remain in agricultural production.
- Protecting nearby farmland from *premature* conversion through the use of less than permanent long-term restrictions on use such as 20-year Farmland Security Zone contracts (Government Code Section 51296) or 10-year Williamson Act contracts (Government Code Section 51200 et seq.).
- Establishing buffers such as setbacks, berms, greenbelts, and open space areas to separate farmland from incompatible urban uses.
- Investing in the commercial viability of the remaining agricultural land in the project area through a mitigation bank which invests in agricultural infrastructure, water supplies and marketing.

Thank you for the opportunity to comment on the NOP. If you have questions on our comments, or require technical assistance or information on agricultural land conservation, please contact the Division at 801 K Street, MS 18-01, Sacramento, California 95814; or, phone (916) 324-0850.

Sincerely,

Brian Leahy
Assistant Director

cc: Contra Costa Resource Conservation District
5552 Clayton Road
Concord, CA 94521

STATE OF CALIFORNIA
Arnold Schwarzenegger, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

June 19, 2007

Rochelle Henson
City of Oakley
3231 Main Street
Oakley, CA 94561

RE: Emerson Property Project, SCH# 2007052073

Dear Ms. Henson:

As the state agency responsible for rail safety within California, we recommend that any development projects planned adjacent to or near the rail corridor in the City be planned with the safety of the rail corridor in mind. New developments may increase traffic volumes not only on streets and at intersections, but also at at-grade highway-rail crossings. This includes considering pedestrian circulation patterns/destinations with respect to railroad right-of-way.

Safety factors to consider include, but are not limited to, the planning for grade separations for major thoroughfares, improvements to existing at-grade highway-rail crossings due to increase in traffic volumes and appropriate fencing to limit the access of trespassers onto the railroad right-of-way. Any project that includes a modification to an exiting crossing or proposes a new crossing is legally required to obtain authority to construct from the Commission.

Of specific concern is the potential cumulative impact from increased traffic from this and the numerous other projects occurring in the vicinity on the existing at-grade highway-rail crossings on Sellers Avenue and E. Cypress Road. A nexus-based fair-share impact fee from many projects could be used to perform preliminary engineering for a new grade-separation to facilitate the acquisition of State funds.

The above-mentioned safety improvements should be considered when approval is sought for the new development. Working with Commission staff early in the conceptual design phase will help improve the safety to motorists and pedestrians in the County.

If you have any questions in this matter, please call me at (415) 703-2795.

Very truly yours,

Kevin Boles
Environmental Specialist
Rail Crossings Engineering Section
Consumer Protection and Safety Division

cc: John Stilley, BNSF, Railroad

APPENDIX C

Initial Study

Emerson Property

Prepared for:

CITY OF OAKLEY

AUGUST 2008

Prepared by

RANEY PLANNING & MANAGEMENT, INC.

TABLE OF CONTENTS

INITIAL STUDY

August 2008

A. BACKGROUND

1.	Project Title:	Emerson Property
2.	Lead Agency Name and Address:	City of Oakley Community Development Department 3231 Main Street Oakley, CA 94561
3.	Contact Person and Phone Number:	Rebecca Willis Community Development Director (925) 625-7000
4.	Project Location:	North of Cypress Road, east Cypress Grove Project, west of Gilbert and Burroughs Properties City of Oakley Contra Costa County
5.	Project Sponsor's Name and Address:	New Urban Communities/ Emerson and Burroughs, LLC 333 Civic Drive Pleasant Hill, CA 94523
6.	Owner's name and address:	Emerson Properties 1120 Second Street, Suite 114 Brentwood, CA 94513
7.	Existing General Plan Designations:	Single Family High Single Family Medium Multi-Family High Commercial
7.	Proposed General Plan Designations:	Single Family High Single Family Medium Commercial
8.	Existing Zoning:	Heavy Agriculture (A-3)
9.	Proposed Zoning:	Planned Unit Development (P-1)

10. Project Description Summary:

The proposed 140-acre Emerson Property project would develop a property located in the City of Oakley, Contra Costa County, California and would include approximately 578 residential units. In addition, the proposed project includes a 23.74-acre neighborhood shopping center located at the southeast corner of the project site adjacent to Cypress Road and Sellers Avenue.

B. SOURCES

The following documents are referenced information sources utilized by this analysis:

1. Basin Research Associates. *Archaeological Resource Assessment* (Emerson). June 30, 2004.
2. Balance Hydrologics. *Preliminary Stormwater Management Plan* (Emerson). October 27, 2005.
3. City of Oakley. *City of Oakley 2020 General Plan*. December 2002.
4. City of Oakley. *City of Oakley General Plan Background Report*. September 2001.
5. City of Oakley. *City of Oakley General Plan EIR.* September 2002.
6. City of Oakley. *City of Oakley Zoning Code*. November 2005.
7. Engeo Incorporated. *Environmental Site Assessment Update.* June 21, 2004.
8. Engeo Incorporated. *Phase 1 Environmental Site Assessment.* August 23, 1999.
9. Engeo Incorporated. *Geotechnical Investigation Report* (Emerson). March 4, 2005
10. Sycamore Associates, LLC. *Biological Resource Analysis*. June 27,2005.
11. USDA Soil Conservation Service. *Contra Costa County Soil Survey.* 1973.

C. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is "Potentially Significant" as indicated by the checklist on the following pages.

✖ **Aesthetics**	✖ **Agriculture**	✖ **Air Quality**
✖ **Biological Resources**	✖ **Cultural Resources**	✖ **Geology/Soils**
✖ **Hazards & Hazardous Materials**	✖ **Hydrology/Water Quality**	✖ **Land Use & Planning**
☐ **Mineral Resources**	✖ **Noise**	✖ **Population & Housing**
✖ **Public Services**	✖ **Recreation**	✖ **Transportation & Circulation**
✖ **Utilities/Service Systems**	✖ **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.

_____	_____
Signature	Date
_____	City of Oakley
Printed Name	For

E. BACKGROUND AND INTRODUCTION

This Initial Study identifies and analyzes the potential environmental impacts of the proposed project. The information and analysis presented in this document is organized in accordance with the order of the CEQA checklist in Appendix G of the CEQA Guidelines. If the analysis provided in this document identifies potentially significant environmental effects of the project, mitigation measures that should be applied to the project are prescribed.

The environmental setting and impact discussion for each section of this Initial Study have been largely based on information in the *Oakley General Plan Environmental Impact Report, 2003 Development Agreement* and *IS/MND,* and the *Oakley 2020 General Plan*. In addition, a series of detailed technical reports, prepared specifically for the Emerson Property project by subconsultants, are utilized where appropriate.

F. PROJECT DESCRIPTION

The proposed 140-acre Emerson Property project would develop a property located in the City of Oakley, Contra Costa County, California (See Figure 1). The proposed project site is on the north side of Cypress Road, east of the approved and partially developed Cypress Grove project, Delta Vista Middle School and Iron House Elementary School (See Figure 2). The project site is bounded on the north by the Contra Costa Water District Canal (CCWD/USBR Canal), which segregates the project site from the open space acreage to the north currently owned by the State of California, and is bordered on the immediate west by agricultural land. A 55-acre portion of land immediately to the north of the CCWD/USBR canal and the project site at the end of Sellers Avenue is held in escrow, pursuant to a Memorandum of Understanding and Development Agreement, for future conveyance to the City of Oakley as a community park.

The proposed project includes approximately 578 residential units, consisting of single-family and multi-family residential units in five neighborhoods with varying lot sizes (See Figure 3). One neighborhood would consist of 71 single-family lots, each approximately 6,000 square feet in area. The second neighborhood would include 193 single-family lots, each approximately 4,800 square feet in area. The third neighborhood would include 99 lots, each approximately 4,000 square feet in area. The fourth neighborhood would include 117 single-family lots, each approximately 3,800 square feet in area. The fifth neighborhood would include 98 lots, each approximately 3,500 square feet in area.

In addition, the proposed project includes a 23.74-acre neighborhood shopping center located at the southeast corner of the project site adjacent to Cypress Road and Sellers Avenue (See Figure 4). The commercial portion of the site is proposed to accommodate approximately 278,046 square feet, which would include pads for four major retail tenants, a garden center, two retail pads for smaller shops, and four smaller pads located in the southern portion of the site for restaurants, banks or similar uses. The commercial portion of the site would have signalized access to Cypress Road and would be designed to complement the architectural character of the neighborhood and provide appropriate landscaping and buffers.

