CITY OF SUISUN CITY  
COMMUNITY DEVELOPMENT DEPARTMENT  

PUBLIC NOTICE - NOTICE OF AVAILABILITY OF THE  
WAL-MART WALTERS ROAD PROJECT DRAFT  
ENVIRONMENTAL IMPACT REPORT  
(SCH# 2006072026)

September 17, 2007

TO: RESPONSIBLE AGENCIES  
TRUSTEE AGENCIES  
OTHER INTERESTED PARTIES

SUBJECT: NOTICE OF AVAILABILITY OF THE WAL-MART WALTERS ROAD  
PROJECT DRAFT ENVIRONMENTAL IMPACT REPORT  
(SCH# 2006072026)

OVERVIEW: The City of Suisun City has prepared a Draft Environmental Impact Report (DEIR)  
to consider the potential environmental effects of the proposed Wal-Mart Walters Road Project  
(generally located on the northwest corner of Walters Road and State Route 12, Suisun City, CA).  
The proposed project requires the approval of a Site Plan and Architectural Application No. 06-08,  
Parcel Map 06-02, Sign Application No. 06-04, and Encroachment Permits to Local Streets. The  
project consists of approximately 230,000 square feet of commercial activities on approximately  
20.1 acres.

ENVIRONMENTAL IMPACTS: The DEIR found significant impacts related to Aesthetics,  
Light, and Glare, Air Quality, Biological Resources, Cultural Resources, Geology, Soils, and  
Seismicity, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use, Noise,  
Public Services and Utilities, Transportation, and Urban Decay. Many of these impacts were  
reduced to a less-than-significant level through the implementation of mitigation measures.  
However, even with implementation of applicable mitigation measures, the DEIR found that the  
project would still result in significant and unavoidable impacts to Aesthetics (Visual Character)  
Air Quality (Long-Term Operational Emissions, Cumulative Impacts, Greenhouse Gas  
Emissions), Noise (Construction Noise, Stationary Noise Sources, Operational Noise –  
Vehicular Sources), and Transportation (Intersections Operations, Long-Term Intersection  
Operations, Queuing).

AVAILABILITY OF DRAFT EIR AND RELATED MATERIALS: Copies of the Draft  
Environmental Impact Report (DEIR), and all documents referenced in the DEIR, can be reviewed  
or purchased at the City of Suisun City, 710 Civic Center Boulevard during normal business hours.  
The Draft Environmental Impact Report may also be reviewed at the Solano County Library located
at 1150 Kentucky Street, Fairfield, CA 94533. The Draft Environmental Impact Report may be found on the City’s web page at www.suisun.com.

**CONTACT REPRESENTATIVE:** Reviewers should focus on the adequacy of the DEIR in discussing possible impacts upon the environment, ways in which adverse effects might be minimized, and alternatives to the proposed project. Reviewers who wish to comment on the DEIR are urged to submit written comments to:

Heather McCollister, Community Development Director  
City of Suisun City  
701 Civic Center Blvd.  
Suisun City, CA 94585  
(707) 421-7396  
Email: hmccollister@suisun.com

**STARTING AND CLOSING DATE OF REVIEW:** The public review period shall extend for 45 days from September 20, 2007 through November 5, 2007. Written comments are due to the City of Suisun City on or before November 5, 2007 at 5:00 p.m.

**HAZARDOUS WASTE SITES:** The project lands are not listed on any list of hazardous waste sites prepared pursuant to Government Code Section 65962.5.

Heather McCollister  
Community Development Director
Walters Road West Project
Draft Environmental Impact Report

State Clearinghouse Number 2006072026

Prepared for:

City of Suisun City
Community Development Department
701 Civic Center Boulevard
Suisun City, CA 94585

Prepared by:

Michael Brandman Associates
Bishop Ranch 3
2633 Camino Ramon, Suite 460
San Ramon, CA 94583

September 20, 2007
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<tr>
<td>µm</td>
<td>micrometer</td>
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<tr>
<td>ABAG</td>
<td>Association of Bay Area Governments</td>
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<tr>
<td>af</td>
<td>acre-feet</td>
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<tr>
<td>APCD</td>
<td>Air Pollution Control District</td>
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<td>AQMD</td>
<td>Air Quality Management District</td>
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<tr>
<td>AST</td>
<td>Aboveground storage tank</td>
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<td>BAAQMD</td>
<td>Bay Area Air Quality Management District</td>
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<td>BACT</td>
<td>Best Available Control Technology</td>
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<td>billion cubic feet</td>
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<td>below the ground surface</td>
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<td>BMP</td>
<td>Best Management Practice</td>
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<td>cfs</td>
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<td>California Native Plant Society</td>
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<td>CO</td>
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<td>EMF</td>
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### Acronyms and Abbreviations

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<th>Description</th>
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<td>F</td>
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<td>General Commercial</td>
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<td>hydrofluorocarbons</td>
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<td>Michael Brandman Associates</td>
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<td>Acronyms</td>
<td>Abbreviations</td>
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<td>Migratory Bird Treaty Act</td>
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<td>maximum contaminant level</td>
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<td>MEI</td>
<td>Maximaly Exposed Individual</td>
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<td>MMI</td>
<td>Modified Mercalli Intensity</td>
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<td>Multi-Species Habitat Conservation Plan</td>
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<td>mean sea level</td>
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<td>MUTCD</td>
<td>Manual of Uniform Traffic Control Devices</td>
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<td>NOₓ</td>
<td>oxides of nitrogen</td>
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<td>ppb</td>
<td>parts per billion</td>
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<td>PPV</td>
<td>peak particle velocity</td>
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<td>time of concentration</td>
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<td>Total Maximum Daily Load</td>
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<td>Transportation Refrigeration Unit</td>
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<td>volatile organic compounds</td>
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<td>Waste Discharge Requirements</td>
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SECTION 1: INTRODUCTION

1.1 - Overview, Purpose, and Authority of the EIR

This Draft Environmental Impact Report (DEIR) is prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with the implementation of the Walters Road West Project (State Clearinghouse Number 2006072026). This document is prepared in conformance with CEQA (California Public Resources Code, Section 21000, et seq.) and the CEQA Guidelines (California Code of Regulations, Title 14, Section 15000, et seq.).

The purpose of an EIR is to disclose information to the public and to decision makers about the potential environment effects of a proposed project. An EIR does not recommend either approval or denial of a proposed project; rather, it is intended to provide a source of independent and impartial analysis of the foreseeable environmental impacts of a proposed course of action. This EIR describes the proposed project, analyzes its environmental effects, and discusses reasonable alternatives that would avoid, reduce, or minimize environmental impacts.

The City of Suisun City is the lead agency for the proposed project. The Suisun City Planning Commission and City Council will consider the information presented in this document in making an informed decision regarding the approval, conditions of approval, or denial of the proposed project.

1.1.1 - Overview

The proposed project consists of the development of an approximately 227,019-square-foot commercial retail center consisting of a Wal-Mart Supercenter, a sit-down restaurant, and a gas station with an associated convenience store and automated car wash on approximately 20.8 acres in the eastern portion of Suisun City. The project would include onsite roadway, parking, and utility improvements. Section 3, Project Description, provides a complete description of the project.

1.1.2 - Purpose and Authority

This Draft EIR provides a project-level analysis of the environmental effects of the proposed project. The environmental impacts of the proposed project are analyzed in the EIR to the degree of specificity appropriate, in accordance with CEQA Guidelines Section 15146. This document addresses the potentially significant, adverse environmental impacts that may be associated with the planning, construction, or operation of the project. It also identifies appropriate and feasible mitigation measures and alternatives that may be adopted to avoid or reduce these impacts.
CEQA requires that an EIR contain, at a minimum, certain specific elements. These elements are contained in this Draft EIR and include:

- Table of Contents
- Introduction
- Executive Summary
- Project Description
- Environmental Setting, Significant Environmental Impacts, and Mitigation Measures
- Cumulative Impacts
- Significant Unavoidable Adverse Impacts
- Alternatives to the Proposed Project
- Growth-Inducing Impacts
- Effects Found Not To Be Significant
- Areas of Known Controversy

1.1.3 - Lead Agency Determination

The City of Suisun City is designated as the lead agency for the project. CEQA Guidelines Section 15367 defines the lead agency as “. . . the public agency, which has the principal responsibility for carrying out or approving a project.” Other public agencies may use this Draft EIR in the decision-making or permit process and consider the information in this Draft EIR along with other information that may be presented during the CEQA process.

This Draft EIR was prepared by Michael Brandman Associates, a consultant under contract to the City of Suisun City. This Draft EIR reflects the independent judgment and analysis of the City of Suisun City as required by CEQA. Lists of organizations and persons consulted and the report preparation personnel are provided in Sections 8 and 9, respectively, of this Draft EIR.

1.2 - Scope of the EIR

This Draft EIR addresses the potential environmental effects of the proposed project. The scope of this Draft EIR includes the areas of controversy identified by the Notice of Preparation (NOP) issued by the City, dated July 10, 2006; comments obtained during a public scoping meeting held on August 7, 2006 at the Joseph A. Nelson Community Center; as well as issues raised by agencies and the public in response to the NOP.

Twenty-one comments were received in response to the NOP, including written comments submitted at the August 7, 2006 scoping meeting. They are listed in Table 1-1 and provided in Appendix A of this EIR.
Table 1-1: NOP Comments

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<tr>
<th>Agency/Organization</th>
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<th>Date</th>
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<tr>
<td>Governor’s Office of Planning and Research, State Clearinghouse and Planning Unit</td>
<td>Scott Morgan, Program Analyst</td>
<td>July 10, 2006</td>
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<tr>
<td>California Department of Fish and Game</td>
<td>Robert W. Floerke, Regional Manager</td>
<td>July 13, 2006</td>
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<td>California Department of Transportation</td>
<td>Timothy C. Sable, District Branch Chief</td>
<td>July 19, 2006</td>
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<td>United States Fish and Wildlife Service</td>
<td>Harry Mossman, Endangered Species Consultant</td>
<td>July 19, 2006</td>
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<td>Solano County Mosquito Abatement District</td>
<td>Jon A. Blegen, Manager</td>
<td>August 9, 2006</td>
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<tr>
<td>Solano Transportation Authority</td>
<td>Dan Christians, Assistant Executive Director</td>
<td>August 9, 2006</td>
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**Private Parties and Individuals**

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<tr>
<td>Citizens Against the Dump</td>
<td>Dwight Acey, Spokesperson</td>
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<td>Pacific Gas and Electric Company</td>
<td>Donald Kennedy, Land Agent</td>
<td>July 18, 2006</td>
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<td>(Private Citizen)</td>
<td>Mark and Mark Davis</td>
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<td>(Private Citizen)</td>
<td>Les Hubbard</td>
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<td>(Private Citizen)</td>
<td>Amy Liebert</td>
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<tr>
<td>(Private Citizen)</td>
<td>Mr. and Ms. Juan Torres</td>
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**August 7, 2006 Scoping Meeting Comment Authors**

- Yoshiko Acey
- Jean Cain
- Beth Garber
- June Gudotti
- George Guynn, Jr.
- Rich Hanson
- Peg Hanson
- C. Hughes
- Bernie and Jeannie Slack

Source: City of Suisun City, 2006.

1.2.1 - Environmental Issues Determined Not To Be Significant

The NOP identified topical areas that were determined not to be significant and require no detailed evaluation in the EIR. An explanation of why each area is determined not to be significant is provided in Section 7, Effects Found Not To Be Significant. These topical areas are as follows:

- Agriculture Resources
- Mineral Resources
- Population and Housing
- Recreation
An explanation of why each topical area is determined not to require further evaluation in this EIR is provided in Section 7, Effects Found Not To Be Significant.

In addition, certain issues within various topical areas were found not to be significant. These are listed below, with the corresponding topical section in parentheses:

- Scenic Highways (Section 4.1, Aesthetics, Light, and Glare)
- Septic and Alternative Wastewater Systems (Section 4.5, Geology, Soils, and Seismicity)
- Exposure of Schools to Hazardous Materials (Section 4.6, Hazards and Hazardous Materials)
- Private Airstrips (Section 4.6, Hazards and Hazardous Materials)
- Groundwater (Section 4.7, Hydrology and Water Quality)
- 100-Year Flood Hazards (Section 4.7, Hydrology and Water Quality)
- Dam or Levee Failure (Section 4.7, Hydrology and Water Quality)
- Seiche, Tsunami, or Mudflow Hazards (Section 4.7, Hydrology and Water Quality)
- Schools (Section 4.10, Public Services and Utilities)
- Parks (Section 4.10, Public Services and Utilities)
- Other Public Facilities (Section 4.10, Public Services and Utilities)

An explanation of why each issue is determined not to be significant is provided in Section 7, Effects Found Not To Be Significant.

1.2.2 - Potentially Significant Environmental Issues

The NOP found that the following topical areas may contain potentially significant environmental issues that will require further analysis in the EIR. These topical areas are as follows:

- Aesthetics, Light, and Glare
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Public Services and Utilities
- Transportation
- Urban Decay

1.3 - Organization of the EIR

This Draft EIR is organized into the following main sections:
• **Section 1: Introduction.** This section provides an introduction and overview describing the purpose of this Draft EIR, its scope and components, and its review and certification process.

• **Section 2: Executive Summary.** This section includes a summary of the proposed project and alternatives to be addressed in the Draft EIR. A list of the areas of controversy and issues to be resolved and overview of the Mitigation Monitoring and Reporting Program, in addition to a table that summarizes the impacts, mitigation measures, and level of significance after mitigation, are also included in this section.

• **Section 3: Project Description.** This section includes a detailed description of the proposed project, including its location, site, and project characteristics. A discussion of the project objectives, intended uses of the Draft EIR, responsible agencies, and approvals that are needed for the proposed project are also provided.

• **Section 4: Environmental Impact Analysis.** This section analyzes the environmental impacts of the proposed project. Impacts are organized into major topic areas. Each topic area includes a description of the environmental setting, methodology, significance criteria, impacts, mitigation measures, and significance after mitigation. The specific environmental topics that are addressed within Section 4 are as follows:

  - **Section 4.1 - Aesthetics, Light, and Glare:** Addresses the potential visual impacts of development intensification and the overall increase in illumination produced by the project.

  - **Section 4.2 - Air Quality:** Addresses the potential local and regional air quality impacts associated with project implementation as well as consistency with the Bay Area Air Quality Management District air quality management plans.