Figure 1
Regional Location Map

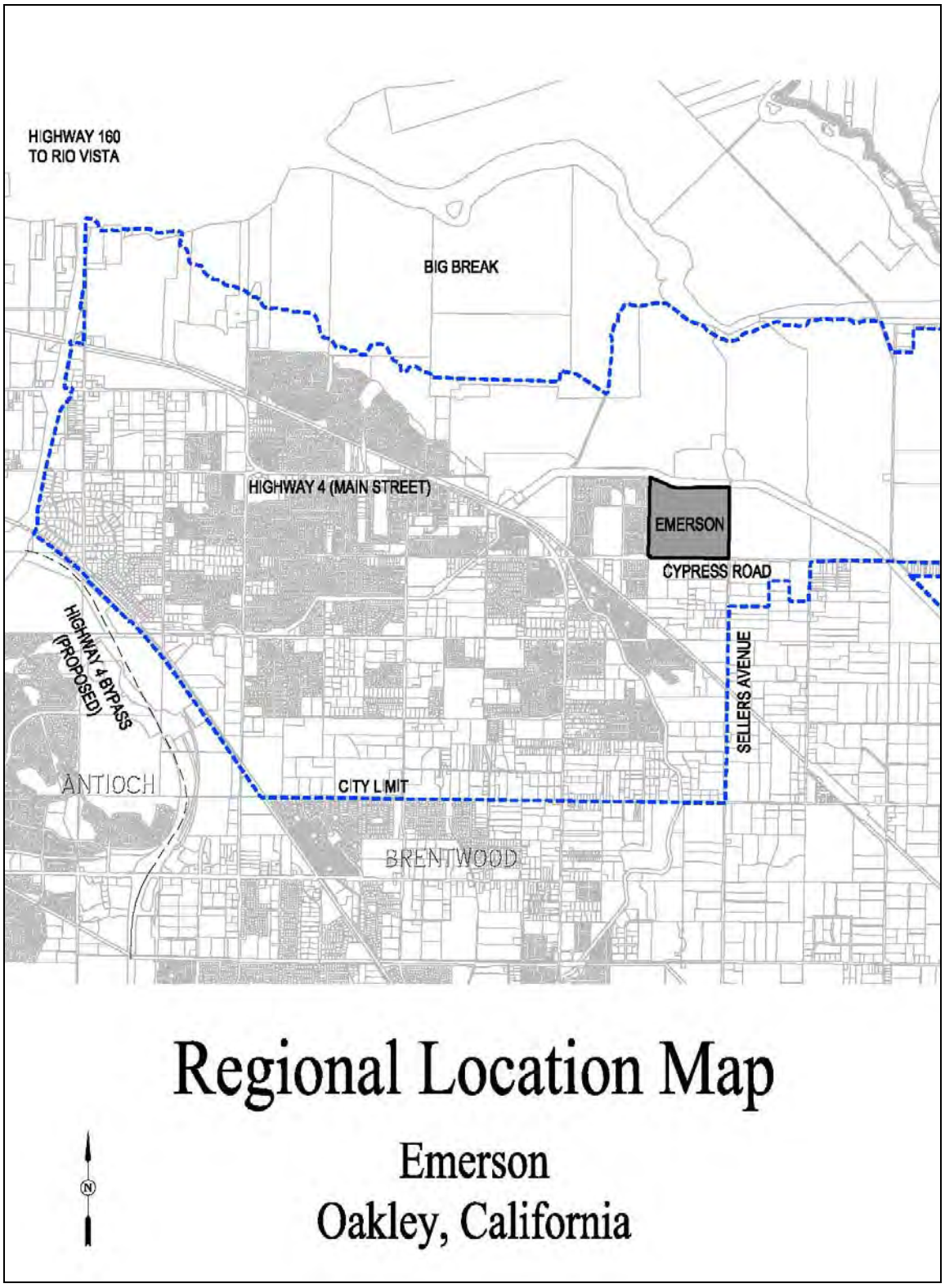


Figure 2
Project Location Map

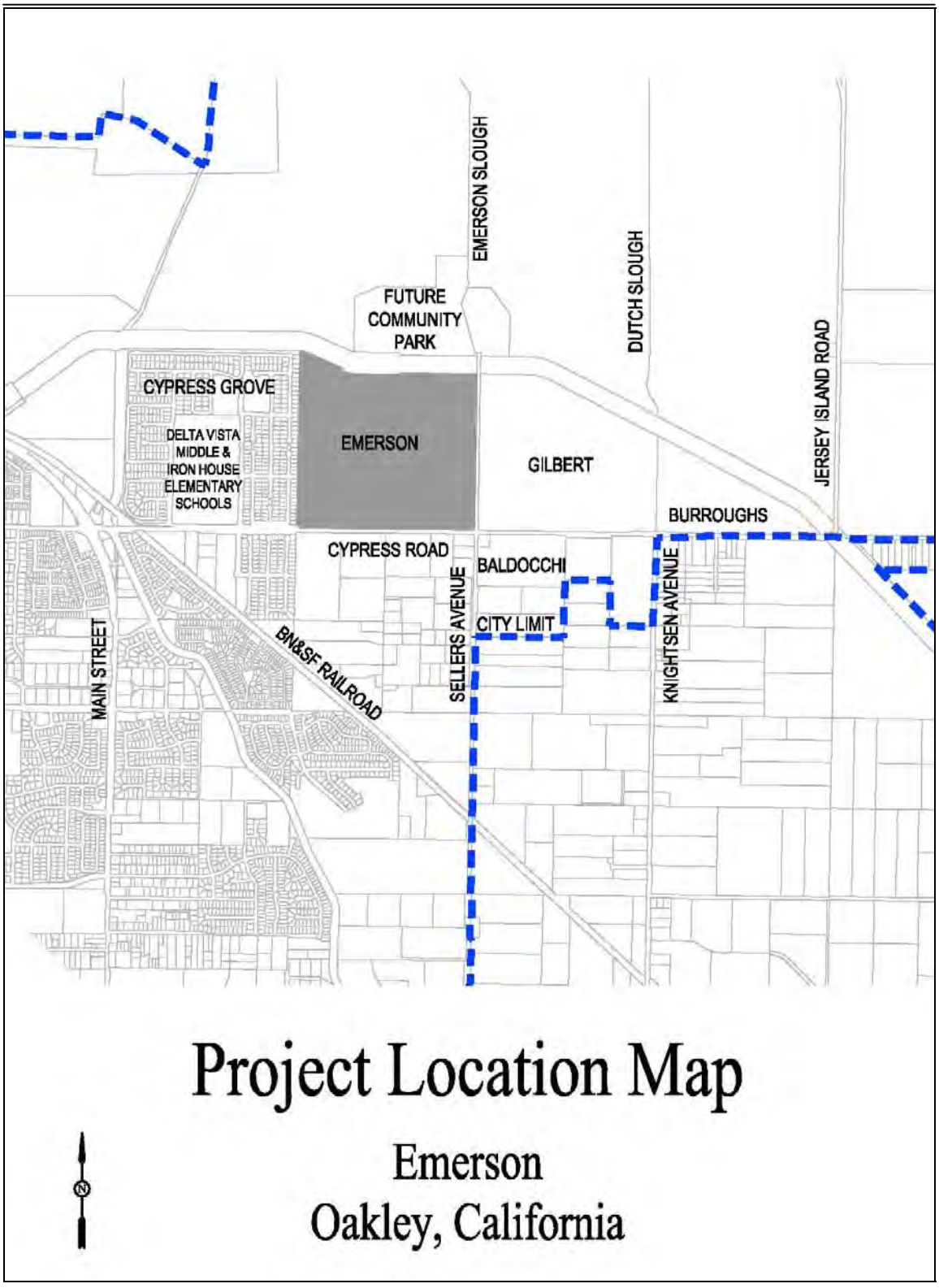


Figure 3
Emerson Property Vesting Tentative Map

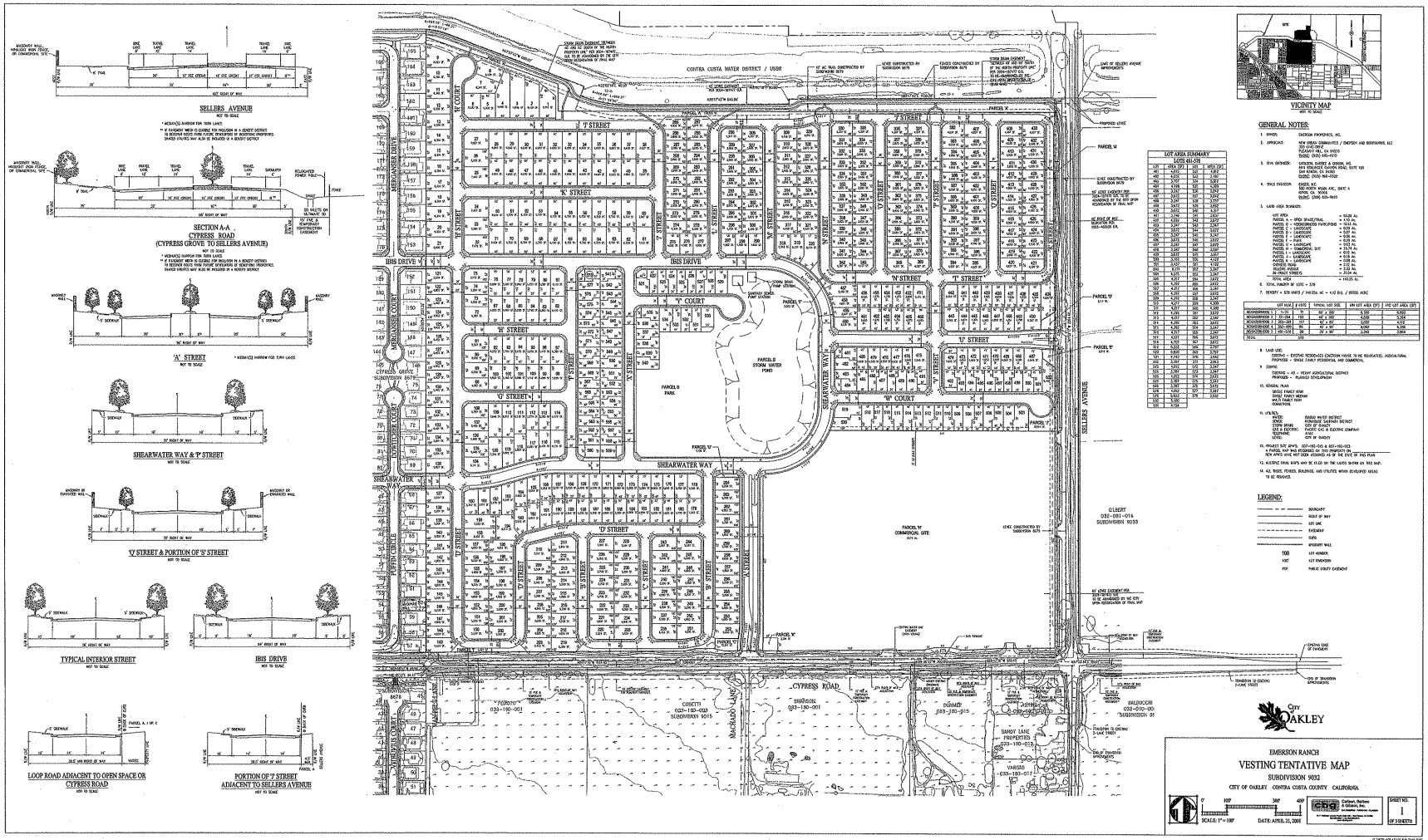
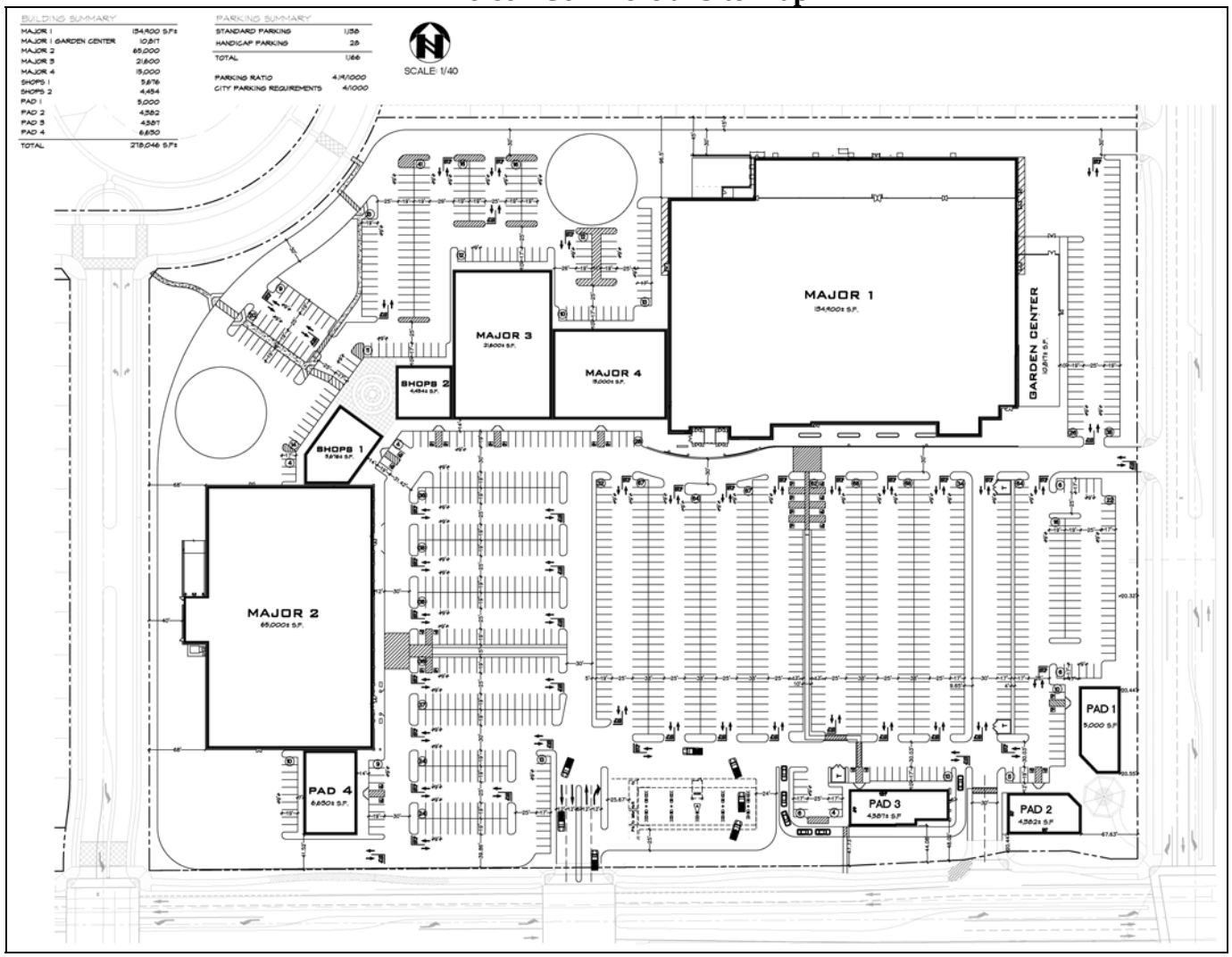


Figure 4
Emerson Commercial Site Map



The General Plan land use designation for the proposed project site includes some commercial area. However, the 23.74-acre commercial portion of the project site would include more area than is currently allowed by the General Plan Land use designation for the proposed project site. Therefore, the proposed project would require the approval of a General Plan Amendment to redesignate a portion of the project site to allow for the entirety of the proposed commercial uses.

The Emerson property is identified as Assessor's Parcel Number (APN) 037-192-015.

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. Included in each discussion are project-specific mitigation measures recommended as appropriate as part of the proposed project.

For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which mitigation has not been identified. If any potentially significant impacts are identified, an EIR must be prepared.