  - **Section 4.3 - Biological Resources:** Addresses the project’s impacts on habitat, vegetation, and wildlife; the potential degradation or elimination of important habitat; and the potential impacts on listed, proposed, and candidate threatened and endangered species, and potential conflicts with the Solano Multispecies Habitat Conservation Plan.

  - **Section 4.4 - Cultural Resources:** Addresses the potential impacts of project development on known historical resources and potential archaeological and paleontological resources and burial sites.

  - **Section 4.5 - Geology, Soils, and Seismicity:** Addresses the potential impacts the project may have on soils, and assesses the effects of project development in relation to geologic and seismic conditions.

  - **Section 4.6 - Hazards and Hazardous Materials:** Addresses the potential for the presence of hazardous materials or conditions on the project site and in the project area that may have the potential to impact human health.
- **Section 4.7 - Hydrology and Water Quality:** Addresses the impacts of the project on local hydrological conditions, including drainage areas and changes in the flow rates.

- **Section 4.8 - Land Use:** Addresses the related land use impacts associated with implementation of the project, including division of an established community, and consistency with the City of Suisun City General Plan, the Suisun City Zoning Ordinance, and the Travis Air Force Base Land Use Compatibility Plan.

- **Section 4.9 - Noise:** Addresses the noise impacts during construction and at project buildout from mobile and stationary sources. The section also addresses the impact of noise generation on neighboring uses.

- **Section 4.10 - Public Services and Utilities:** Addresses the impacts on fire protection, police protection, water supply, wastewater, storm drainage, solid waste, and energy.

- **Section 4.11 - Transportation:** Addresses the impacts of project-related traffic on the local and regional roadway system, in addition to impacts related to aviation hazards, emergency access, parking, public transportation, and bicycle and pedestrian access.

- **Section 4.12 - Urban Decay:** Addresses the potential for urban decay as a result of the development of the proposed project.

- **Section 5: Alternatives to the Proposed Project.** This section compares the impacts of the proposed project with three land-use project alternatives: the No Project Alternative, the Reduced Density Alternative Option 1, and the Reduced Density Alternative Option 2. An environmentally superior alternative is identified.

- **Section 6: Other CEQA Considerations.** This section provides a summary of significant environmental impacts, including unavoidable and growth-inducing impacts, and the project’s irreversible and irretrievable commitment of resources. This section discusses the cumulative impacts associated with the proposed project, including the impacts of past, present, and probable future projects. In addition, this section analyzes the proposed project’s energy conservation characteristics.

- **Section 7: Effects Found Not To Be Significant.** This section contains analyses of the topical sections not addressed in Section 4.

- **Section 8: Persons and Organizations Consulted.** This section contains a full list of persons and organizations consulted during the preparation of this Draft EIR.

- **Section 9: List of Preparers.** This section lists the authors who assisted in the preparation of the Draft EIR, by name and company/agency affiliation.

- **Section 10: References.** This section contains a full list of references that were used in the preparation of this Draft EIR.
Appendices. This section includes all notices and other procedural documents pertinent to the Draft EIR, as well as all technical material prepared to support the analysis.

1.4 - Documents Incorporated by Reference

As permitted by Section 15150 of the CEQA Guidelines, this Draft EIR has referenced several technical studies, analyses, and previously certified environmental documentation. Information from the documents, which have been incorporated by reference, has been briefly summarized in the appropriate sections. The relationship between the incorporated part of the referenced document and the Draft EIR has also been described. The documents and other sources that have been used in the preparation of this Draft EIR include, but are not limited to:

- City of Suisun City General Plan
- City of Suisun City General Plan Environmental Impact Report
- Suisun Solano Water Authority Urban Water Management Plan

These documents are specifically identified in Section 10, References, of this Draft EIR. In accordance with Section 15150(b) of the CEQA Guidelines, these referenced documents and other sources used in the preparation of the Draft EIR are available for review at the City of Suisun City, Community Development Department, at the address shown in Section 1.6, below.

1.5 - Documents Prepared for the Project

The following technical studies and analyses were prepared for the proposed project:

- Air Quality Analysis, prepared by Michael Brandman Associates - Appendix B
- Biological Resources Analysis, prepared by Olberding Environmental, Inc. - Appendix C
- Jurisdictional Delineation, prepared by Olberding Environmental, Inc. - Appendix C
- Phase I Cultural Resources Assessment, prepared by Michael Brandman Associates - Appendix D
- Geotechnical Investigation, prepared by TRC Lowney - Appendix E
- Phase I Environmental Site Assessment, prepared by TRC Lowney - Appendix F
- Hydrologic Study, prepared by Michael Brandman Associates - Appendix G
- Noise Analysis, prepared by Michael Brandman Associates - Appendix H
- Retail Market Impact Analysis, prepared by Bay Area Economics - Appendix K
These documents are included in the Draft EIR as appendices.

1.6 - Review of the Draft EIR

Upon completion of the Draft EIR, the City of Suisun City filed a Notice of Completion (NOC) with the State Office of Planning and Research, which coincided with the start of the public review period (Public Resources Code, Section 21161). Concurrent with the NOC, this Draft EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the Draft EIR, in accordance with Public Resources Code 21092(b)(3).

During the public review period, the Draft EIR, including the technical appendices, will be available for review at the following locations:

City of Suisun City
Community Development Department
701 Civic Center Boulevard
Suisun City, CA 94585
Hours:
Monday, Wednesday, and Thursday, 8 a.m. to 5 p.m.
Tuesday, 8 a.m. to 7 p.m.

Solano County Library
1150 Kentucky Street
Fairfield, CA 94533
Hours:
Monday - Thursday, 10 a.m. to 9 p.m.
Friday and Saturday, 10 a.m. to 5 p.m.
Sunday, 1 to 5 p.m.

The Draft EIR will also be posted electronically on the City of Suisun City’s website (http://www.suisun.com).

Agencies, organizations, and interested parties not previously contacted or who did not respond to the NOP currently have the opportunity to comment on the Draft EIR during the public review period.

Written comments on this Draft EIR should be addressed to:

Heather McCollister, Community Development Director
City of Suisun City
Community Development Department
701 Civic Center Boulevard
Suisun City, CA 94585
Phone: 707.421.7396
Fax: 707.429.3758
Email: hmccollister@suisun.com

Submittal of electronic comments in Microsoft Word format is encouraged. Upon completion of the public review period, written responses to all significant environmental issues raised in the comments will be prepared and made available for review by the public agencies that submitted comments at least 10 days prior to the public hearing on the project that will take place before the Suisun City Planning Commission and City Council. The certification of the Final EIR will be considered at this
public hearing. The Draft EIR, comments on and responses to the Draft EIR, the Final EIR, and findings will be included as part of the environmental record for consideration and certification by the City of Suisun City for the proposed project.
SECTION 2: EXECUTIVE SUMMARY

2.1 - Introduction

The California Environmental Quality Act (CEQA) requires all State and local government agencies to consider the environmental consequences of proposed projects over which they have discretionary authority. The purpose of this Environmental Impact Report (EIR) is to assess the environmental impacts of the proposed Walters Road West Project pursuant to CEQA (Public Resources Code Section 21000-21178), as amended, and the CEQA Guidelines (Title 14, California Code of Regulations, Section 15000, et seq.), as amended.

The purpose of an EIR is to disclose information to the public and decision makers about the potential environment effects of a proposed project. An EIR does not recommend either approval or denial of a proposed project; rather, it is intended to provide a source of independent and impartial analysis of the foreseeable environmental impacts of a proposed course of action. This EIR describes the proposed project, analyzes its environmental effects, and discusses reasonable alternatives that would avoid, reduce, or minimize environmental impacts. The Suisun City Planning Commission and City Council will consider the information presented in this document in making an informed decision regarding the approval, conditions of approval, or denial of the proposed project.

2.2 - Project Summary

2.2.1 - Project Location

The project site is located in Suisun City, Solano County. The project site consists of an approximately 20.8-acre, triangular-shaped lot occupying the northwestern quadrant of the intersection of State Route 12 (SR-12) and Walters Road. The site is bounded by Petersen Road (north), Walters Road (east), and SR-12 (south).

2.2.2 - Project Description

The proposed project consists of the development of approximately 227,019 square feet of commercial uses consisting of a Wal-Mart Supercenter, a sit-down restaurant, and a gas station with convenience store and car wash. The Wal-Mart Supercenter would total approximately 214,919 square feet and include all store components, including a garden center, drive-thru pharmacy, and grocery. The sit-down restaurant tenanted by a national chain would be located west of the Wal-Mart Supercenter and total 8,000 square feet. Alternative uses for the outparcel occupied by the sit-down restaurant include a single-tenant retailer with a use complementary to the Wal-Mart Supercenter, or a multi-tenant building with a variety of general retail and casual food service uses, also complementary to the Wal-Mart Supercenter. A 12-pump gas station with an associated 4,100-square-foot convenience store (possibly co-branded with a national quick-service restaurant) and an automated car wash would be located in the southern portion of the project site near the intersection of SR-12 and Walters Road. Parking would be provided onsite.
2.3 - Project Objectives

The objectives of the proposed project are to:

- Enhance the commercial retail offerings in the Fairfield-Suisun region
- Provide regional commercial retail activities that will complement existing local retail activities located in the Fairfield-Suisun region
- Provide commercial development that creates new job opportunities for local residents
- Promote economic growth and development that is consistent with the policies of the City of Suisun City General Plan
- Design a project consistent with the City of Suisun City’s General Plan and Zoning Ordinance
- Enhance the City’s position to better serve the regional and community retail needs in the larger Solano County community
- Generate sales tax and property tax revenues to accrue to the various agencies within the project area
- Begin and continue to address the City’s existing structural budget deficit of approximately $800,000, which, if not corrected, will result in the continuation of service reductions and staff layoffs
- Pay for its fair share of impacts and positively contribute to the local economy
- Provide a retail development that meets the currently unmet demand of regional consumers and future demand from planned residential development in the area
- Expand and provide new retail options close to local consumers by providing 24-hour shopping opportunities in a safe and secure environment
- Minimize travel lengths and utilize existing infrastructure to the maximum extent possible by developing a regional commercial center on undeveloped land surrounded by existing urban uses on three sides
- Provide a fair return on the costs and investments made in the land and project by private development entities
- Ensure that commercial development has sufficient onsite parking to minimize impacts to the surrounding residential areas and ensure that adequate parking is provided for customers and employees
- Develop an architectural design that softens the scale and mass of the buildings with features designed to blend with the surrounding area
• Provide landscaping to soften the design and create a pleasant, attractive appearance that complements the surrounding area

2.4 - Significant Unavoidable Adverse Environmental Impacts

The Draft EIR has identified the following areas where, after the implementation of feasible mitigation measures, the proposed project would nonetheless result in impacts that cannot be fully reduced to a less than significant level. The following are significant unavoidable adverse environmental impacts:

• **Visual Character:** Development of the proposed project would irreversibly and permanently alter the visual character of the project site. Mitigation is proposed; however, it would not fully mitigate the impact to a level of less than significant.

• **Operational Emissions:** Long-term operational emissions would exceed Bay Area Air Quality Management District (BAAQMD) thresholds for regional operational emissions. Mitigation is proposed; however, it would not fully mitigate the impact to a level of less than significant.

• **Cumulative Air Quality Impacts:** Because the proposed project would have a significant unavoidable impact related to long-term operation emissions, it would also have, therefore, a significant unavoidable cumulative impact on air quality. No mitigation is available to reduce this impact to a level of less than significant.

• **Greenhouse Gas Emissions:** The proposed project would emit greenhouse gases (e.g., carbon dioxide) in substantial quantities. While there are no adopted thresholds at the time of this writing for greenhouse gas emissions, the size and intensity of the proposed project are substantial enough for its emissions to be considered a cumulatively significant contribution to global concentrations of greenhouse gases. Mitigation is proposed; however, it would not fully mitigate the impact to a level of less than significant.

• **Construction Noise:** Construction noise may result in excessive noise levels at nearby residences. Mitigation is proposed; however, it would not fully mitigate the impact to a level of less than significant.

• **Stationary Source Noise:** Stationary source noise from operation of the proposed project may exceed acceptable noise levels at nearby residences. Mitigation is proposed; however, it would not fully mitigate the impact to a level of less than significant.

• **Vehicular Noise:** Vehicular noise from project-related trips may exceed acceptable noise levels at nearby residences. Mitigation is proposed; however, it would not fully mitigate the impact to a level of less than significant.
• **Near-Term Intersection Operations**: Project-generated trips would contribute to deficient performance at seven intersections under Year 2008 conditions. Mitigation is proposed that would improve operations at all seven intersections to acceptable levels; however, because several of the intersections are under the jurisdiction of the City of Fairfield or Caltrans, the City of Suisun City cannot assure that the improvements would be in place by the time of project opening. Therefore, this impact is considered significant and unavoidable.

• **Long-Term Intersection Operations**: Project-generated trips would contribute to deficient performance at eight intersections under Year 2030 conditions. Mitigation is proposed that would improve operations at all eight intersections to acceptable levels; however, because several of the intersections are under the jurisdiction of the City of Fairfield or Caltrans, the City of Suisun City cannot assure that the improvements would be in place by the time of project opening. Therefore, this impact is considered significant and unavoidable.

• **Queuing**: Project-generated trips would contribute to excessive queuing at seven movements. Mitigation is proposed that would improve queuing at all seven movements to acceptable levels; however, because several of the intersections are under the jurisdiction of the City of Fairfield or Caltrans, the City of Suisun City cannot assure that the improvements would be in place by the time of project opening. Therefore, this impact is considered significant and unavoidable.

### 2.5 - Project Alternatives Summary

Below is a summary of the alternatives to the proposed project considered in Section 5, Alternatives to the Proposed Project.

#### 2.5.1 - No Project Alternative

Section 4 of this EIR describes the current environmental conditions at the project site. Under the No Project Alternative, the project site would remain undeveloped and unchanged from current conditions.

#### 2.5.2 - Reduced Density Alternative Option 1

The Reduced Density Alternative Option 1 consists of development of an approximately 33 percent reduction in project square footage. A 150,000-square-foot shopping center would be developed on the project site, anchored by a 75,000-square-foot grocery store. Inline shops and restaurants, as well as freestanding structures on outparcels, would contain the remaining 75,000 square feet of commercial uses. This alternative would maintain the proposed project’s access points on Walters Road and Petersen Road.