Potentially Significant Unless 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	Potentially Significant Unless 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. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	✖	☐
d. Create a new source of substantial light or glare, which would adversely affect day or night-time views in the area?	✖	☐	☐	☐

Discussion

a-c. The City of Oakley General Plan does not designate the proposed project site a scenic vista. However, Mount Diablo can be seen from the project site and is considered a scenic resource by the Oakley 2020 General Plan. The City wants to preserve the views of this scenic resource. The development of the project site would change the existing visual setting from a single residence with orchard remnants to an urban area consisting of a single-family residential subdivision and commercial site. The project site does not contain rock outcroppings or trees that would be considered scenic resources. The proposed development would be considered compatible with the existing residential uses adjacent to the project site and throughout the City of Oakley. Furthermore, development of the proposed project is consistent with the General Plan designation of the property. The development of the single-family homes could require Design Review approval, which would ensure compatibility of the development with the surrounding area. It should be noted that the project would most likely require the construction of soundwalls. These design of these soundwalls would be consistent with the nearby existing Cypress Grove project, as well as the approved but not yet constructed Gilbert Property project, and would be included in the Design Review for the site. Thus, impacts related to scenic vistas, scenic resources, and/or the visual character of the site would be considered ***less-than-significant***.

d. The project site was formerly used for agricultural purposes and the remnants of an orchard remain on site. In addition, a single-family residence and associated outbuildings are located within the proposed project site, and very little light or glare is currently emitted from the project site. The change from an agricultural property to a residential development that includes 578 single-family homes and a commercial center would generate new sources of light and glare. The residences located in the immediate vicinity of the site would be considered sensitive receptors and would be adversely affected by additional sources of light and glare. In addition, the proposed project includes a commercial center in the southeastern corner of the project site. This commercial center would produce light and glare that would impact the future residences within the proposed project. Therefore, the increase in light and glare produced by the proposed project would be considered a ***potentially significant*** impact to existing and future sensitive receptors on and around the proposed project.

Mitigation Measure(s)

Further analysis of this impact will be included in the Land Use and Agricultural Resources chapter of the Emerson Property Draft EIR.

II. AGRICULTURE RESOURCES. *Would the project:*	Potentially Significant Impact	Potentially Significant Unless 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 Program of the California Resources Agency, to non-agricultural use?	✖	☐	☐	☐
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	✖	☐	☐	☐
c. Involve other changes in the existing environment that, due to their location or nature, could individually or cumulatively result in loss of Farmland to non-agricultural use?	✖	☐	☐	☐

Discussion

a, c. The Emerson Property project is located on an agricultural site, which currently contains grazing lands. The project site is designated Prime Farmland and Farmland of Statewide Importance, as shown on the Contra Costa County Soil Survey. The proposed 587-residential unit development and commercial center would result in the conversion of the parcel to urban residential and commercial center uses. Because the project involves the conversion of approximately 140 acres of agricultural land to an urban development, a ***potentially significant*** impact would occur.

Mitigation Measure(s)
Further analysis of this impact will be included in the Land Use and Agricultural Resources chapter of the Emerson Property Draft EIR.

b. The project site is not under Williamson Act contract; however, the site is zoned Heavy Agriculture (A-3). The development of the site would include single-family homes and commercial buildings, which would result in the conversion of agricultural lands to urban uses. Because the proposed project would conflict with existing zoning for agriculture, a ***potentially significant*** impact would occur.

Mitigation Measure(s)
Further analysis of this impact will be included in the Land Use and Agricultural Resources chapter of the Emerson Property Draft EIR.

III. AIR QUALITY. *Would the project:*	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	✖	☐	☐	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	✖	☐	☐	☐
c. 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	✖	☐	☐	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	✖	☐	☐	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☐	✖

Discussion

a-d. The City of Oakley is part of the San Francisco Bay Area air basin, which is dominated by the strength and position of a semi-permanent, high-pressure center over the Pacific Ocean. The area is exposed to winds from both the east and west, and the terrain provides little protection from the wind. Air quality within the region is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The BAAQMD is considered nonattainment-unclassified area for the national 1-hour ozone standard. The District is listed as either unclassified or attainment for other pollutants of concern. The BAAQMD periodically prepares and updates plans to achieve the goal of clean air. In addition, the District establishes thresholds for pollutants that, if exceeded, would constitute a significant impact.

The proposed project would result in increased vehicle trips in the City of Oakley, which would generate increased amounts of ozone precursors (NO_x and ROG) and carbon monoxide (CO) that could exceed District thresholds and conflict with applicable air quality plans. In addition, the construction phase of the project would involve grading and excavation activities that would generate particulate matter (PM_{10}), which could exceed District thresholds. Therefore, the proposed project would have a ***potentially significant*** impact on air quality by potentially conflicting with applicable thresholds and plans.

Mitigation Measure(s)
Further analysis of this impact will be included in the Air Quality chapter of the Emerson Property Draft EIR.

e. The proposed project would not include industrial or intensive agricultural uses that could result in objectionable odors. Therefore, the project would have ***no impact*** pertaining to the creation of odors.

IV. BIOLOGICAL RESOURCES. *Would the project:*	Potentially Significant Impact	Potentially Significant Unless 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 Game or U.S. Fish and Wildlife Service?	✖	☐	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	✖	☐	☐	☐
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	✖	☐	☐	☐
d. Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	✖	☐	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	✖	☐	☐	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	✖	☐	☐	☐

Discussion

a-d. Sycamore Associates prepared a biological analysis on June 27, 2005. The Emerson property consists of agricultural land used primarily for growing hay. In the northwest of the site is a degraded sand mound that has been highly disturbed and is dominated by native and non-native weedy species. The project area consists predominantly of cultivated and disturbed lands ranging in elevation to five (5) to twenty-nine (29) feet above sea level, from which most of the naturally occurring vegetation has been removed, and an on-site portion of Emerson Slough. Other vegetation communities identified on-site include sand mounds and a very small amount of freshwater marsh vegetation associated with an irrigation ditch located in the northeastern portion of the site and within Emerson Slough.

Based on a review of special-status plant species in Contra Costa County and a broad knowledge of the regional flora, a total of 52 special-status plant species were determined to have at least some potential to occur within the region of the study area or have been

recorded historically in the project vicinity. Based on the site reconnaissance, habitat evaluations, a review of background materials, and preliminary surveys, several special-status wildlife species have been detected or have the potential to occur on site. A total of 57 special-status wildlife species are considered to have at least some potential to occur within the region, or have been recorded historically or currently in the project vicinity. The Environmental Impact Report prepared for the project will include further discussion, analysis, and protective measures for special-status plant and wildlife species where applicable.

Conclusion

The inventory search conducted found that a variety of special-status plant and animal species are known to have the potential to occur in eastern Contra Costa County, where the project site is located. The conversion of the project site from undeveloped agricultural land to urban development could have adverse impacts to special-status wildlife species. Therefore, the proposed project would have a ***potentially significant*** impact to special-status species.

Mitigation Measure(s)
Further analysis of this impact will be included in the Biological Resources chapter of the Emerson Property Draft EIR.

e. Sycamore Associates' report prepared for the Emerson property identified living trees on the project site. Because native and non-native trees are located within the project site, a ***potentially significant*** impact would occur**.**

Mitigation Measure(s)
Further analysis of this impact will be included in the Biological Resources chapter of the Emerson Property Draft EIR.

f. On January 25, 2000, the Contra Costa County Board of Supervisors declared that Contra Costa County would participate in the development of a Habitat Conservation Plan (HCP) for East Contra Costa County. On June 30, 2000, the East Contra Costa County Habitat Conservation Plan Association Agreement went into effect. This agreement established the East Contra Costa Habitat Conservation Plan Association (HCPA) as the lead agency in drafting the Habitat Conservation Plan for submittal to the governing boards and councils of member agencies, oversee compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), and would serve as the lead agency under CEQA for developing the HCP. The City of Oakley elected to participate in the development of the HCP and is a member of the HCPA.

The City of Oakley approved the East Contra Costa County Habitat Conservation Plan (HCP) and authorized execution of the Implementation Agreement and Joint Exercise of Powers Agreement on January 22, 2007 (Resolution No. 12-07). The U.S. Fish and Wildlife Service signed the federal permit for the HCP on July 25, 2007. The California Department of Fish and Game signed the state permit for the HCP on August 6, 2007. Therefore, East Contra Costa County has an officially approved HCP as of August 6,

2007. The City has approved an implementing ordinance and adopted the fee structure that is set forth in the HCP.

The Emerson property is within the HCP inventory area and the programs included in the HCP would apply to the project site. Therefore, the impacts related to conflicts with approved habitat conservation plans would be ***potentially significant***.

Mitigation Measure(s)
Further analysis of this impact will be included in the Biological Resources chapter of the Emerson Property Draft EIR.

V. CULTURAL RESOURCES. *Would the project:*	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	✖	☐	☐	☐
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	✖	☐	☐	☐
c. Directly or indirectly destroy a unique paleontological resource on site or unique geologic features?	✖	☐	☐	☐
d. Disturb any human remains, including those interred outside of formal cemeteries.	✖	☐	☐	☐

Discussion

a. According to the cultural resource report prepared for the project site by Basin Research Associates (July 2004), two historic-era historical resources are located in and adjacent to the project area: Iron House School located on the project site and part of the Contra Costa Canal (adjacent to the project area). Other local, State or federal historically or architecturally significant structures, landmarks, or points of interest have not been identified within or adjacent to the project area. One historic-era cultural resource, Iron House landing (later known as Babbe's Landing), is located just north of the project site.