#### 2.5.3 - Reduced Density Alternative Option 2

The Reduced Density Alternative Option 2 consists of an approximately 20-percent reduction in project square footage. The Wal-Mart Supercenter would be reduced to 180,000 square feet
Including garden center), and the sit-down restaurant and gas station would be eliminated. This alternative would maintain the proposed project’s access points on Walters Road and Petersen Road. The reduced footprint of the Supercenter would be offset with additional landscaping.

2.5.4 - Environmentally Superior Alternative

Among all the alternatives evaluated, the No Project Alternative was identified as the environmentally superior alternative. CEQA Guidelines Section 15126.2(e)(2) requires an EIR to identify another alternative as environmentally superior from the remaining options if the No Project Alternative is deemed environmentally superior. Accordingly, the Reduced Density Alternative Option 1 is deemed environmentally superior among the remaining alternatives.

2.6 - Areas of Controversy To Be Resolved

Pursuant to CEQA Guidelines Section 15123(b), a summary section must address areas of controversy known to the lead agency, including issues raised by agencies and the public, and it must also address issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects.

A Notice of Preparation (NOP) of an EIR for the proposed project was issued on July 10, 2006. The NOP, describing the original concept for the project and issues to be addressed in the EIR, was distributed to the State Clearinghouse, responsible agencies, and other interested parties for a 30-day public review period that extended from July 10 through August 9, 2006. The NOP identified the potential for significant impacts on the environment related to the following topical areas:

- Aesthetics, Light, and Glare
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials
- Land Use
- Noise
- Public Services and Utilities
- Transportation
- Urban Decay
- Growth Inducement
- Cumulative Impacts

2.6.1 - Disagreement Among Experts

This EIR contains substantial evidence to support all the conclusions presented herein. There is the possibility that there will be disagreement among various parties regarding these conclusions, although the City of Suisun City is not aware of any disputed conclusions at the time of this writing. Both the CEQA Guidelines and case law clearly provide the standards for treating disagreement among experts. Where evidence and opinions conflict on an issue concerning the environment, and the lead agency knows of these controversies in advance, the EIR must acknowledge the controversies, summarize the conflicting opinions of the experts, and include sufficient information to
allow the public and decision makers to make an informed judgment about the environmental consequences of the proposed project.

It is also possible that evidence will be presented during the 45-day statutory Draft EIR public review period that may create disagreement. Decision makers will consider this evidence and any other information presented during the public hearing process.

In rendering a decision on a project where there is disagreement among experts, the decision makers are not obligated to select the most environmentally preferable viewpoint. Decision makers are vested with the ability to choose among conflicting expert opinions so long as their choice is based on substantial evidence; decision makers need not reconcile any disputes among experts. In their proceedings, decision makers must consider comments received concerning the adequacy of the Draft EIR and address any objections raised in these comments. However, decision makers are not obligated to follow any directives, recommendations, or suggestions presented in comments on the Draft EIR, and they can certify the Final EIR without needing to resolve disagreements among experts.

2.6.2 - Potentially Controversial Issues
Below is a list of potentially controversial issues that may be raised during the public review and hearing process of this Draft EIR.

- Aesthetics
- Air Quality
- Biological Resources
- Land Use
- Noise
- Public Services
- Traffic
- Travis Air Force Base Compatibility
- Urban Decay
- Water Supply

2.7 - Public Review of the Draft EIR

The Draft EIR will be available for public review for the statutory 45-day review period beginning September 20, 2007 and ending November 5, 2007. Printed copies of the document will be available for public review at the following locations:

City of Suisun City
Community Development Department
701 Civic Center Boulevard
Suisun City, CA 94585
Hours: Monday, Wednesday, and Thursday, 8 a.m. to 5 p.m. Tuesday, 8 a.m. to 7 p.m.

Solano County Library
1150 Kentucky Street
Fairfield, CA 94533
Hours: Monday - Thursday, 10 a.m. to 9 p.m. Friday and Saturday, 10 a.m. to 5 p.m. Sunday, 1 to 5 p.m.

The Draft EIR will also be posted electronically on the City of Suisun City’s website (http://www.suisun.com).
During the 45-day review period, agency representatives and members of the public will be able to submit written comments on the Draft EIR to the address provided below:

Heather McCollister, Community Development Director  
City of Suisun City  
Community Development Department  
701 Civic Center Boulevard  
Suisun City, CA 94585  
Phone: 707.421.7396  
Fax: 707.429.3758  
Email: hmccollister@suisun.com

Submittal of electronic comments in Microsoft Word format is encouraged. Upon completion of the public review period, written responses to all significant environmental issues raised in the comments will be prepared and made available for review by the public agencies that submitted comments, at least 10 days prior to the public hearing on the project that will take place before the Suisun City Planning Commission and Council. The certification of the Final EIR will be considered at this public hearing. The Draft EIR, comments on and responses to the Draft EIR, the Final EIR, and findings will be included as part of the environmental record for consideration and certification by the City of Suisun City for the proposed project.

2.8 - Executive Summary Matrix

Table 2-1 below summarizes the impacts, mitigation measures, and resulting level of significance after mitigation for the relevant environmental issue areas evaluated for the proposed project. The table is intended to provide an overview; narrative discussion for the issue areas is included in the corresponding section of this EIR. Table 2-1 is included in the EIR as required by CEQA Guidelines Section 15123(b)(1).
### Table 2-1: Summary of Project Impacts and Mitigation Measures

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4.1 - Aesthetics, Light, and Glare</strong>&lt;br&gt;<strong>Impact AES-1:</strong> The proposed project would not have substantial adverse effects on a scenic vista.</td>
<td>No mitigation is necessary.</td>
<td>Less than significant impact.</td>
</tr>
<tr>
<td><strong>Impact AES-2:</strong> The proposed project would irreversibly and permanently alter the visual character of the project site.</td>
<td><strong>MM AES-2.</strong> Prior to occupancy of the Wal-Mart Supercenter, the project applicant shall implement the measures listed below and the restrictions related to overnight RV parking. Store management shall regularly monitor overnight RV parking and enforce the restrictions, up to and including removing offending RVs from the parking area by towing.&lt;br&gt;- Signage shall be posted at multiple, highly visible locations in the parking area identifying a designated overnight RV parking and listing the aforementioned restrictions:&lt;br&gt;  - Prohibition of consecutive nights of overnight parking&lt;br&gt;  - No more than 10 overnight parked RVs on any night&lt;br&gt;  - Prohibition of “camping” activities in parking areas (e.g., setting up lawn chairs, barbecues, recreational facilities, etc.)&lt;br&gt;  - Prohibition on litter&lt;br&gt;  - Prohibition on parking abandoned, dismantled, inoperable, or wrecked RVs in the parking lot&lt;br&gt;- Convenient trash receptacles shall be located in or near the overnight RV parking area.</td>
<td>Significant unavoidable impact.</td>
</tr>
<tr>
<td><strong>Impact AES-3:</strong> Implementation of the proposed project may result in substantial sources of light and glare that may adversely impact daytime and nighttime views.</td>
<td><strong>MM AES-3.</strong> Prior to issuance of building permits for the project, the applicant shall provide a lighting plan for the City of Suisun City to review and approve.&lt;br&gt;- The plan shall include provisions to ensure that outdoor lighting, including illumination of the pylon sign, is designed so that potential glare or light spillover to surrounding land uses is minimized through appropriate site design, dimming, and shielding of light fixtures.&lt;br&gt;- The City will review the final site design plans to ensure that all lighting is directed downward and away from residences.&lt;br&gt;- This mitigation measure does not preclude the use of small-scale</td>
<td>Less than significant impact.</td>
</tr>
<tr>
<td>Impacts</td>
<td>Mitigation Measures</td>
<td>Level of Significance After Mitigation</td>
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<tr>
<td>decorative lighting that may be directed upward, such as wall wash lighting or spot lighting for landscaping. This type of lighting is allowed if it does not spill over onto adjacent properties.</td>
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<tr>
<td>4.2 - Air Quality</td>
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</tr>
<tr>
<td><strong>Impact AIR-1:</strong> The proposed project would not conflict with the Bay Area Air Quality Management District’s air quality management plans.</td>
<td>No mitigation is necessary.</td>
<td>Less than significant impact.</td>
</tr>
</tbody>
</table>
| **Impact AIR-2:** Construction activities would result in temporary earth movement that may expose sensitive receptors to short-term emissions of suspended and inhalable particulate matter. | **MM AIR-2.** During construction of the proposed project, the City of Suisun City shall require the construction contractor(s) to implement BAAQMD’s basic and enhanced dust control procedures required for all construction sites. Elements of the enhanced dust control program follow.  
• Water all active construction areas at least twice daily.  
• Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).  
• 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 (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.  
• Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.  
• Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).  
• Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles (e.g., dirt, sand).  
• Limit traffic speeds on unpaved roads to 15 mph.  
• Install sandbags or other erosion control measures to prevent silt runoff to public roadways.  
• Replant vegetation in disturbed areas as quickly as possible. | Less than significant impact.                                                                                                                                  |                                             |
### Impacts

**Impact AIR-3:** Construction activities, such as the use of heavy equipment or vehicular trips, may expose sensitive receptors to short-term exhaust emissions.

**Mitigation Measures (MM AIR-3):** The City shall include the measures listed below in the project construction contract documents for the proposed project to minimize construction equipment exhaust emissions:

- To the extent that use of the equipment and technology is feasible, the contractor shall use catalyst and filtration technologies.
- All diesel-fueled engines used in construction of the project shall use ultra-low sulfur diesel fuel containing no more than 15 ppm sulfur, or a suitable alternative fuel.
- All construction diesel engines, which have a rating of 50 hp or more, shall meet the Tier II California Emission Standards for off-road compression-ignition engines, unless certified by the contractor that such engine is not available for a particular use. In the event that a Tier II engine is not available, Tier I-compliant or 1996 or newer engines will be used preferentially. Older engines would only be used if the contractor demonstrates and certifies that compliance is not feasible.
- Heavy-duty diesel equipment and emission systems shall be maintained in optimum running condition, in accordance with manufacturers’ specifications.
- The construction contractor shall encourage idling of construction equipment and vehicles (or minimize idling time to a maximum of 5 minutes when construction equipment is not in use), consistent with Section 2485 within Chapter 10 - Mobile Source Operational Controls, Article 1 - Motor Vehicles, Division 3 of the Air Resources Board, Title 13, California Code of Regulations. The contractor will post temporary signs on the construction site to remind equipment operators to minimize idling time.

**Level of Significance After Mitigation:** Less than significant impact.

### Impact AIR-4:

**Impact AIR-4:** Implementation of the proposed project would result in substantial increases of criteria air pollutant emissions associated with operation of the proposed project.

**Mitigation Measures (MM AIR-4):** The following emissions control measures shall be incorporated into the proposed project:

- The Wal-Mart Supercenter loading dock areas shall include:
  - Signage advising truck drivers to turn off engines when not in use
  - Signage advising truck drivers of State law prohibiting diesel idling of more than five minutes
  - Auxiliary 110 v and 220 v power units so trucks can power refrigeration units or other equipment without idling

**Level of Significance After Mitigation:** Significant unavoidable impact.
<table>
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<tr>
<th>Impacts</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
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<tbody>
<tr>
<td>• The project owner shall provide adequate ingress and egress at entrances to public facilities to minimize vehicle idling and traffic congestion and dedicated turn lanes as appropriate.</td>
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<tr>
<td>• The project owner shall provide loading and unloading facilities for carpool/vanpool users with clear visible signage. Where safety and space constraints do not take precedence, loading and unloading facilities shall be provided near building entrances for carpool/vanpool users.</td>
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<tr>
<td>• The project owner shall install high albedo and emissive roofs or install EPA “Energy Star” approved roofing materials.</td>
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</tr>
<tr>
<td>• The project owner shall use energy-efficient lighting and process systems, such as low NOx water heaters, furnaces, and boiler units in commercial facilities.</td>
<td></td>
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</tr>
<tr>
<td>Impact AIR-5: Implementation of the proposed project would not result in substantial increases of carbon monoxide concentrations at land uses near roadways and intersections.</td>
<td>No mitigation is necessary.</td>
<td>Less than significant impact.</td>
</tr>
<tr>
<td>Impact AIR-6: Implementation of the proposed project would not result in substantial increases of emissions of diesel particulate matter and toxic air contaminants from the loading dock and service station areas, respectively.</td>
<td>No mitigation is necessary.</td>
<td>Less than significant impact.</td>
</tr>
<tr>
<td>Impact AIR-7: Development of the proposed project would not create objectionable odors affecting a substantial number of people.</td>
<td>No mitigation is necessary.</td>
<td>Less than significant impact.</td>
</tr>
<tr>
<td>Impact AIR-8: Implementation of the proposed project would contribute to a cumulative air quality impact in the project area.</td>
<td>Refer to Mitigation Measure AIR-4.</td>
<td>Significant unavoidable impact.</td>
</tr>
<tr>
<td>Impact AIR-9: The proposed project would emit cumulatively considerable amounts of greenhouse gases.</td>
<td>MM AIR-9. To reduce emissions of greenhouse gases, the following measures shall be implemented:</td>
<td>Significant unavoidable impact.</td>
</tr>
<tr>
<td></td>
<td>• Overhead panels shall be installed over the loading bays to provide shade for docked trucks in order to keep the truck cabin and trailer</td>
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</tbody>
</table>
### Impacts

cooler and to decrease the need for truck idling to power air conditioning units. The panels shall be of sufficient size and oriented to shade the cabin during the summer season.

- Shade trees shall be planted near HVAC equipment to directly shield it from sunlight.
- Low nitrogen oxide-emitting or high-efficiency water heaters shall be used.

### 4.3 - Biological Resources

<table>
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<tr>
<th>Impact BIO-1:</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
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</table>
| The proposed project may have a substantial adverse impact on special-status plant species. | **MM BIO-1a.** Prior to construction of the project, a survey shall be conducted for pappose tarplant, to locate and map any individuals of this species on the site and to estimate the population size. If the pappose tarplant is found, the project applicant shall develop and implement a salvage and recovery plan for individuals prior to initiation of construction activities on the site. The mitigation, which shall be prepared by a qualified botanist experienced in the development and implementation of native plant restoration, mitigation, and management plans, shall include the following:  
  - Salvage and/or recovery requirements, including clearly defined goals focusing on plant establishment (stability, succession, reproduction) and non-native species control measures.  
  - Locations and procedures for restoration/replanting of salvaged plant material, including seeds. Onsite relocation in the undeveloped areas of the site shall be considered if suitable habitat for this species is present.  
  - The project sponsor, subject to approval by CDFG, shall document the progress/success of the revegetation effort. If the revegetation is not successful, an additional period of correction and monitoring shall be specified.  
  - Specification of a 5-year, post-construction maintenance and monitoring program by a qualified restoration team to ensure that the project goals and performance standards are being met. The monitoring program shall include provision for remedial actions to correct deficiencies, as needed. After 5 years, the species relocation shall be considered successful if the number of plants that were removed on the site is successfully established at the mitigation site at a minimum of a 1:1 | Less than significant impact. |
### Impacts

<table>
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<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
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</table>
| ratio. Annual reports and a final report prepared by the project sponsor and subject to approval by CDFG shall document the progress/success of the revegetation effort. If the revegetation is not successful, an additional period of correction and monitoring shall be specified.  
- The project sponsor shall provide and secure a source of funding for this salvage and monitoring operation to the satisfaction of the City prior to issuance of grading permits.  
- The mitigation shall be considered a success if, for the last 3 years of the 5-year monitoring program, the numbers of pappose tarplants have remained above the number of individuals that were adversely affected by the project (1:1 mitigation). The populations should show no sign of decline during this period. In addition, for at least the last 4 of 5 monitoring years, the growth of grass, presence of thatch, and growth of weeds should not hinder tarplant plants. Grazing is a potential management tool to reduce competition from non-native grasses and weeds. If the mitigation is unsuccessful after 5 years, monitoring shall be continued for a 6th year if it is warranted. If the lack of success after 5 years suggests that a 6th year of monitoring is not warranted, offsite mitigation land that supports this species shall be purchased. The purchase of these lands shall be approved by the City and funded by the project applicant.  

**MM BIO-1b.** In the event that CDFG or USFWS rejects the previously performed special-status plant focused surveys, the project shall either (1) retain a qualified botanist to perform new focused surveys to reconfirm the conclusions of the original surveys or (2) assume the presence of all of the special-status plant species and carry out offsite mitigation of the species through the purchase of credits at no less than a 3:1 ratio through an agency-approved mitigation bank.  

**Impact BIO-2:** The proposed project may have a substantial adverse impact on special-status wildlife species.  

**MM BIO-2a.** Prior to any site-disturbing activities, including grading or woody vegetation and tree removal, the applicant will retain a qualified wildlife biologist to conduct a nesting bird survey to determine if nests are active or occupied onsite. Any active nests observed onsite will be avoided until after the nestlings have fledged and left the nest. If avoidance is not feasible, then a biological monitor will be present if construction activities occur during the nesting season. Construction activity within the vicinity of these sites will be avoided.  

<table>
<thead>
<tr>
<th>Impact BIO-2:</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The proposed project may have a substantial adverse impact on special-status wildlife species.</td>
<td>Less than significant impact.</td>
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Less than significant impact.
<table>
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<tr>
<th>Impacts</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
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<td>of the active nests may only be conducted at the discretion of the biological monitor. If construction activity will likely result in nest failure, the applicant will consult with CDFG and/or USFWS to determine what mitigation or permitting is required. An MBTA Special Purpose Permit will be required if occupied nests will be impacted.</td>
<td><strong>MM BIO-2b.</strong> Loss of potential foraging habitat for raptor species and tricolored blackbird will be mitigated by applicant’s purchase of credits at an agency-approved mitigation bank within the region. The chosen mitigation bank must have credits available for purchase in the vernal pool/grassland mosaic habitat type, suitable for foraging habitat for raptor species and tricolored blackbird. The level of compensation must be commensurate with no less than a 1:1 replacement ratio.</td>
<td>Less than significant impact.</td>
</tr>
<tr>
<td><strong>Impact BIO-3:</strong> The construction phase of the proposed project will result in significant adverse impacts to riparian habitat associated with the drainage ditch.</td>
<td><strong>MM BIO-3.</strong> Loss of riparian habitat within the drainage ditch will be mitigated by the applicant’s purchase of credits at an agency-approved mitigation bank within the region. The chosen mitigation bank must have credits available for riparian habitats. Final mitigation ratios will be negotiated with regulatory agencies during the permit acquisition process, but in any event, the level of compensation must be commensurate with no less than a 1:1 replacement ratio. Alternatively, if the USACE, CDFG, and/or the RWQCB require mitigation in some other format as part of its permitting mandates, that mitigation may be substituted if it can be demonstrated that it is at least commensurate with a 1:1 replacement ratio.</td>
<td>Less than significant impact.</td>
</tr>
<tr>
<td><strong>Impact BIO-4:</strong> Implementation of the proposed project will result in adverse impacts to federally protected wetlands.</td>
<td><strong>MM BIO-4.</strong> Loss of seasonal wetland habitat within the property boundaries shall be mitigated by the applicant’s purchase of credits at an agency-approved mitigation bank within the region. The chosen mitigation bank must have credits available for seasonal wetlands or vernal pool/grassland habitats. The level of compensation must be commensurate with no less than a 2:1 replacement ratio, given the sensitive nature of these wetlands as potential vernal pool invertebrate habitat. The purchasing of offsite wetland habitat will provide long-term conservation for higher-quality wetland habitat that may otherwise be developed.</td>
<td>Less than significant impact.</td>
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<td>Impacts</td>
<td>Mitigation Measures</td>
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<tr>
<td>Impact BIO-5: The proposed project may result in the adverse modification of critical habitat areas.</td>
<td>Alternatively, if the USACE, CDFG, and/or the RWQCB require mitigation in some other format as part of its permitting mandates, that mitigation may be substituted if it can be demonstrated that it is at least commensurate with a 2:1 replacement ratio.</td>
<td>Less than significant impact.</td>
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<tr>
<td>Impact BIO-6: The proposed project would not interfere with wildlife corridors or otherwise impede wildlife movement.</td>
<td>MM BIO-5a. Prior to any ground-disturbing activities, the project applicant shall obtain mapping revisions from USFWS for the critical habitat designations for tadpole shrimp (Unit 11D), vernal pool fairy shrimp (Unit 16A), and Contra Costa goldfields (Unit 4C). The mapping revisions shall remove the small portion of the project site from the boundaries of each aforementioned critical habitat designation.</td>
<td>Less than significant impact.</td>
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<tr>
<td></td>
<td>MM BIO-5b. If USFWS does not concur with the request for a mapping revision for the critical habitat designations, prior to any ground-disturbing activities, USFWS shall be consulted pursuant to Section 7 for tadpole shrimp, vernal pool fairy shrimp, and Contra Costa goldfields critical habitat designations. If USFWS determines that the development of the proposed project would result in the adverse modification of designated critical habitat because the project site is unoccupied, no further action is required. If USFWS determines that the development of the proposed project would result in the adverse modification of one or more designated critical habitat areas, the project applicant shall mitigate for the loss of critical habitat by purchasing credits at an agency-approved mitigation bank at no less than a 3:1 ratio.</td>
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</tr>
<tr>
<td>Impact BIO-7: The proposed project would not conflict with City of Suisun City’s biological resource policies.</td>
<td>No mitigation is necessary.</td>
<td>Less than significant impact.</td>
</tr>
<tr>
<td>Impact BIO-8: The proposed project would not conflict with the Solano MSHCP.</td>
<td>MM BIO-8. At the time building permits are sought, the applicant shall pay mitigation fees to the City of Suisun City in accordance with the provisions of the Solano Multi-Species Habitat Conservation Plan. If the plan fee program is not in place at the time building permits are sought, the applicant shall provide an equivalent fee to a City-determined habitat fund.</td>
<td>Less than significant impact.</td>
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### Impacts

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<tr>
<th>Impact BIO-9: Development of the proposed project would not substantially reduce habitat for fish or wildlife, cause fish or wildlife populations to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered species.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
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<tr>
<td>Refer to MM BIO-1a, MM BIO-2a, MM BIO-5a, and MM-BIO-5b.</td>
<td>Less than significant impact.</td>
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#### 4.4 - Cultural Resources

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<tr>
<th>Impact CUL-1: Subsurface construction activities associated with the proposed project have very little potential to damage or destroy previously undiscovered historic resources.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
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<tbody>
<tr>
<td>MM CUL-1. If a potentially significant cultural resource is encountered during subsurface earthwork activities, all construction activities within a 100-foot radius of the find shall cease until a qualified archaeologist determines whether the resource requires further study. The City shall require that the applicant include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. Any previously undiscovered resources found during construction shall be recorded on appropriate Department of Parks and Recreation (DPR) forms and evaluated for significance in terms of California Environmental Quality Act criteria by a qualified archaeologist. Potentially significant cultural resources consist of, but are not limited to, stone, bone, fossils, wood, or shell artifacts or features, including hearths, structural remains, or historic dumpsites. If the resource is determined to be significant under CEQA, the City and a qualified archaeologist shall determine whether preservation in place is feasible. Such preservation in place is the preferred mitigation, if feasible. If such preservation is infeasible, the qualified archaeologist shall prepare and implement a research design and archaeological data recovery plan for the recovery, which will capture those categories of data for which the site is significant. The archaeologist shall also perform appropriate technical analyses, prepare a full written report and file it with the appropriate information center (California Historical Resources Regional Information Center), and provide for the permanent curation of the recovered materials.</td>
<td>Less than significant impact.</td>
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<tr>
<th>Impact CUL-2: Subsurface construction activities associated with the proposed project could potentially damage or destroy previously undiscovered archaeological resources.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
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<tr>
<td>Refer to Mitigation Measure CUL-1.</td>
<td>Less than significant impact.</td>
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<td>Impacts</td>
<td>Mitigation Measures</td>
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<tr>
<td><strong>Impact CUL-3</strong>: Subsurface construction activities associated with the proposed project could potentially damage or destroy previously undiscovered paleontological resources.</td>
<td><strong>MM CUL-3.</strong> In the event a fossil is discovered during construction of the proposed project, excavations within 100 feet of the find shall be temporarily halted or delayed until the discovery is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. The City shall require the applicant to include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. The paleontologist shall notify the City to determine procedures to be followed before construction is allowed to resume at the location of the find. If the City determines that avoidance is not feasible, the paleontologist shall design and carry out a data recovery plan consistent with the Society of Vertebrate Paleontology standards. The plan shall be submitted to the City for review and approval. Upon approval, the plan shall be incorporated into the project. Significant paleontological resources should be deposited in an accredited and permanent scientific institution for curation.</td>
<td>Less than significant impact.</td>
</tr>
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</table>

| Impact CUL-4: Subsurface construction activities associated with the proposed project could potentially damage or destroy previously undiscovered burial sites. | **MM CUL-4.** If human remains are encountered during earth-disturbing activities, all work in the adjacent area shall stop immediately and the Solano County Coroner’s office shall be notified. If the remains are determined to be Native American in origin, both the Native American Heritage Commission and any identified descendants shall be notified by the coroner and recommendations for treatment solicited and implemented (CEQA Guidelines Section 15064.5; Health and Safety Code Section 7050.5; Public Resources Code Sections 5097.94 and 5097.98). | Less than significant impact. |

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### 4.5 - Geology, Soils, and Seismicity

| Impact GEO-1: Development of the proposed project has the potential to expose persons or property to substantial adverse effects from seismic hazards. | **MM GEO-1.** During design and construction of the proposed project, the project applicant shall require the construction contractor(s) to implement the following design recommendations from the Geotechnical Investigation:

- Slabs-on-grade must have sufficient reinforcement and be supported on a layer of non-expansive fill; footings should extend below the zone of seasonal moisture fluctuation.

- Slabs-on-grade used in conjunction with shallow footings must be supported on at least 24 inches of select, non-expansive fill, or lime-treated native soils. | Less than significant impact. |
### Impacts

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<td>• Excavations extending below the planned finished site grades must be cleaned and backfilled with suitable material compacted to at least 95-percent relative compaction.</td>
<td>Refer to Mitigation Measures HYD-2a and HYD-2b.</td>
<td>Less than significant impact.</td>
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<td>• Concrete slabs or asphalt pavements must be scarified to a depth of 8 inches, moisture conditioned, and compacted to at least 95-percent relative compaction.</td>
<td>Refer to Mitigation Measure GEO-1.</td>
<td>Less than significant impact.</td>
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</table>
| • Earthwork should be performed during periods of suitable weather conditions, such as the summer construction season. If earthwork is performed during the wet winter season, alternatives to facilitate fill placement and trench backfill must be exercised. | MM GEO-4. During design and construction of the proposed project, the City of Suisun City shall require the construction contractor(s) to implement the following design recommendations from the Geotechnical Investigation to reduce potential impacts from expansive soils:  
  • Maintaining positive surface water drainage gradients (2-percent minimum) within 5 feet of buildings to direct surface water away from building perimeters. | Less than significant impact.          |
| • The amount of surface water infiltrating the soils near structures must be restricted by selecting landscaping materials needing little or no watering; using low-precipitation, regulated, and timed sprinkler heads; providing adequate surface drainage, and avoiding open planting within 3 feet of building perimeters. |                                                                                      |                                       |
| • Retaining walls must be designed to resist lateral earth pressures from adjoining natural materials, backfill, and surcharge loads. |                                                                                      |                                       |
| • Any concrete flatwork constructed on expansive soil must be properly prepared with the use of scarifying, moisture conditioning, and re-compacting the subgrade soil. It must be at least 4 inches thick and underlain by 12 inches of select, non-expansive fill. |                                                                                      |                                       |

**Impact GEO-2**: Development of the proposed project would result in ground-disturbing activities that have the potential to cause erosion and sedimentation.