The former Iron House School, previously located at the northwest corner of Cypress Road and Sellers Avenue, has been moved to the northeast quadrant of the project site. The known significant historical resources in the project area could be subject to damage or loss as a result of development; therefore, a ***potentially significant*** impact to historical resources could occur.

Mitigation Measure(s)
Further analysis of this impact will be included in the Historical and Cultural Resources chapter of the Emerson Property Draft EIR.

b-d. Archeologists have found few prehistoric sites in the Oakley area. One substantial shell mound was discovered early in the twentieth century near what is now the east edge of town. The Northwest Information Center of the California Historical Resources Information System now keeps track of archeological investigations undertaken in Oakley. Around three-dozen such projects have been completed in the past 25 years, yielding only four prehistoric sites in the City. However, the Information Center believes there is a high possibility that other prehistoric sites remain within the City.

Little is known about the Oakley area prior to European settlement, and evidence of early native peoples who occupied the area is scarce; any artifact or information is therefore valuable. The intensity of prehistoric and historic human activities in this region increases the potential presence of a substantial number of as yet undiscovered important heritage resources within the project area.

Development included in the proposed project, such as road improvements, utility corridors, and excavation associated with residential, or business development could result in the destruction or damage of unknown archeological or paleontological resources.

Although studies suggest that the project area does not contain a large number of prehistoric sites or artifacts, archeological sensitivity within the project area cannot be ruled out. Therefore, because there is a potential for archeological resources to exist virtually anywhere, even in areas thought to be of relatively low sensitivity, a ***potentially significant*** impact could occur.

Mitigation Measure(s)
Further analysis of this impact will be included in the Historical and Cultural Resources chapter of the Emerson Property Draft EIR.

VI. GEOLOGY AND SOILS. *Would the project:*	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	✖	☐	☐	☐
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist - Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault?	✖	☐	☐	☐
ii. Strong seismic ground shaking?	✖	☐	☐	☐
iii. Seismic-related ground failure, including liquefaction?	✖	☐	☐	☐
iv. Landslides?	✖	☐	☐	☐
b. Result in substantial soil erosion or the loss of topsoil?	✖	☐	☐	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	✖	☐	☐	☐
d. Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code?	✖	☐	☐	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	✖

Discussion

ai-ii. Ground shaking is a complex concept related to velocity, amplitude, and duration of earthquake vibrations. Damage from ground shaking is caused by the transmission of earthquake vibrations from the ground to the structure.

Engeo Incorporated, prepared a *Geotechnical Investigation* (March, 2005) for the Emerson Property and surrounding area. The report states that the area is not located within an Alquist-Priolo Earthquake Fault Zone. The USGS San Francisco Bay Area Region Probability Map indicates that the nearest mapped fault is the Clayton Fault, which is considered active under the Alquist-Priolo Earthquake Fault Zones Act (1994) and is situated approximately 12 miles southwest of the project site. Earthquake intensities vary throughout the Bay Area, depending upon numerous factors, including the magnitude of an earthquake, the distance of the site from the causative fault, and the type of materials underlying the site. The U.S. Geological Survey (2003) indicates that there is a 62 percent chance of at least one magnitude 6.7 or greater earthquake striking the San Francisco Bay region between 2003 and 2032. Therefore, the site will probably be subjected to at least one moderate to severe earthquake, which would cause strong ground shaking, in the near future.

Other potentially active faults in the San Francisco Bay Area include the Marsh Creek Fault (12 1/2 miles southwest), Greenville Fault (16 miles southwest), Concord Fault (18 miles west), Pleasanton Fault (21 miles southwest), Calaveras Fault (22 1/2 miles southwest), Verona Fault (26 miles southwest), Hayward Fault (31 miles southwest), and the San Andreas Fault (49 miles southwest).

The 1997 Uniform Building Code (UBC) Chapter 16, Division of Earthquake Design, requires that structures be designed using certain seismic design criteria. The criteria are based in part on the seismic zone, soil profile, and the proximity of the site to active faults. During an earthquake event, structures located near active faults can be subjected to near-source energy motions that may be damaging to structures, if the effects of these energy motions have not been considered in the structural design.

Because the proposed project involves the construction of up to 578 residential units, the impact to people and structures on the site from seismic hazards would be considered ***potentially significant***.

Mitigation Measure(s)
Further analysis of this impact will be included in the Geology chapter of the Emerson Property Draft EIR.

aiii. The *Geotechnical Investigation* cited above indicates that soils most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained sands that lie close to the ground surface. According to the Association of Bay Area Governments (ABAG) and the U.S. Geological Survey, the project site is located in an area mapped as having a high to moderate likelihood of liquefaction in an earthquake and has been characterized as having a high to moderate liquefaction susceptibility. Therefore, because of the potential for liquefaction-induced ground surface settlement resulting from an earthquake, secondary seismic hazards such as liquefaction would have a ***potentially significant*** impact to structures on the project site.

Mitigation Measure(s)
Further analysis of this impact will be included in the Geology chapter of the Emerson Property Draft EIR.

aiv,c. The site is not susceptible to landslides because the site is essentially flat. However, secondary seismic hazards such as lateral spreading, subsidence, or collapse are significant for the site due to the nature of the subsurface materials, which consist of loose sands with silt, and medium dense sands with silt. In addition, lateral spreading typically impacts areas within 100 to 200 feet of canal/creek banks when soils underneath the embankment liquefy during earthquake events, and the site is located adjacent to the Contra Costa Canal, Emerson Slough, Dutch Slough, and is near Marsh Creek. Therefore, lateral spreading would have ***potentially significant*** impacts to project structures.

Mitigation Measure(s)
Further analysis of this impact will be included in the Geology chapter of the Emerson Property Draft EIR.

b. The project site is currently composed primarily of agricultural land. The proposed project would result in the construction of up to 578 residential units and a commercial

site. As noted previously, the project site is essentially flat, and would thus undergo nominal cutting and filling. However, the importation and grading of fill and other construction activities, such as those related to excavation, could result in erosion due to wind and water effects on exposed soil. The erosion of exposed soil could result in the degradation of downstream water quality.

Therefore, because construction activities could generate erosion impacts, the proposed project would result in a ***potentially significant*** impact.

Mitigation Measure(s)
Further analysis of this impact will be included in the Geology chapter of the Emerson Property EIR.

d. The *Geotechnical Investigation* cited above states that areas on the project site, which are composed of near surface clayey materials, have a high to very high plasticity, and a high to critical expansion potential. These soils are potentially compressible under new fill and buildings, and must be carefully considered in the design of grading, foundations, drainage, and landscaping. Therefore, the impacts associated with expansive soils would be ***potentially significant.***

Mitigation Measure(s)
Further analysis of this impact will be included in the Geology chapter of the Emerson Property Draft EIR.

e. The project has been designed to connect to existing sewer systems. Therefore, ***no impact*** would occur related to soils incapable of adequately supporting the use of septic tanks.

VII. HAZARDS AND HAZARDOUS MATERIALS. *Would the project:*	Potentially Significant Impact	Potentially Significant Unless 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 that 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 for people residing or working in the project area?	☐	☐	☐	✖
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	✖
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	✖	☐	☐	☐
h. Expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	✖	☐	☐	☐

Discussion

a,b,c. The proposed project includes up to 578 single-family houses, a commercial center, a detention basin, and neighborhood parks. These land uses would not involve the routine use, transport, or disposal of hazardous materials. However, the project site could contain materials that may be considered hazardous. Therefore, because the project site could contain hazardous substances and/or materials and would be located within a one-quarter mile radius of a school site, a ***potentially significant*** impact would occur.

Mitigation Measure(s)
Further analysis of this impact will be included in the Hazards chapter of the Emerson Property Draft EIR.

d. An Environmental Site Assessment Update was prepared for the Emerson and Burroughs properties by ENGEO Incorporated in July 2004. A review of regulatory databases maintained by County, State, and federal agencies found no documentation of hazardous materials violations or discharge on the property. The review of regulatory databases identified one leaking underground storage tank (UST) site within 0.5 miles of the subject property; however, given the distance of the UST site from the subject properties and the available database information, this site would not be expected to impact the subject properties. Four registered UST facilities were documented within 0.25 miles of the subject property. Two of these facilities have had the USTs removed, without any evidence of significant soil impacts. The remaining two facilities have active USTs.