**Impact GEO-3**: The proposed project’s structures may be susceptible to onsite, unstable geologic units and soils.

**Impact GEO-4**: The proposed project’s structures may be susceptible to shrinking and swelling of onsite expansive soils.
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<td>foundations and slabs</td>
<td>• Lime-treating native soils to reduce expansive potential and improve engineering characteristics of the soil</td>
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<td>• Landscaping and irrigation considerations to reduce the amount of water used around buildings and to avoid water collecting near building foundations, slabs-on-grade, or pavements</td>
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<td>4.6 - Hazards and Hazardous Materials</td>
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<tr>
<td>Impact HAZ-1: Development of the proposed project has the potential to expose to human health and the environment to hazardous materials associated with past or present site usage.</td>
<td>MM HAZ-1. The project applicant shall retain a certified contractor to remove or relocate the electrical transformer on the project site. If there is evidence of transformer oil leakage, PCB testing shall be performed and the results shall be provided to the City of Suisun City.</td>
<td>Less than significant impact.</td>
</tr>
<tr>
<td>Impact HAZ-2: The proposed project may routinely transport, use, or dispose of hazardous materials.</td>
<td>MM HAZ-2. Prior to construction, the applicant shall prepare and submit a Hazardous Materials Management Plan for the Solano County Department of Environmental Management. The plan shall address emergency response procedures and would include an initial inventory of hazardous materials, including new or waste materials that are toxic, reactive, ignitable, or corrosive.</td>
<td>Less than significant impact.</td>
</tr>
<tr>
<td>Impact HAZ-3: Development of the proposed project would not create or expose persons in the project area to aviation hazards.</td>
<td>No mitigation is necessary.</td>
<td>Less than significant impact.</td>
</tr>
<tr>
<td>Impact HAZ-4: The proposed project would not impair the implementation of, or physically interfere with, an adopted emergency response or evacuation plan.</td>
<td>No mitigation is necessary.</td>
<td>Less than significant impact.</td>
</tr>
<tr>
<td>Impact HAZ-5: Development of the proposed project would not expose persons or structures to wildland fire hazards.</td>
<td>No mitigation is necessary.</td>
<td>Less than significant impact.</td>
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</table>
### Impacts

#### 4.7 - Hydrology and Water Quality

<table>
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<tr>
<th>Impact HYD-1: The propose project may violate waste discharge requirements.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
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<tr>
<td>MM HYD-1. Prior to issuance of occupancy permits, any restaurant establishments shall include oil/grease traps capable of pre-treating wastewater flows to as good as or better than typical domestic wastewater quality.</td>
<td>Less than significant impact.</td>
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<tr>
<th>Impact HYD-2: Construction activities associated with the proposed project may adversely impact water quality and result in substantial erosion or siltation on- or offsite.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
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</table>
| MM HYD-2a. Prior to issuance of grading permits, the applicant shall submit an SWPPP and Grading Plan to the City of Suisun City for review and approval. The project SWPPP and Grading Plan shall identify specific actions and BMPs relating to the prevention of stormwater pollution from project-related construction sources by identifying a practical sequence for site restoration, BMP implementation, contingency measures, responsible parties, and agency contacts. The plan(s) shall be reviewed and approved by the City prior to commencement of work and shall be made conditions of the contract with the contractor selected to build the project. The plans shall incorporate control measures in the following categories:  
- Soil stabilization practices  
- Dewatering practices (if necessary)  
- Sediment and runoff control practices  
- Monitoring protocols  
- Waste management and disposal control practices  
Once approved by the City, the applicant and his construction contractor shall be responsible throughout the duration of the project for installing, constructing, inspecting, and maintaining the control measures included in the SWPPP and Grading Plan.  
MM HYD-2b. Prior to issuance of grading permits, the City shall ensure that the project SWPPP identifies pollutant sources that could affect the quality of stormwater discharges from the construction site. Control practices shall include those that effectively treat target pollutants in stormwater discharges. To protect receiving water quality, the SWPPP shall include, but not be limited to, the following elements:  
- Temporary erosion control measures (such as fiber rolls, staked straw bales, detention basins, temporary inlet protection, check dams, | Less than significant impact. |
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| geofabric, sandbag dikes, and temporary revegetation or other ground cover) shall be employed for disturbed areas.  
  • No disturbed surfaces will be left without erosion control measures in place during the winter and spring months.  
  • Sediment shall be retained onsite by a system of sediment basins, traps, or other appropriate measures. Of critical importance is the protection of the onsite drainage outlet at the southern corner of the property, the onsite culvert beneath SR-12, just west of the project site, and catch basins along Peterson and Walters roads.  
  • The construction contractor shall prepare Standard Operating Procedures for the handling of hazardous materials on the construction site to eliminate or reduce discharge of materials to storm drains.  
  • BMPs performance and effectiveness shall be determined either by visual means where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination (inadvertent petroleum release) is required to determine adequacy of the measure.  
  • Native grasses or other appropriate vegetative cover shall be established on the construction site as soon as possible after disturbance. | | Less than significant impact. |

**Impact HYD-3:** Operational activities associated with the proposed project could adversely impact water quality and provide substantial additional sources of polluted runoff.

**MM HYD-3a.** Prior to approval of the final tentative map, the applicant shall prepare and submit a Landscaping Management Plan to the City of Suisun City for review and approval. The plan shall identify landscaping practices that would reduce discharge of herbicides, pesticides, fertilizers, and other contaminants to local waterways. All contractors involved in project-related landscaping conducted during the individual phases of development, as well as maintenance of landscaping following project completion, shall complete their work in strict compliance with the Landscaping Management Plan. The applicant shall be responsible for ensuring that requirements of the Landscaping Management Plan are provided to and instituted by future project tenants following project completion. The Landscaping Management Plan shall be prepared by a licensed landscape architecture firm with experience in methods to reduce or eliminate the use of landscape chemicals that could cause adverse effects to the environment. At a minimum, the Landscaping Management Plan shall:
Impacts | Mitigation Measures | Level of Significance After Mitigation
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| | • Require that pesticides and fertilizers not be applied in excessive quantities, and applied only at times when rain is not expected for at least 2 weeks, in an effort to minimize leaching and runoff into the storm drainage system | |
| | • Encourage the use of organic fertilizers and mulching of landscaped areas to inhibit weed growth and reduce water demands | |
| | • Utilize native, perennial, drought-tolerant vegetation to minimize irrigation needs | |
| | • Specify the maintenance measures to be used (e.g., mowing) and specify an application schedule for all fertilizer amendments and pesticide applications | |
| | • Identify a list of preferred herbicides and pesticides, instances in which their use would be appropriate, and their associated application rates | |
| MM HYD-3b. Prior to approval of the final tentative map, the applicant shall prepare and submit documentation to the City of Suisun City for review and approval identifying stormwater treatment measures. Project stormwater treatment measures shall meet the mandates of Order R2-2003-0034, Provision C, and shall provide treatment capacity for onsite runoff of up to 49.79 cfs during a 15-year storm event and 50.56 cfs during a 25-year storm event. Stormwater treatment measures shall include one or a combination of the following stormwater treatment devices: | |
| | • Retention/detention ponds | |
| | • Retention rooftops | |
| | • Green roofs (which incorporate vegetation) and blue roofs (which incorporate detention or retention of rain) | |
| | • Porous/permeable pavement | |
| | • Crushed stone reservoir base rock under pavements or in sumps | |
| | • Oil/grease separators for parking areas | |
| | • Compost berms | |
| | • Street sweeping | |
If, after further evaluation, the project engineer determines that infiltration is a feasible stormwater treatment measure, the project applicant shall provide supporting documentation to the City of Suisun City for review.
City of Suisun City - Walters Road West Project  
Draft EIR  

Executive Summary

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| and approval. In accordance with RWQCB requirements, proposed infiltration devices shall meet, at a minimum, the following conditions:  
1. Pollution prevention and source control measures shall be implemented at a level appropriate to protect groundwater quality at sites where infiltration devices are to be used.  
2. Infiltration devices shall include an enforceable maintenance schedule to ensure they are adequately maintained over the long term to maximize pollutant removal capabilities.  
3. Onsite percolation tests will be conducted for all sections of the project site where infiltration technologies are proposed to confirm adequate soil percolation.  
4. The vertical distance from the base of any infiltration device to the seasonal high groundwater mark shall be at least 5 feet. | | |
<p>| Impact HYD-4: Development of the proposed project would create additional impervious surface coverage and alter existing drainage patterns, potentially leading to downstream flooding or substantial erosion or siltation on- or offsite. | MM HYD-4. Prior to approval of the final map, the applicant shall prepare a Final Stormwater Control Plan for the project that will require approval from the City Engineer. The Drainage Plan shall incorporate measures to maintain runoff during peak conditions to pre-construction discharge levels. The Plan shall evaluate options for onsite detention including, but limited to, providing temporary storage within a portion or portions of the parking lot, an underground vault and/or linear facilities along the project site’s southern and/or eastern perimeter, or a comparable onsite facility that would provide adequate capacity. Design specifications for the detention/retention facilities shall provide sufficient storage capacity to accommodate the 25-year, 24-hour storm event and comply with the City’s requirements that runoff from storms up to the 100-year return frequency are conveyed through storm facilities and disposed of in a manner that protects public and private improvements from flooding hazards. | Less than significant impact. |
| Impact HYD-5: Development of the proposed project would create or contribute runoff water that may exceed the capacity of existing or planned stormwater drainage systems. | MM HYD-5. Prior to approval of the final map, the City and the applicant shall investigate the condition of the downstream conveyance system within the Lawler Ranch subdivision to confirm that the capacity of the existing pipeline is sufficient to meet existing and project-related demands during 25-year and 100-year storm events. If observations indicate that restrictions in conveyance capacity are occurring as a result of foreign debris, the City/Applicant shall have the downstream conveyance system | Less than significant impact. |</p>
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<td>flushed to maximize the existing drainage capacity and confirm the integrity of the outfall structure. In the event that flushing the system proves infeasible or that drainage capacity or the integrity of the outfall structure is deficient to accommodate flows from the proposed project as set out above, the project applicant shall revise the project drainage plans to prevent the release of new net flows above the existing condition of the project site.</td>
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### 4.8 - Land Use

**Impact LU-1:** The proposed project would not divide an established community or create conflicts with neighboring land uses.  
No mitigation is necessary.  
Less than significant impact.

**Impact LU-2:** The proposed project would be consistent with the policies of the City of Suisun City General Plan.  
No mitigation is necessary.  
Less than significant impact.

**Impact LU-3:** The proposed project would be consistent with the requirements of the Suisun City Zoning Ordinance.  
No mitigation is necessary.  
Less than significant impact.

**Impact LU-4:** The proposed project would be consistent with the requirements of the Travis Air Force Base Land Use Compatibility Plan.  
No mitigation is necessary.  
Less than significant impact.

### 4.9 - Noise

**Impact NOI-1:** Development of the proposed project would result in temporary noise impacts during project construction.  
**MM NOI-1a.** Construction contractors shall be required to ensure that construction equipment is well tuned and maintained according to the manufacturer’s specifications, and that the equipment’s standard noise reduction devices are in good working order.  
**MM NOI-1b.** Consistent with Suisun City Municipal Code Chapters 15.04 and 15.12, construction activities shall be limited as follows:  
- For general construction activities, the operation of construction equipment and outdoor construction or repair work within 500 feet of any occupied residences shall be limited to the hours between 7:00 a.m. and 10:00 p.m., Monday through Saturday, and between 8:00 a.m. and 2:00 p.m. on Sunday.  
Significant unavoidable impact.
### Impacts  | Mitigation Measures  | Level of Significance After Mitigation
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10:00 p.m. on Sundays. Given the particularly annoying nature of pile-driving noise, pile-driving activities (if required) shall be limited to between the hours of 8:00 a.m. and 7:00 p.m.

- For all earthwork, trenching, and concrete or paving activities, construction activities shall be limited to the hours between 7:00 a.m. and 6:00 p.m., Monday through Friday, between 9:00 a.m. and 5:00 p.m. on Saturdays, and prohibited on Sundays (except use of water trucks for dust control, which may operate between 9:00 a.m. and 5:00 p.m.).

**MM NOI-1c.** Construction equipment noise shall be minimized during project construction by muffling and shielding intakes and exhaust on construction equipment (according to the manufacturers’ specifications) and by shrouding or shielding impact tools. All equipment shall have sound-control devices no less effective than those provided by the manufacturer.

**MM NOI-1d.** Construction activities contractors shall locate fixed construction equipment (such as compressors and generators) and construction staging areas as far as possible from adjacent residences. Activities within these staging areas shall conform to the time limitations established in Mitigation Measure NOI-1b.

**MM NOI-1e.** To further address the nuisance impact of project construction, construction contractors shall implement the following:

- Signs will be posted at the construction site that include permitted construction days and hours, a day and evening contact number for the job site, and a day and evening contact number for the City in the event of problems.
- An onsite complaint and enforcement manager will be posted to respond to and track complaints and questions related to noise.