The review of aerial photographs and available historical records found that the subject property has remained relatively unchanged from at least 1953 to present, with the exception of minor site improvements. The 1999 site reconnaissance and records research conducted as part of the original environmental site assessment, did not find documentation or physical evidence of soil or groundwater impairments associated with the use of the property, with the exception of surface soil impacts related to above ground petroleum product storage tanks on both the Burroughs and Emerson properties.

Additional potential environmental concerns include above ground fuel tanks, nitrate impacts associated with current and historical dairy and cattle feed activities, asbestos-containing materials within on-site structures, a pesticide shed, a waste oil tank, an oil house, and a former underground fuel tank. Because the project site potentially contains hazardous materials, a ***potentially significant*** impact could occur.

Mitigation Measure(s)
Further analysis of this impact will be included in the Hazards chapter of the Emerson Property Draft EIR.

e-f. The project site is not within an airport land use plan or within two miles of an airport. Therefore, ***no impact*** would occur.

g. Development of the project site could interfere with an adopted emergency response plan or emergency evacuation plan. Although construction vehicles would be located on-site and would therefore not adversely impede the flow of traffic along Cypress Road and Sellers Avenue, the additional traffic could potentially interfere with the evacuation or response routes used by emergency response teams. Therefore, a ***potentially significant*** impact could occur.

Mitigation Measure(s)
Further analysis of this impact will be included in the Transportation and Circulation chapter of the Emerson Property Draft EIR.

h. Wildland fire hazards threaten lives, property, and natural resources throughout the City. Although the urbanized areas of the City of Oakley are in areas of low wildfire hazard, wildfire is a serious hazard in undeveloped areas and on large lots with extensive areas of unirrigated vegetation because natural vegetation and dry-farmed grain areas are extremely flammable during the late summer and fall.

The City of Oakley is within the boundaries of critical Fire Weather Class 3, which correlates to 9.5 or more days per year of moderate, high, and extreme fire hazard. Grassland fires are easily ignited, particularly in dry seasons. Because the project site is composed of undeveloped agricultural land, a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Further analysis of this impact will be included in the Hazards chapter of the Emerson Property Draft EIR.

VIII. HYDROLOGY AND WATER QUALITY. *Would the project:*	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?	✖	☐	☐	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	✖	☐	☐	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	✖	☐	☐	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	✖	☐	☐	☐
e. 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?	✖	☐	☐	☐
f. Otherwise substantially degrade water quality?	✖	☐	☐	☐
g. Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	✖	☐	☐	☐
h. Place within a 100-year floodplain structures that would impede or redirect flood flows?	✖	☐	☐	☐
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	✖	☐	☐	☐
j. Inundation by seiche, tsunami, or mudflow?	☐	☐	✖	☐

Discussion

a,f. The proposed project involves the construction of up to 578 residential units, a commercial center, one detention basin, several parks, and associated infrastructure. Short-term grading and related construction activities may cause an increase in erosion leading to degradation of downstream water quality.

Residential and commercial projects may also lead to the generation of urban pollutants. Long-term occupation of the proposed land uses would introduce non-point sources of pollution such as fertilizers, household chemicals, and automobile related products. These pollutants may be picked up by stormwater runoff and enter surface water bodies adjacent to the project site. Stormwater pollution control is regulated by the State Water Resources Control Board and Regional Water Quality Control Boards.

The project would include the construction of one stormwater detention pond. The stormwater pond would be located in the center of the Emerson property. The stormwater management facilities for the Emerson Property project would be designed to control peak stormwater flows, improve the quality of the stormwater runoff before the runoff is discharged from the site, and protect the homes from flooding during large storm events. However, because the effectiveness of the proposed pond to detain and treat stormwater runoff has not yet been determined, the project would have a ***potentially significant*** to water quality.

Mitigation Measure(s)
Further analysis of this impact will be included in the Hydrology and Water Quality chapter of the Emerson Property Draft EIR.

b. The City of Oakley currently does not receive any groundwater from wells, although there are many private wells in the Plan Area (Oakley General Plan EIR, p. 3-119). The proposed project would create impervious surfaces through the development of up to 578 residential units, the commercial parking area, and necessary infrastructure such as streets, which could result in adverse effects to groundwater resources in the Oakley Planning Area. Although the City of Oakley does not currently utilize groundwater, the proposed project could reduce groundwater recharge, which could affect nearby well users; therefore, a ***potentially significant*** impact would occur.

Mitigation Measure(s)
Further analysis of this impact will be included in the Public Services chapter of the Emerson Property Draft EIR.

c-e. The project consists of the development of single-family homes, a dentention basin, recreational uses, and commercial center. The proposed project would thus result in the creation of impervious surfaces on a site that is primarily agricultural land. The additional impervious surfaces would be expected to increase the rate of stormwater runoff originating on the project site, which could exceed the capacity of the existing storm drain system.

As discussed above, the proposed infrastructure includes the construction of one stormwater pond. The pond would be approximately five acres in surface area and would be pumped into different existing outfalls in Emerson Slough. The pond would be sized

to accommodate developed flows for the proposed project as well as the existing flows from properties to the south. As the properties to the south develop, additional ponds would need to be constructed within those properties to detain storm flows. The outfalls have already been comprehensively studied and analyzed for CEQA purposes and permitted by the City of Oakley under the entitlements for the Cypress Grove subdivisions to the west (8678, 8679 and 8680), which were scheduled for construction in the summer of 2005. As a result, these outfalls are not considered part of this project.

Although the project has a proposed stormwater detention pond to hold stormwater runoff, the adequacy of the pond has yet to be determined; therefore, a ***potentially significant*** impact could occur.

Mitigation Measure(s)
Further analysis of this impact will be included in the Hydrology and Water Quality chapter of the Emerson Property Draft EIR.

g-i. According to the City of Oakley 2020 General Plan, the Federal Emergency Management Agency (FEMA) flood maps for the project area indicate that the site is located outside of the 100-year floodplain. The entire project site is protected by the levees that run along the Contra Costa Canal. The properties to the north of the Canal are presently mapped in Special Flood Hazard Area Zone A, indicating that they are subject to flooding during a 100-year event in the Delta.

According to the Preliminary Stormwater Management Plan prepared for the Emerson Property by Balance Hydrologics, October 2005, the base flood elevation from Delta flooding is shown as seven feet above mean sea level. Per FEMA and CCFCD regulations, areas lower than this elevation must be protected by levees with a minimum of three feet of freeboard above the base flood elevation, a level of protection that FEMA recognizes as presently provided by the Contra Costa Canal levees. However, CCWD is pursuing plans to underground all or part of the canal in the vicinity of the project and the District has indicated that the material in the levee may be needed as part of that project. Although a new levee system is proposed to be built along the north perimeter of the project to FEMA urban standard levee specifications, the proposed project would result in a ***potentially significant*** impact as relates to the FEMA 100-year floodplain.

Mitigation Measure(s)
Further analysis of this impact will be included in the Hydrology and Water Quality chapter of the Emerson Property Draft EIR.

j. Tsunamis are defined as sea waves created by undersea fault movement. A tsunami poses little danger away from shorelines; however, when the shoreline is reached, a high swell of water breaks and washes inland with great force. Waves may reach 50 feet in height on unprotected coasts. Historic records of the Bay Area indicate that 19 tsunamis were recorded in San Francisco Bay during the period of 1868-1968. Maximum wave height recorded at the Golden Gate tide gauge (where wave heights peak) was 7.4 feet. The available data indicate a standard decrease of original wave height from the Golden Gate to about half original wave height on the shoreline near Richmond, and to nil at the head of the Carquinez Strait. Because Oakley is 26 miles inland from the Carquinez Strait, the project site is not exposed to flooding risks from tsunamis.

A seiche is a long-wavelength, large-scale wave action set up in a closed body of water such as a lake or reservoir, whose destructive capacity is not as great as that of tsunamis. Seiches are known to have occurred during earthquakes, but none have been recorded in the Bay Area. The project is located near an open canal, the Contra Costa Canal. The proposed project would be protected from any canal failure by the proposed levees to be built on the project side of the canal. In addition, the Contra Costa Canal Encasement Project, for which an Initial Study / Mitigated Negative Declaration has been certified (http://www.ccwater.com/publications/CCCencasementproject.asp), will encase the Contra Costa Canal adjacent to the proposed project; thereby removing any threat of a seiche from the canal.

Because mudflows typically occur in mountainous or hilly terrain, and the project site and surrounding areas are relatively flat, danger would not be presented from the likelihood of mudflows.