**MM NOI-1f.** The Applicant shall incorporate into all contract specifications a provision that allows additional noise mitigation measures to be implemented during project construction at the discretion of the City. The need for additional adaptive management noise control measures may be triggered by noise complaints received by the City or concerns noted.
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| during site inspections conducted by the City. Additional adaptive management control measures could include the following:  
• Further limitations on the hours during which construction activities could occur  
• Changing the location of stationary construction equipment or staging areas  
• Shutting off idling equipment  
• Rescheduling construction activities  
• Notifying adjacent residents in advance of construction work  
• Installing acoustic barriers around stationary construction noise sources | | |
| MM NOI-1g. If pile driving is required for building construction, construction contractors shall incorporate the following additional requirements:  
• Wherever possible, sonic or vibratory pile drivers will be used instead of impact pile drivers (sonic pile drivers are only effective in certain soils).  
• Engine and pneumatic exhaust controls on pile drivers will be required as necessary to ensure that exhaust noise from pile driver engines are minimized to the extent feasible.  
• Where feasible, pile holes will be pre-drilled to reduce potential noise and vibration impacts.  
• Occupied residences within 500 feet of pile driving activities shall be notified of pile-driving activities at least 2 weeks prior to the commencement of pile driving. | | |
| Impact NOI-2: Project construction and operational activities would not expose persons to excessive groundborne vibration. | No mitigation is necessary. | Less than significant impact. |
| Impact NOI-3: Proposed onsite commercial uses would potentially result in operational noise impacts on neighboring residential areas. | MM NOI-3a. The following activities shall be prohibited between the hours of 10:00 p.m. and 7:00 a.m.:  
• Use of loudspeaker or loudspeaker systems in outdoor garden/seasonal center and other areas | Significant unavoidable impact. |
<p>| | MM NOI-3b. The following activities shall be prohibited between the | |</p>
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<td>hours of 7:00 p.m. and 7:00 a.m.:</td>
<td>• Garbage/recycling removal activities</td>
<td></td>
</tr>
<tr>
<td>• Use of parking lot sweeping units (e.g., air system sweeping devices, truck-mounted parking lot sweeping devices, or similar devices) and landscape equipment (e.g., leaf blowers).</td>
<td>MM NOI-3c. The project applicant shall incorporate the following design features into the final site plans:</td>
<td></td>
</tr>
<tr>
<td>• Building equipment (e.g., HVAC units and cold food storage units) shall be located away from nearby residences and properly shielded by either a rooftop parapet or other enclosure that effectively blocks the line of sight of the source from nearby residences.</td>
<td></td>
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<tr>
<td>• Wing-walls around truck wells and rubberized gaskets at loading bays shall be implemented at the primary loading docks of each building.</td>
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<tr>
<td>• Any outdoor loudspeaker system speakers shall be directed away from residences. Speaker volumes shall be adjusted to minimize noise at nearby residences.</td>
<td></td>
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</tr>
<tr>
<td>MM NOI-3d. The project applicant shall minimize truck delivery noise to the Wal-Mart Supercenter western loading dock either by limiting deliveries to the hours between 7:00 a.m. and 10:00 p.m. or by limiting nighttime truck access (ingress and egress) to the northernmost access point on Walters Road (north driveway).</td>
<td></td>
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</tr>
<tr>
<td>MM NOI-3e. Consistent with Mitigation Measure AIR-9, signage shall be posted informing truck drivers of California Air Resources Board (CARB) regulations, including requirements related to shutting off truck engines when not in use, the 5-minute limitation on idling, and the limitation on TRU operations to no more than 120 minutes within loading dock areas or elsewhere on the project site.</td>
<td></td>
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</tr>
<tr>
<td>MM NOI-3f. Following grading and site work and prior to construction of onsite buildings, the project applicant shall construct the proposed 8-foot-tall masonry wall along the northern portion of the property that would extend roughly the length of the proposed Wal-Mart Supercenter building. The wall shall be constructed of solid material and be of sufficient density</td>
<td></td>
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</table>
### Impacts

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impact NOI-4:</strong> Project-related vehicle traffic would not substantially increase roadside noise levels in the project vicinity under near-term (2008) or long-term (2030) conditions.</td>
<td><strong>MM NOI-4.</strong> The project applicant shall offer to replace the wood portion of the existing 6-foot-high wooden fence on top of a 2-foot tall earthen berm, with a 6-foot-high solid masonry wall for residences located between Fulmar Drive and Walters Road. If accepted by affected residences, prior to grading and site work, the project applicant shall construct the replacement masonry wall along the north side of Petersen Road so that it would extend from Fulmar Drive to Walters Road. The wall shall be constructed of solid material and shall be of sufficient density to minimize noise transmission. For maximum effectiveness, the wall must be continuous and relatively airtight along its length and height. The final design and specifications shall be developed in consultation with a qualified noise professional.</td>
<td>Significant unavoidable impact.</td>
</tr>
<tr>
<td><strong>Impact NOI-5:</strong> The proposed project would not expose employees or customers to excessive levels of aviation noise from Travis Air Force Base.</td>
<td>No mitigation is necessary.</td>
<td>Less than significant impact.</td>
</tr>
</tbody>
</table>

### 4.10 - Public Services and Utilities

| Impact PSU-1: The proposed project would not result in the need for new or expanded fire protection facilities. | No mitigation is necessary. | Less than significant impact. |
| Impact PSU-2: The proposed project would not result in the need for new or expanded police facilities. | No mitigation is necessary. | Less than significant. |
| **Impact PSU-3:** Implementation of the proposed project would not result in the need for new or expanded potable water facilities or have a negative impact on water supplies. | No mitigation is necessary. | Less than significant impact. |
**Impacts** | **Mitigation Measures** | **Level of Significance After Mitigation**
--- | --- | ---
**Impact PSU-4:** Implementation of the proposed project would not result in the need for new or expanded water treatment facilities or have a negative impact on existing facility capacity. | No mitigation is necessary. | Less than significant impact. |
**Impact PSU-5:** The proposed project would not result in the need for offsite storm drainage facilities. | No mitigation is necessary. | Less than significant impact. |
**Impact PSU-6:** Development of the proposed project would not result in the need for additional landfill capacity. | No mitigation is necessary. | Less than significant impact. |
**Impact PSU-7:** Development of the proposed project would not result in significant environmental impacts from the need for new or expanded energy supplies, generation facilities, or transmission facilities. | No mitigation is necessary. | Less than significant impact. |

**4.11 - Transportation**

**Impact TRANS-1:** Traffic from the proposed project would contribute to existing deficient intersection operations under near-term conditions.  

**MM TRANS-1a.** Prior to the issuance of building permits, the applicant shall provide Caltrans with payments for modifying the existing signal phasing at the intersection of SR-12 and Marina Boulevard. The existing split phasing in the northbound-southbound direction shall be modified to protected phasing. The project applicant shall provide the full cost of this modification.  

**MM TRANS-1b.** Prior to the issuance of building permits, the applicant shall provide Caltrans with payments for improvements to the intersection of SR-12 and Sunset Avenue. The improvements shall consist of re-striping the existing northbound through lane to a left-shared through lane and optimizing the signal timing. The eastbound right-turn lane should be restriped to a through shared-right lane that will turn into the drop right-turn lane at SR-12/Lawler Center Drive. The striping for the drop lane at Lawler Center Drive should be a dashed line for the first 270 feet (instead of the solid line that currently exists), and the remaining 270 feet should be a solid line. The project applicant shall provide the full cost of this improvement. | Significant unavoidable impact. |
<table>
<thead>
<tr>
<th>Impacts</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
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</thead>
<tbody>
<tr>
<td>MM TRANS-1c. Prior to the issuance of building permits, the applicant shall provide Caltrans with payments for improvements to the intersection of SR-12 and Emperor Drive. The improvements shall consist of re-striping the westbound right-turn lane to a shared through-right lane. The project applicant shall provide the full cost of this improvement.</td>
<td></td>
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<tr>
<td>MM TRANS-1d. Prior to the issuance of building permits, the applicant shall provide Caltrans with payments for improvements to the intersection of SR-12 and Woodlark Drive. The improvements shall consist of the installation of a westbound auxiliary lane on SR-12 for southbound traffic turning right on SR-12 from Woodlark Drive. The auxiliary lane shall extend from Woodlark Drive to Emperor Drive. The project applicant shall provide the full cost of this improvement.</td>
<td></td>
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</tr>
<tr>
<td>MM TRANS-1e. Prior to the issuance of building permits, the applicant shall provide the City of Fairfield with payments for improvements to the intersection of Air Base Parkway and Walters Road. The improvements shall consist of the re-striping the existing northbound through lane to a through shared-right lane. The project applicant shall provide the full cost of this improvement.</td>
<td></td>
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<tr>
<td>MM TRANS-1f. Prior to the issuance of building permits, the applicant shall provide the City of Suisun City with fair-share payments for improvements to the intersection of Pintail Drive and Walters Road. The improvements shall consist of the installation of a traffic signal, the placement of the signal indications where they can clearly be seen by approaching vehicles, and the installation of OPTICOM signal pre-emption. The project applicant shall provide 15 percent of the cost of this improvement, which was calculated on the basis of Caltrans methodology for calculating equitable share.</td>
<td></td>
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<tr>
<td>MM TRANS-1g. Prior to the issuance of building permits, the applicant shall provide Caltrans with payments for improvements to the intersection of SR-12 and Walters Road. The improvements shall consist of the installation of a second southbound right-turn bay and the modification of the existing northbound-southbound signal phasing to split from permitted. The project applicant shall provide the full cost of this improvement.</td>
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### Impacts

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<thead>
<tr>
<th>Impacts</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
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<tbody>
<tr>
<td><strong>MM TRANS-1h.</strong> Within 90 days of approval of the proposed project, the City of Suisun City shall establish a CIP to assess development projects their fair-share costs for necessary transportation improvements. If the City cannot collect sufficient funds from new development projects to cover the full cost of necessary improvements, the City shall make up the shortfall from other sources, including, but not limited to, the City’s General Fund as augmented by revenues derived from the proposed project or federal, State, or regional funds made available to the Solano Transportation Authority. If the City has not collected sufficient funds to fully finance CIP transportation projects 5 years after the issuance of the proposed project’s building permits, the City shall take one of the following actions: (1) reimburse the project applicant for some or all of the funds collected; (2) spend the funds collected on the highest priority improvements, reimbursing the project applicant for any unspent funds; or (3) identify a credible strategy by which the remaining necessary funds needed for all identified improvements can be obtained within a reasonable period of time. If the City exercises the third option, it must obtain all necessary funding within an additional two-year period, after which the City must exercise one of the first two options.</td>
<td></td>
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<tr>
<td>Associated with the establishment of a CIP, the City of Suisun City shall enter into reciprocal agreements with the City of Fairfield and Caltrans to collect fees from development projects to fund necessary transportation improvements to facilities under each respective agency’s jurisdiction.</td>
<td></td>
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<tr>
<td>Consistent with General Plan Policy 16 in Chapter II, if the CIP has not scheduled the necessary facilities for construction or purchase at the proper time to fulfill this requirement, the project applicant may elect to construct the facility or purchase the equipment ahead of the CIP schedule. A binding commitment for this purpose that is satisfactory to the City shall be executed prior to issuance of permits.</td>
<td></td>
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</tr>
<tr>
<td><strong>Impact TRANS-2:</strong> Traffic generated by the proposed project would contribute to deficient intersection operations under long-term conditions.</td>
<td><strong>MM TRANS-2a.</strong> Prior to the issuance of building permits, the applicant shall provide Caltrans with payments for improvements to the intersection of SR-12 and Sunset Avenue. The improvements shall consist of re-striping the existing eastbound right-turn lane to a through-shared right</td>
<td>Significant unavoidable impact.</td>
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</tbody>
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<table>
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<th>Impacts</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
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</thead>
<tbody>
<tr>
<td>Lane that will become a drop right-turn lane at Lawler Center Drive. The project applicant shall provide the full cost of this improvement.</td>
<td><strong>MM TRANS-2b.</strong> Prior to the issuance of building permits, the applicant shall provide Caltrans with payments for improvements to the intersection of SR-12 and Emperor Drive. The improvements shall consist of modifying the existing northbound-southbound signal phasing from permitted to split phasing and re-striping the northbound through lane to a left shared-through lane. The project applicant shall provide the full cost of this improvement.</td>
<td></td>
</tr>
<tr>
<td>Prior to the issuance of building permits, the applicant shall provide the City of Fairfield with fair-share improvements for improvements to the intersection of Air Base Parkway and Walters Road. The improvements shall consist of the installation of a second northbound free right-turn lane beginning at the Walters Court intersection, passing through the Air Base Parkway/Walters Road intersection, and transitioning back into the eastbound Air Base Parkway 1,500 feet past the intersection. The project applicant shall provide 4 percent of the cost of this improvement, which was calculated on the basis of Caltrans methodology for calculating equitable share.</td>
<td><strong>MM TRANS-2c.</strong> Prior to the issuance of building permits, the applicant shall provide the City of Fairfield with payments for improvements to the intersection of Air Base Parkway and Walters Road. The improvements shall consist of the installation of a second northbound free right-turn lane beginning at the Walters Court intersection, passing through the Air Base Parkway/Walters Road intersection, and transitioning back into the eastbound Air Base Parkway 1,500 feet past the intersection. The project applicant shall provide 4 percent of the cost of this improvement, which was calculated on the basis of Caltrans methodology for calculating equitable share.</td>
<td></td>
</tr>
<tr>
<td>Prior to the issuance of building permits, the applicant shall provide the City of Suisun City with payments for improvements to the intersection of Walters Road and Bella Vista Drive. The improvements shall consist of optimizing the existing signal timing. The project applicant shall provide the full cost of this improvement.</td>
<td><strong>MM TRANS-2d.</strong> Prior to the issuance of building permits, the applicant shall provide the City of Suisun City with payments for improvements to the intersection of Walters Road and Bella Vista Drive. The improvements shall consist of optimizing the existing signal timing. The project applicant shall provide the full cost of this improvement.</td>
<td></td>
</tr>
<tr>
<td>Prior to the issuance of building permits, the applicant shall provide Caltrans with payments for improvements to the intersection of SR-12 and Walters Road. The improvements shall consist of re-striping the existing northbound approach from one left, one through, and one right-turn lane to two left-turn lanes, one through lane, and one right-turn lane. Split signal phasing shall be provided on the northbound and southbound approaches. The project applicant shall provide the full cost of this improvement.</td>
<td><strong>MM TRANS-2e.</strong> Prior to the issuance of building permits, the applicant shall provide Caltrans with payments for improvements to the intersection of SR-12 and Walters Road. The improvements shall consist of re-striping the existing northbound approach from one left, one through, and one right-turn lane to two left-turn lanes, one through lane, and one right-turn lane. Split signal phasing shall be provided on the northbound and southbound approaches. The project applicant shall provide the full cost of this improvement.</td>
<td></td>
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<tr>
<td>Impacts</td>
<td>Mitigation Measures</td>
<td>Level of Significance After Mitigation</td>
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</tr>
<tr>
<td><strong>Impact TRANS-3</strong>: The proposed project would contribute to deficient queuing.</td>
<td><strong>MM TRANS-3a.</strong> Prior to the issuance of building permits, the applicant shall provide fair-share payments to Caltrans for queuing improvements to the intersection of SR-12 and Marina Boulevard. The existing westbound left-turn pocket shall be extended to 425 feet. The proposed project’s pro-rata share for this improvement would be 15 percent, based on Caltrans methodology for calculating equitable share.</td>
<td>Significant unavoidable impact.</td>
</tr>
<tr>
<td></td>
<td><strong>MM TRANS-3b.</strong> Prior to the issuance of building permits, the applicant shall provide the City of Fairfield with improvements for queuing improvements to the intersection of Air Base Parkway and Walters Road. The improvements shall consist of the extension of the existing westbound left-turn pocket to a minimum of 750 feet and the optimization of signal timing to provide more time for the westbound left-turn movement. The project applicant shall provide the full cost of these improvements.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>MM TRANS-3c.</strong> Prior to the issuance of building permits, the applicant shall provide Caltrans with fair-share improvements for queuing improvements to the intersection of SR-12 and Walters Road. The improvements shall consist of (1) the installation of an additional eastbound left turn (for a triple eastbound left) at the intersection, (2) the installation of an additional northbound through lane on Walters Road between SR-12 and Petersen Road, (3) the extension of the existing southbound left-turn pocket to a minimum of 250 feet, and (4) the extension of the existing eastbound left-turn pocket to a minimum of 650 feet. The project applicant shall provide 17 percent of the cost of these improvements, based on Caltrans methodology for calculating equitable share.</td>
<td></td>
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<tr>
<td></td>
<td><strong>MM TRANS-3d.</strong> Prior to the issuance of building permits, the applicant shall provide the City of Suisun City with fair-share improvements for queuing improvements to the intersection of Bella Vista Drive and Walters Road. The improvements shall consist of extending the existing southbound left-turn pocket 100 feet to a total length of 200 feet. The project applicant shall provide 86 percent of the cost of these improvements, based on Caltrans methodology for calculating equitable share.</td>
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</table>
### Impacts

<table>
<thead>
<tr>
<th>Impact TRANS-4: The proposed project would not alter air traffic patterns or create hazards to aviation.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mitigation is necessary.</td>
<td></td>
<td>Less than significant impact.</td>
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</table>

<table>
<thead>
<tr>
<th>Impact TRANS-5: The proposed project would not contain any design features or operational characteristics that would create safety hazards.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mitigation is necessary.</td>
<td></td>
<td>Less than significant impact.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact TRANS-6: The proposed project would provide adequate emergency access.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mitigation is necessary.</td>
<td></td>
<td>Less than significant impact.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact TRANS-7: The proposed project would provide adequate off-street parking capacity.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mitigation is necessary.</td>
<td></td>
<td>Less than significant impact.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact TRANS-8: The proposed project may not have adequate access to public transportation.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM TRANS-8. Prior to the issuance of occupancy permits, the applicant shall install a bus stop suitable for use by FST buses within the project or along the project frontage. The bus stop shall include a shelter, trash receptacles, lighting, and landscaping, and it shall be designed in accordance with FST standards.</td>
<td></td>
<td>Less than significant impact.</td>
</tr>
</tbody>
</table>

### 4.12 - Urban Decay

<table>
<thead>
<tr>
<th>Impact UD-1: The proposed project would not significantly change the dynamic of the local retail market and, therefore, would not result in store closures and long-term vacancies.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mitigation is necessary.</td>
<td></td>
<td>Less than significant impact.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact UD-2: Development of the proposed project would not result in the closure of competing businesses, causing the physical deterioration of properties or structures they once occupied.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mitigation is necessary.</td>
<td></td>
<td>Less than significant impact.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact UD-3: The proposed project, in conjunction with other planned commercial retail projects, would not result in significant regional urban decay impacts.</th>
<th>Mitigation Measures</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mitigation is necessary.</td>
<td></td>
<td>Less than significant impact.</td>
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</tbody>
</table>
SECTION 3: PROJECT DESCRIPTION

3.1 - Project Location and Setting

3.1.1 - Location
The project site is located in Suisun City, Solano County (Exhibit 3-1). The project site consists of an approximately 20.8-acre triangular-shaped lot occupying the northwestern quadrant of the intersection of State Route 12 (SR-12) and Walters Road (Assessor’s Parcel Number 0173-280-440). The site is bounded by Petersen Road to the north, Walters Road to the east, and SR-12 to the west and south (Exhibit 3-2). The project site is shown on the Denverton, CA USGS 7.5-minute topographic quadrangle map, Township 5 North, Range 1 West, Section 32.

3.1.2 - Existing Land Use
The project site is undeveloped and contains mostly non-native grasslands. The most prominent feature on the project site is a 1,025-foot-long drainage ditch that bisects the project site from north to south. The drainage ditch enters the site from a culvert under Petersen Road and leaves the site via a large culvert under SR-12. The drainage ditch conveys stormwater runoff to Hill Slough, located 0.5-mile south of the project site.

A gentle, 2-foot-high soil berm is present on the western portion of the site. Gravel is present on the southern portion of the site near SR-12. A pad-mounted transformer, owned by Pacific Gas & Electric Company (PG&E), is located along the eastern border of the site along Walters Road. An approximately 2-inch-diameter, vertically oriented pipe is located near the central portion of the site in a depression.

Groundwater occurs at a depth of approximately 1 to 5 feet below the surface. The elevation is approximately 15 feet above mean sea level. The project site contains approximately 2.173 acres of jurisdictional features associated with the drainage and isolated wetlands. The project site is partially within designated critical habitat for the Contra Costa goldfields, vernal pool fairy shrimp, and vernal pool tadpole shrimp. Photographs of the project site are provided in Exhibits 3-3a and 3-3b.

3.1.3 - Surrounding Land Uses
West
SR-12, a four-lane divided expressway, forms the northwest-southeast curving western boundary. Between SR-12 and the northwestern corner of the project is a mostly undeveloped parcel containing a Fairfield-Suisun Sewer District (FSSD) lift station. This approximately 6-acre parcel contains ruderal, non-native grassland. On the opposite side of SR-12 is the Lawler Ranch subdivision, which contains detached single-family residential uses developed in the early 2000s. A sound wall separates SR-12 from the Lawler Ranch subdivision.
North
Petersen Road, a two-lane undivided roadway with curb, gutter, and sidewalk on the north side, forms the northern boundary of the project site. The Central County Bikeway, a Class I bicycle facility, follows the north side of Petersen Road and continues west along the north side of SR-12. North of Petersen Road is the Quail Glen subdivision, which contains detached, single-family residential uses developed in the 1980s. The residences abutting Petersen Road are protected with a 6-foot-high wooden fence.

East
Walters Road, a four-lane, divided arterial roadway, forms the eastern boundary of the project site. Curb and gutter are present on both sides of the roadway, and a sidewalk is located on the east side of the roadway. The median of Walters Road contains decorative metalwork. On the east side of Walters Road is grazing land. Most of this land is located in unincorporated Solano County and is designated for Extensive Agriculture; however, a 3.02-acre parcel located at the intersection of SR-12 and Walters Road is within the Suisun City limits and is designated for General Commercial uses by the City of Suisun City General Plan.

A gas station and mini-mart occupy the northeastern quadrant of the intersection of Petersen Road and Walters Road. Approximately 0.75 mile northeast of the project site is Travis Air Force Base.

South
SR-12 and its signalized intersection with Walters Road is immediately south of the project site. South of SR-12 is the Lawler Ranch subdivision and a small-lot, detached, single-family residential subdivision developed in the early 1990s. Hill Slough is located south of the subdivision.

3.1.4 - Land Use Designations
The site is designated for General Commercial by City of Suisun City General Plan and zoned General Commercial (CG) by the Suisun City Zoning Ordinance. The project site is within Zone C of the Travis Air Force Base Land Use Compatibility Plan.

3.2 - Project Characteristics

3.2.1 - Proposed Project
Wal-Mart Stores, Inc. submitted an application to the City of Suisun City to develop approximately 227,019 square feet of commercial retail uses on the project site. The proposed project would be anchored by a Wal-Mart Supercenter and would contain a sit-down restaurant and a gas station with associated convenience store. Each use is described in detail below. The project site plan is shown in Exhibit 3-4.
View looking south from Petersen Road.

View of drainage on project site.

View looking southwest from Petersen Road.

View looking west from Petersen Road.

View looking west from Walters Road.

View looking northeast from State Route 12.

View looking north from SR-12.

View looking west from SR-12.


Exhibit 3-3b
Site Photographs
Wal-Mart Supercenter
A 214,919-square foot Wal-Mart Supercenter would be located along the northern end of the project site, abutting Petersen Road. The indoor building uses total 200,831 square feet, while the outdoor garden center uses total 14,089 square feet. The allocation of space within the Wal-Mart Supercenter is summarized in Table 3-1.

Table 3-1: Wal-Mart Supercenter Square Footage Summary

<table>
<thead>
<tr>
<th>Component</th>
<th>Approximate Square Feet</th>
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<tbody>
<tr>
<td>General Merchandise Sales Area</td>
<td>112,595</td>
</tr>
<tr>
<td>Grocery Sales Area</td>
<td>34,475</td>
</tr>
<tr>
<td>Retail Tenant Area</td>
<td>7,007</td>
</tr>
<tr>
<td>Stockroom/Receiving Area</td>
<td>27,064</td>
</tr>
<tr>
<td>Grocery Support Area</td>
<td>10,895</td>
</tr>
<tr>
<td>Ancillary Area</td>
<td>8,795</td>
</tr>
<tr>
<td><strong>Indoor Building Subtotal</strong></td>
<td><strong>200,831</strong></td>
</tr>
<tr>
<td>Outdoor Garden Center Area</td>
<td>14,089</td>
</tr>
<tr>
<td><strong>Total Building Area With Outdoor Garden Center</strong></td>
<td><strong>214,919</strong></td>
</tr>
</tbody>
</table>

Source: RAK Civil Engineers, 2007.

The proposed Wal-Mart Supercenter would operate 24 hours a day, 7 days a week, and it would include an outdoor garden center and a pharmacy with two drive-through lanes. The front of the store would contain a series of small shops that would be occupied by Wal-Mart uses and some leased by non-Wal-Mart vendors and service providers. These stores may contain uses such as a vision and hearing care center, food service, a photo studio and photo finishing center, a banking center, an arcade, and other similar uses. Note that certain store components (e.g., the photo studio) would operate during traditional business hours and would be closed at other times. The store would have outdoor seasonal sales and storage. Loading and storage facilities, which would include two truck doors, would be located in the back of the store, adjacent to and served by access points to Walters Road and Petersen Road.

The store would retail groceries and general merchandise including, but not limited to, apparel, appliances, books, electronics, health and beauty aids, housewares, jewelry, movies, music, pharmaceuticals, shoes, and sporting goods. For purposes of disclosure, the store would also retail alcohol for offsite consumption (Type 21), tobacco, pool chemicals, petroleum products, pesticides, paint products, and ammunition. The store would have outdoor seasonal sales and storage on approximately 35 to 40 parking spaces. The store would include a garden center with an exterior customer pick-up facility for pre-paid bagged garden supplies, such as potting soil, mulch, and manure. The exterior pick-up facility would have an attendant to assist the customer with loading. The exterior pick-up facility would not accommodate direct sales. All supplies picked up from the
exterior pick-up facility would be pre-paid. The exterior pick-up facility would operate during the same hours as the garden center.

The Wal-Mart Supercenter truck doors and loading docks would be located on the north side of the building. Two sets of truck doors with a total of six loading bays would be provided: one at the northwestern side of the building and the other on the northeastern side. A loading area with two pallet bale storage areas and two compactors would be located along the northern side of the building. Forklift movements would occur between the Garden Center, the loading areas, and the back of the store. An 8-foot-high masonry wall would screen views of the loading area from the Quail Glen subdivision to the north and would serve as a noise barrier. The Wal-Mart Supercenter would be set back a minimum distance of 30 feet from Petersen Road.

**Sit-Down Restaurant**
An 8,000-square-foot sit-down restaurant would be located on a 1.41-acre parcel in the western portion of the project site. The restaurant would likely be tenanted by a national restaurant chain. Alternative uses for the building include a single-tenant retailer with a use complementary to the Wal-Mart Supercenter, or a multi-tenant building with a variety of general retail and casual food service uses, also complementary to the Wal-Mart Supercenter. For the purposes of this EIR, restaurant uses will be assumed for this parcel because they would be more intensive (i.e., generate more vehicle trips) than the alternative retail or casual food uses.

**Gas Station**
The gas station would occupy a 1.05-acre parcel located in the southernmost portion of the site at the intersection of Walters Road and SR-12. The gas station would contain a covered canopy with 12 pumps on six islands (two pumps on each island), a 4,100-square-foot retail store, and an automated car wash. The retail building would be used for gas station sales operations; a convenience market; and, possibly, a co-branded quick-service restaurant. The retail uses may include alcohol sales (Type 21) for offsite consumption.

**Vehicular Access**
Access to the project site would occur from five points: three on Walters Road and two on Petersen Road. The main access point would be a signalized point located on Walters Road. This point would provide two inbound and two outbound traffic lanes, and a 150-foot, northbound left-turn lane. The two other Walters Road access points would be right-in, right-out, with one serving the gas station and the other serving the Wal-Mart Supercenter loading docks. The two Petersen Road access points would be unsignalized full points, with one serving the restaurant and the other serving the Wal-Mart Supercenter loading docks. The four unsignalized access points would have a minimum width of 30 feet and would be controlled with stop signs on the driveway approaches.
Parking and Internal Circulation
The proposed project would provide 1,014 parking spaces onsite. The proposed project would exceed the City of Suisun City’s Zoning Ordinance minimum parking requirements by six spaces.

Drive aisles would link the three project components with the access points on Walters Road and Petersen Road. Drive aisles would range from 25 to 52 feet in width. Designated crossing areas would also be located in front of the Wal-Mart Supercenter to alert drivers of the potential of crossing pedestrians.

Architectural Design
The Wal-Mart Supercenter design is characterized as California contemporary retail. The main entrance of the building would feature a broken pediment that would serve as the visual focal point. An adjacent gabled entrance would be located on each side of the main entrance. The roofline would alternate in height from 24 feet, 8 inches at the lowest point to 40 feet, 8 inches at the peak of the gables. All rooftop equipment would be concealed from public view by parapets. The building materials would range in a variety of earth-tone colors and would consist of concrete block masonry units, stone veneer panels, and exterior insulation and finish system. Elevations of the Wal-Mart Supercenter are provided in Exhibit 3-5. Note that these elevations have been prepared for preliminary presentation and visual aesthetics only. Minor changes may occur during the design review process; therefore, these elevations may not be completely representative of the final design.

The restaurant and gas station would employ contemporary architectural design features. Both uses are expected to be tenanted by national chains; therefore, the design of each building would reflect each chain’s respective branding identity. The maximum height of both structures would be less than 35 feet in accordance with the zoning requirements.

The City of Suisun City will review all project architectural designs during the Site Plan and Architectural Review process.