Therefore, the project site would not be threatened by a tsunami, seiche or mudflow resulting in a ***less-than-significant*** impact from such phenomena.

IX. LAND USE AND PLANNING. *Would the project:*	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	✖
b. Conflict with any applicable land use plans, policies, or regulations of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating on environmental effect?	✖	☐	☐	☐
c. Conflict with any applicable habitat conservation plan or natural communities conservation plan?	✖	☐	☐	☐

Discussion

a. The proposed land plan for the Emerson Property project site includes residential development, trails, parks, levees, a stormwater detention pond, a 23.74-acre commercial site, as well as the infrastructure improvements necessary to accommodate the new development. The proposed project would have an overall density of 4.12 du/ac. This density is greater than the surrounding rural residential uses and would require an Amendment to the General Plan land use designation. In addition, the 23.74-acre commercial portion of the project site is greater than the allowable commercial area on the project site. Therefore, an Amendment to the General Plan land use designation would also be required to allow for the additional commercial uses on site.

The proposed change in use for the project site from agricultural land to primarily single-family homes is consistent with the type of buildout anticipated by the Oakley 2020 General Plan. The project would also be compatible with the pattern of development occurring or planned in the general area of the project site. Therefore, because no residential structures exist on the site, the proposed project would not physically divide an established community, and ***no impact*** would occur.

b. The proposed project must be consistent with the Oakley General Plan and the Contra Costa County Zoning Ordinance. Because the project site zoning and land use designation are inconsistent with the proposed uses, the impact would be considered ***potentially significant.***

Mitigation Measure(s)
Further analysis of this impact will be included in the Land Use and Agricultural Resources chapter of the Emerson Property Draft EIR.

c. On January 25, 2000, the Contra Costa County Board of Supervisors declared that Contra Costa County would participate in the development of a Habitat Conservation Plan (HCP) for East Contra Costa County. On June 30, 2000, the East Contra Costa County Habitat Conservation Plan Association Agreement went into effect. This agreement established the East Contra Costa Habitat Conservation Plan Association (HCPA) as the lead agency in drafting the Habitat Conservation Plan for submittal to the governing boards and councils of member agencies, oversee compliance with the California

Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), and would serve as the lead agency under CEQA for developing the HCP. The City of Oakley elected to participate in the development of the HCP and is a member of the HCPA.

The City of Oakley approved the East Contra Costa County Habitat Conservation Plan (HCP) and authorized execution of the Implementation Agreement and Joint Exercise of Powers Agreement on January 22, 2007 (Resolution No. 12-07). The U.S. Fish and Wildlife Service signed the federal permit for the HCP on July 25, 2007. The California Department of Fish and Game signed the state permit for the HCP on August 6, 2007. Therefore, East Contra Costa County has an officially approved HCP as of August 6, 2007. The City has approved an implementing ordinance and adopted the fee structure that is set forth in the HCP.

The Emerson property is within the HCP inventory area and the programs included in the HCP would apply to the project site. Therefore, the impacts related to conflicts with approved habitat conservation plans would be ***potentially significant***.

Mitigation Measure(s)

Further analysis of this impact will be included in the Biological Resources chapter of the Emerson Property Draft EIR.

X. MINERAL RESOURCES. *Would the project:*		Potentially Significant Impact	Potentially Significant Unless 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 Contra Costa County General Plan states (p. 8-52) that the most important mineral resources that are mined in the County include crushed rock near Mt. Zion, on the north side of Mt. Diablo, in the Concord area; shale in the Port Costa area; and sand and sandstone deposits, mined from several locations, but focused in the Byron area. Figure 8-4, Mineral Resource Areas, of the Contra Costa County General Plan, lists deposits of diabase, domengine sandstone, and clay. None of these deposits are shown in the Oakley area.

The City of Oakley 2020 General Plan identifies a number of natural gas wells in the eastern portion of the Cypress Corridor Planning Area in which the Emerson Property project site is adjacent to. The natural gas wells on the adjacent Gilbert site are abandoned. However, although gas wells do not exist on-site, the Emerson property does support known below-ground mineral resources. The owners of the right to develop the mineral resources below the proposed project site, Tonka Energy, Inc. (TEI), have entered into an agreement restricting surface access to the mineral resources. However, access could be obtained from designated drill sites to the north of the proposed project.

Thus, although the proposed project would result in the construction of residential units and other amenities on the site, TEI could gain access to the mineral resources below the project site from the designated drilling sites to the north. Therefore, because all the oil and gas wells in close proximity to the project site are abandoned and access to the existing and untapped mineral resources on-site are obtainable, implementation of the proposed project would not result in a loss of the mineral resource, resulting in a ***less-than significant*** impact.

XI. NOISE. *Would the project result in:*	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	✖	☐	☐	☐
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	✖	☐	☐	☐
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	✖	☐	☐	☐
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	✖	☐	☐	☐
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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	✖
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	✖

Discussion

a-c. The proposed project involves the construction of 578 residential units, a commercial center, one detention basin, several parks, and associated infrastructure. The residential area is considered a sensitive land use and may be adversely impacted by the commercial center and noise sources surrounding the project site. The principal existing traffic noise sources in the project vicinity include traffic along major roadways surrounding the project site.

The noise levels that the project would generate also need to be considered in order to provide a comprehensive noise analysis. Of particular importance are the existing and proposed sensitive receptors (residential and school uses) surrounding the project site to the east, south, and west. The introduction the proposed project would result in increased vehicle trips on project area roadways. The increased noise levels associated with the increased vehicle trips could result in exterior and/or interior residential noise standards being exceeded. Therefore, the proposed project would have a ***potentially significant*** impact in regard to exposing people to unacceptable noise levels.

Mitigation Measure(s)
Further analysis of this impact will be included in the Noise chapter of the Emerson Property Draft EIR.

d. The Oakley General Plan EIR indicates that temporary increases in noise levels would occur during the construction of projects pursuant to the implementation of the General Plan. The General Plan states that construction machinery, such as earthmoving equipment, can generate noise levels up to 90 dBA at 50 feet from the machinery. The subsequent phases of construction generally vary from 79 to 89 dBA at 50 feet from the source. The proposed project would require excavation and grading activities that could generate noise levels in the range of 85 to 90 dBA at a distance of 50 feet, and the Oakley General Plan indicates that an outdoor noise level of 65 dBA is acceptable for residential land uses; therefore, the temporary increase in noise levels during construction would be considered a ***potentially significant*** impact.

Mitigation Measure(s)
Further analysis of this impact will be included in the Noise chapter of the Emerson Property Draft EIR.

e,f. The Oakley 2020 General Plan notes that the nearest commercial aviation facilities are Oakland International Airport and Sacramento Metropolitan Airport. Byron Airport, a general aviation airport, is located to the south of Oakley and operates as a charter and private aviation facility. However, the project site is not located near an existing airport and is not within an area covered by an existing airport land use plan. Therefore, development of the site would result in ***no impact*** regarding airport noise generation.

XII. POPULATION AND HOUSING. *Would the project:*	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Induce substantial 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 housing, necessitating the construction of replacement housing elsewhere?	☐	☐	✖	☐
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	✖	☐

Discussion

a. The project site is located within the Oakley Planning Area. The proposed project includes the development of approximately 578 single-family units on 140 acres, which would result in a growth in the population of the Oakley area. Because the project would increase the local population, a ***potentially significant*** impact would result.

Mitigation Measure(s)
Further analysis of this impact will be included in the Statutorily Required Sections chapter of the Emerson Property Draft EIR.

b,c. The construction of 578 residential units would demolish an existing residential structure. The project would not displace substantial numbers of existing housing or require the construction of replacement housing elsewhere. Therefore, the proposed project would have a ***less-than-significant*** impact on housing.

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

Discussion

a,b. The proposed project is located within the jurisdiction of and is currently provided services by the Oakley Police Department and the East County Fire Protection District. The development of the project site would not expand their district boundaries. However, implementation of the proposed project would add to the overall demand for police and fire protection services; therefore, this increase in service requirements for the proposed project is considered a ***potentially significant*** impact.

Mitigation Measure(s)
Further analysis of this impact will be included in the Public Services and Utilities chapter of the Emerson Property Draft EIR.

c. The City of Oakley is served by Oakley Union School District, Liberty Union School District, and the Antioch Unified School District. The four elementary schools in the Oakley Union Elementary School District are over capacity and the two middle schools are currently serving over 90 percent of their capacity (Oakley 2020 General Plan EIR, p. 3-93). The proposed residential community would potentially intensify crowding of the existing school; therefore, this impact would be considered ***potentially significant***.

Mitigation Measure(s)
Further analysis of this impact will be included in the Public Services and Utilities chapter of the Emerson Property Draft EIR.

d. The City of Oakley General Plan encourages an urban development form that is based on open space throughout and around established communities. Development of the project site would result in new residences and consequently would increase the demand for neighborhood, community, and regional parks and other recreation facilities. Because the proposed project has the potential to create an excess demand for park facilities, a ***potentially significant*** impact would occur.

Mitigation Measure(s)
Further analysis of this impact will be included in the Public Services and Utilities chapter of the Emerson Property Draft EIR.

XIV. RECREATION. *Would the project:*	Potentially Significant Impact	Potentially Significant Unless 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. The City of Oakley General Plan encourages an urban development form that is based on open space throughout and around established communities. Development of the project site would result in new residences and consequently would increase the demand for neighborhood, community, and regional parks and other recreation facilities. The park system within the Emerson property would consist of a park surrounding the stormwater pond located at the center of the community.

In addition, the proposed project would contribute to the construction of trails along the north and south sides of Cypress Road, and east side of Sellers Avenue, the north edge of the property adjacent to the CCWD/USBR canal, and on certain local streets in the project site. This trail system would connect to future planned developments at the neighboring Gilbert and Burroughs sites and would provide pedestrian circulation to and from the Delta Vista Middle School, the Iron House Elementary School, the neighborhood parks, ponds, and the proposed 55-acre City Park north of the CCWD/USBR canal. A trail would be located along the northern boundary of the development just south of the CCWD/USBR canal. This trail would connect to the trail constructed by the adjacent Cypress Grove development, which provides access to the existing Marsh Creek Trail and links to an existing regional trail system. The trail may eventually include a pedestrian bridge spanning Dutch Slough between the Gilbert and Burroughs properties. The trail would be constructed to connect to Cypress Road at the eastern boundary of the Gilbert site.

Furthermore, the Park Impact Fee applied to new development includes community parks, neighborhood parks and open space components. The developers would construct the neighborhood parks and open space trails to meet two-thirds of the Public Facilities requirement. To complete the obligation of the project to dedicate and improve parkland, the project would pay the remaining park in-lieu fee to facilitate the provision of the community park facilities to be located north of the CCWD/USBR canal.

Although the proposed project includes the construction of parks and recreational facilities, these facilities may be inadequate and further analysis is needed. Therefore, the impacts to existing park facilities and services, and the adequacy of the proposed park facilities and services are ***potentially significant***.

Mitigation Measure(s)

Further analysis of this impact will be included in the Public Services and Utilities chapter of the Emerson Property Draft EIR.

XV. TRANSPORTATION/CIRCULATION. *Would the project:*	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	✖	☐	☐	☐
b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	✖	☐	☐	☐
c. 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?	☐	☐	☐	✖
d. Substantially increase hazards due to a design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	✖	☐	☐	☐
e. Result in inadequate emergency access?	✖	☐	☐	☐
f. Result in inadequate parking capacity?	✖	☐	☐	☐
g. Conflicts with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	✖	☐	☐	☐

Discussion

a,b. The proposed project involves the construction of up to 578 single-family homes, a commercial center, one detention basin, several parks, and associated infrastructure. Roadways that surround the project site consist of Cypress Road and Sellers Avenue. The increase in daily vehicle trips generated by the project along these roadways would be expected to adversely affect existing Levels of Service (LOS) at nearby intersections. The increase in traffic generated by the project could therefore have a ***potentially significant*** impact.

Mitigation Measure(s)
Further analysis of this impact will be included in the Transportation and Circulation chapter of the Emerson Property Draft EIR.

c. The proposed project would not require any changes to existing regional air traffic activity, and the project site is not located near an airport. Therefore, ***no impact*** would occur.

d,e. The design of the project could result in increased hazards or inadequate emergency access. Therefore, a ***potentially significant*** impact could occur.

Mitigation Measure(s)
Further analysis of this impact will be included in the Transportation and Circulation chapter of the Emerson Property Draft EIR.

f. The proposed project involves the construction of up to 578 residential units, a commercial center, one detention basin, several parks, and associated infrastructure. Development of the residential lots would be required to comply with the zoning requirements. However, because adequate parking may not be provided for residences and the commercial center, a ***potentially significant*** impact would occur.

Mitigation Measure(s)
Further analysis of this impact will be included in the Transportation and Circulation chapter of the Emerson Property Draft EIR.

g. Tri-Delta Transit provides transit service to Oakley. According to Figure 3.4-3 of the Oakley General Plan EIR, transit routes do not currently exist adjacent to the project site. In addition, the Oakley General Plan EIR (p. 3-29) states that limited transit service exists for residents in the City of Oakley. Currently, only four fixed route services exist within the City.

Currently, the City of Oakley has limited bicycle facilities. Bicycle lanes are provided on Cypress Road between Rose Avenue and Marsh Creek. The Contra Costa Countywide Transportation Plan designates Oakley Road/Empire Avenue/Cypress Road as a Regional Bicycle Route, providing a connection to the Marsh Creek Regional Trail. The Marsh Creek Regional Trail and the Delta de Anza Regional Trail (between Neroly Road and Cypress Road) are multi-use, paved trails for hikers, horses, and bicycles. As discussed in the Recreation section of this report, the proposed project would construct trails along the north and south sides of Cypress Road, the west and east side of Sellers Avenue, the north edge of the property adjacent to the CCWD/USBR canal, and on certain local streets in the project site. This trail system would provide pedestrian circulation to and from the Delta Vista Middle School, the Iron House Elementary School, the neighborhood parks, ponds, and the proposed 55-acre City Park north of the CCWD/USBR canal.

A trail would be located along the northern boundary of the development just south of the CCWD/USBR canal. This trail would connect to the trail constructed by the adjacent Cypress Grove development, which provides access to the existing Marsh Creek Trail and links to an existing regional trail system. The trail may eventually include a pedestrian bridge spanning Dutch Slough between the Gilbert and Burroughs properties. The trail would eventually connect to Cypress Road at the eastern boundary of the Burroughs property.

Although the Emerson Property project site would provide adequate bicycle/pedestrian trails throughout and adjacent to the project site, bus services near the project could be adversely impacted. Therefore, a ***potentially significant*** impact would occur related to the adequate provision of transit services.

Mitigation Measure(s)
Further analysis of this impact will be included in the Transportation and Circulation chapter of the Emerson Property Draft EIR.

XVI. UTILITIES AND SERVICE SYSTEMS. *Would the project:*	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	✖	☐	☐	☐
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	✖	☐	☐	☐
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	✖	☐	☐	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	✖	☐	☐	☐
e. 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?	✖	☐	☐	☐
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	✖	☐	☐	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	✖	☐	☐	☐

Discussion

a-g. The proposed project involves the construction of up to 578 residential units, a commercial center, one detention basin, several parks, and associated infrastructure. The proposed project would require the installation and extension of utility lines and infrastructure for water, wastewater, storm drainage, electricity, natural gas, telephone, and cable communications. Furthermore, the additional residential units would require solid waste removal service. The need for additional services and infrastructure would be a ***potentially significant*** impact to the existing environment of the project site.

Mitigation Measure(s)

Further analysis of this impact will be included in the Public Services and Utilities chapter of the Emerson Property Draft EIR.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE.	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	✖	☐	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	✖	☐	☐	☐
c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	✖	☐	☐	☐

Discussion

a,b. The proposed project would change the project site from agricultural land to residential and commercial uses. The changes may interfere with habitats on the project site and could potentially harm endangered plant or animal species. Furthermore, as the project site is developed, any archeological resources that are beneath the project site could be disturbed. Such impacts may also be considered to achieve short-term goals, to the disadvantage of long-term environmental goals. Therefore, the proposed project would cause a ***potentially significant*** impact.

Mitigation Measure(s)
Further analysis of this impact will be included in the appropriate chapters of the Emerson Property Draft EIR.

c. The proposed project would add housing and a commercial center to the project site and would remove Prime Farmland from agricultural uses. The loss of prime agricultural land is considered a “cumulatively considerable impact” and a “substantial adverse impact,” both direct and indirect. Other cumulative impacts may be identified in the categories of population growth, use of resources, demand for services, and physical changes to the natural environment. All of these impacts may result in adverse effects on human beings. Therefore, these impacts would be considered ***potentially significant***.

Mitigation Measure(s)
Further analysis of this impact will be included in the appropriate chapters of the Emerson Property EIR.