Landscaping
Landscaping would be located at entry points, in parking areas, and along the project frontages. The landscaping would consist of trees and shrubs and would be consistent with the City’s General Plan policies for new development. Tree species would be primarily native or drought-tolerant, such as majestic beauty, coast live oak, California pepper, chitalpa, crape myrtle, flowering pear, strawberry, mayten, golden rain, Chinese pistache, true green elm, California buckeye, London plane, and raywood ash. Shrub species would be primarily native or drought-tolerant, such as lily-of-the-Nile, manzanita, dwarf bottlebrush, camellia, coleonema, fortnight lily, hopseed bush, blue oat grass, evergreen day lily, toyon, dwarf holly, myrtle, heavenly bamboo, New Zealand flax, and pittosporum. Groundcover species would be primarily native or drought-tolerant, such as gazania, trailing lantana, carpet rose, star jasmine, and rosemary. The conceptual landscaping plan is shown in Exhibit 3-6. Note that the landscaping plan has been prepared for preliminary presentation and visual aesthetics.
only. Minor changes may occur during the review process; therefore, the landscape plan may not be completely representative of the final design.

**Lighting and Signage**

Exterior lighting would be located on buildings and freestanding fixtures in parking areas. A pylon sign identifying the commercial tenants of the proposed project would be located on the project site near the intersection of SR-12 and Walters Road or further west along the project frontage with SR-12. The sign would include a digital clock and signify the entrance to the City, with lettering reading, “Welcome to Suisun City.” The sign would be surrounded with decorative landscaping. The conceptual sign elevation is shown in Exhibit 3-7. Note that the sign elevation has been prepared for preliminary presentation and visual aesthetics only. It is subject to change and, therefore, may not be completely representative of the final design. Minor changes may occur during the design review process; therefore, these elevations may not be completely representative of the final design.

**Utilities**

**Drainage**

Development of the project site would result in the removal of the drainage ditch that crosses the project site. In its place, storm drain piping, ranging from 30 to 36 inches in diameter, would be installed that would accept flows from the existing culvert under Petersen Road and divert them east and then south to reconnect with the existing culvert under SR-12. The proposed project’s storm drains and piping would release flows into the 30- and 36-inch pipes. Project drainage facilities would include retention features that would ensure that runoff would not be released into the storm drain system in excess of 95 percent of the pre-development condition of the project site, in accordance with City requirements.

Project drainage facilities would implement standard stormwater quality Best Management Practices (BMPs), which may include, but are not limited to, oil/water separators, bioswales, sand filters, and media filters. BMPs also require that an operations and maintenance plan and a 5-year water quality monitoring plan be prepared and implemented. The operations and maintenance plan would identify routine upkeep activities to ensure that the BMPs properly function and do not create odors or vector control problems.

**Wet Utilities**

The proposed project’s wet utilities would connect to existing infrastructure within the Walters Road right-of-way. The City of Suisun City would provide potable water service, and FSSD would provide wastewater collection and treatment to the proposed project.

**Dry Utilities**

The proposed project’s dry utilities would connect to existing infrastructure within the Walters Road right-of-way. Electricity and natural gas would be provided by PG&E, and telecommunications would be provided by AT&T.

Exhibit 3-6
Conceptual Landscape Plan

CITY OF SUISUN CITY • WALTERS ROAD WEST PROJECT
ENVIRONMENTAL IMPACT REPORT
Welcome to Suisun City

April 3, 2007
TEMP: 45.1 F

WALMART SUPERCENTER

35'-0"


Exhibit 3-7
Conceptual Sign Elevation

CITY OF SUISUN CITY • WALTERS ROAD WEST PROJECT
ENVIRONMENTAL IMPACT REPORT
Sustainability Features
The proposed project would incorporate a variety of sustainability features that would reduce its demand for resources, utilize non-toxic materials, and promote waste reduction. All of these sustainability features are standard design features included in the Wal-Mart Supercenter prototype.

Energy Efficiency
- T-8 fluorescent lamps and electronic ballasts, which are the most energy-efficient lighting systems available and reduce the energy load of a single store by approximately 15 to 20 percent compared with conventional lighting.

- Light Emitting Diode (LED) lighting in all internally illuminated building signage. LED technology is greater than 70 percent more energy-efficient than fluorescent illumination and provides an extended life span of 12 to 20+ years.

- LED lighting in frozen food cases and other refrigerated cases with doors. This lighting is motion activated and turns itself off whenever it is not needed. This lighting utilizes 50 percent less energy than traditional lighting, lasts three to four times longer, and contains no mercury.

- Daylight harvesting systems (e.g., skylights, electronic dimming ballasts, computer-controlled daylight sensors) that automatically and continuously dim all of the lights as the daylight contribution increases.

- Nighttime lighting dimming, in which illumination is reduced to 65 percent during the late-night hours.

- Super-high-efficiency packaged heating, ventilation, and air conditioning (HVAC) units that have a weighted Energy Efficiency Ratio of 11.25. This ratio is 10 percent higher than the industry standard, weighted average.

- An energy management system that is monitored and controlled from corporate headquarters in Bentonville, Arkansas. This energy management system enables corporate headquarters to monitor energy usage, analyze refrigeration temperatures, and observe HVAC and lighting performance. It also allows corporate headquarters to adjust lighting, temperature, or refrigeration set points from a central location.

- Refrigeration waste-heat recapture systems that heat water in the kitchen preparation areas. On average, waste heat accounts for 70 percent of the hot-water heating needs.

- A white membrane roof with a high solar reflectivity that lowers the cooling load by approximately 8 percent.

- Occupancy sensors in non-sales areas that automatically turn off the lights when the space is unoccupied.

- Actively dehumidifying the store, which allows the climate control system to be set at a higher indoor temperature and results in better refrigeration system efficiency.
• Shade trees in the parking lot in accordance with established City standards and will reduce heat adjacent to the store and require less usage of electricity to cool the store.

• Fans may be used instead of air conditioning during certain periods to reduce electricity usage.

Water Efficiency
Restroom sinks would use sensor-activated, low-flow faucets. The low flow reduces water usage by 84 percent, while the sensors, which regulate the amount of time the faucets flow, save approximately 20 percent in water usage over similar, manually operated systems. The project would employ drought-resistant plants in accordance with established City standards. Drought-resistant plants would also reduce water usage.

Non-Toxic Materials
Polyvinyl chloride (PVC) materials, which are commonly used in roofs but also contain toxins, would not be used in the roof membranes. The floor would be treated with an integrally colored concrete finish, which requires fewer chemical cleaners, wax, and wax strippers than a carpet or vinyl tile finish. Eliminating carpet and vinyl tile also addresses concerns about manufacture and disposal of these materials, which commonly contain PVC. Air conditioning and HVAC equipment would use R-410a refrigerant instead of R-22. R-410a releases fewer ozone-depleting refrigerants than R-22.

The Wal-Mart Supercenter would utilize low-mercury lamps, the bulbs of which, unlike all other fluorescent lamps, are not considered hazardous materials and can be disposed of in any landfill. Wal-Mart’s standard practice is to recycle these lamps and, therefore, divert them from landfills.

Waste Reduction
The Wal-Mart Supercenter exterior concrete mixes would contain a maximum of 25 percent fly ash or a maximum of 40 percent combination of fly ash and ground, granulated, blast-furnace slag. Fly ash is a waste product from the coal-fired electrical process, and slag is a waste product from steel production.

The Wal-Mart Supercenter would also be designed and equipped to accept the following materials for recycling:

• Aluminum
• Plastic (including bottles, bags, garment bags, shrink wrap, and bubble pack)
• Glass
• Cardboard
• Vegetable oil
• Single-use cameras
• Electronic waste
• Silver (from photo processing)
3.2.2 - Project Phasing

Construction of the proposed project is anticipated to begin as early as fall 2007. Activities would consist of vegetation removal, grading, installation of utilities and roadways, building construction, paving of parking lots, architectural coatings, and installation of landscaping. Construction would be completed in approximately 10 months, and the proposed project would be anticipated to open as early as summer 2008.

For the purposes of the analysis contained in this EIR, the air quality, noise, and traffic modeling assumed a project opening year of 2008. The retail impact analysis used 2009 as the opening year, which would be the first full year the proposed project would be open. There is the possibility that the project may be delayed and would not be completed until after 2008. From a CEQA perspective, this potential delay would not change the analysis contained in this Draft EIR because the significance of impacts sensitive to timing (e.g., air quality) would only be affected if the project schedule were implemented sooner than disclosed in this document.

3.3 - Project Objectives

The objectives of the proposed project are to:

- Enhance the commercial retail opportunities in the Fairfield-Suisun region
- Provide regional commercial retail activities that will compliment existing local retail activities located in the Fairfield-Suisun region
- Provide commercial development that creates new job opportunities for local residents
- Promote economic growth and development that is consistent with the policies of the City of Suisun City General Plan
- Design a project consistent with the City of Suisun City’s General Plan and Zoning Ordinance
- Enhance the City’s position to better serve the regional and community retail needs in the larger Solano County community
- Generate sales tax and property tax revenues to accrue to the various agencies within the project area
- Begin and continue to address the City’s existing structural budget deficit of approximately $800,000, which, if not corrected, will result in the continuation of service reductions and staff layoffs
- Pay for its fair share of impacts and positively contribute to the local economy
- Provide a retail development that meets the currently unmet demand of regional consumers and future demand from planned residential development in the area
• Expand and provide new retail options close to local consumers by providing 24-hour shopping opportunities in a safe and secure environment

• Minimize travel lengths and utilize existing infrastructure to the maximum extent possible by developing a regional commercial center on undeveloped land surrounded by existing urban uses on three sides

• Provide a fair return on the costs and investments made in the land and project by private development entities

• Ensure that commercial development has sufficient onsite parking to minimize impacts to the surrounding residential areas and ensure that adequate parking is provided for customers and employees

• Develop an architectural design that softens the scale and mass of the buildings with features designed to blend with the surrounding area

• Provide landscaping to soften the design and create a pleasant, attractive appearance that complements the surrounding area

3.4 - Intended Uses of This Draft EIR

This Draft EIR is being prepared by the City of Suisun City to assess the potential environmental impacts that may arise in connection with actions related to implementation of the proposed project. (CEQA Guidelines section 15161.) Pursuant to CEQA Guidelines Section 15367, the City of Suisun City is the lead agency for the proposed project and has discretionary authority over the proposed project and project approvals. The Draft EIR is intended to address all public infrastructure improvements and all future development that is within the parameters of the proposed project. No further environmental review of the project is contemplated.

3.4.1 - Discretionary and Ministerial Actions

As identified previously, discretionary and ministerial approvals and permits are required by the City for implementation of the proposed project. The project application will require a number of discretionary and ministerial approvals and actions from the City of Suisun City, including:

• Site Plan and Architectural Review—Community Development Director (can be appealed to the Planning Commission and the City Council)

• Parcel/Subdivision Map Approval—City of Suisun City Council

• Use Permit (would apply to building height, drive-thrus, and alcohol sales)—Planning Commission (can be appealed to the City Council)

• Zoning Administrator Approval (temporary outdoor sales)—Planning Commission (can be appealed to the City Council)
Subsequent ministerial actions will be required for the implementation of the proposed project, including:

- Encroachment Permit—City of Suisun City
- Grading Permit—City of Suisun City
- Building Permit—City of Suisun City
- Mechanical Permit—City of Suisun City
- Plumbing Permit—City of Suisun City
- Electrical Permit—City of Suisun City
- Fire Systems Permit—City of Suisun City
- Fencing Permit—City of Suisun City

3.4.2 - Responsible, Trustee, and Federal Agencies

A number of other agencies in addition to the City of Suisun City will serve as Responsible and Trustee Agencies, pursuant to CEQA Guidelines Sections 15381 and 15386, respectively. This Draft EIR will provide environmental information to these agencies and other public agencies, which may be required to grant approvals or coordinate with other agencies as part of project implementation. These agencies may include, but are not limited to, the following:

- U.S. Fish and Wildlife Service (USFWS)
- U.S. Army Corps of Engineers (USACE)
- California Department of Transportation (Caltrans)
- San Francisco Bay Regional Water Quality Control Board (RWQCB)
- Bay Area Air Quality Management District (BAAQMD)
- California Department of Fish and Game (CDFG)
- Solano County Airport Land Use Commission

Actions that are necessary to implement the project that must be taken by other agencies are:

- Obtain coverage under the General Construction Permit. Project construction would require coverage under the National Pollutant Discharge Elimination System (NPDES) General Construction Permit issued by the State Water Quality Control Board. In order to obtain coverage, a Notice of Intent and Storm Water Pollution Prevention Plan must be submitted to the RWQCB.

- Obtain Streambed Alteration Permit (1602 Permit) from CDFG under the California Fish and Game Code. The proposed project would impact the drainage ditch that is under the jurisdiction of CDFG.
• Obtain 404 Permit from USACE. The proposed project would impact jurisdictional waters regulated by USACE. Section 404 of the Clean Water Act requires USACE approval prior to the discharge of dredged or fill material into “waters of the U. S.” In general, work in rivers, streams, or wetlands requires an USACE 404 permit.

• Obtain 401 Certification from RWQCB pursuant to the Clean Water Act. The proposed project would impact jurisdictional waters regulated by RWQCB. Pursuant to Section 401 of the Clean Water Act, every applicant for a USACE 404 Permit must obtain state certification that the proposed activity will not violate state or federal water quality standards.

• Obtain Section 7 take authorization from USFWS pursuant to the Endangered Species Act. The proposed project would impact critical habitat regulated by USFWS.

• Obtain an Encroachment Permit from Caltrans. Project construction activities would occur within the SR-12 right-of-way adjacent to the project frontage.

• Obtain a recommendation from the Solano County Airport Land Use Commission. The proposed project is within Zone C of the Travis Air Force Base Land Use Compatibility Plan and, therefore, is subject to review by the Airport Land Use Commission.
SECTION 4: ENVIRONMENTAL IMPACT ANALYSIS

Organization of Environmental Topics

This Draft Environmental Impact Report (Draft EIR) provides analysis of impacts for those environmental topics where it was determined in the Notice of Preparation (NOP), as provided in Appendix A or through subsequent analysis, that the proposed project could result in “potentially significant impacts.” Sections 4.1 through 4.12 discuss the environmental impacts that may result with approval and implementation of the proposed project.

Issues Addressed In This EIR

The following environmental topical areas are addressed in this chapter:

- Aesthetics, Light, and Glare
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Public Services and Utilities
- Transportation
- Urban Decay

Each environmental issue area in Sections 4.1 through 4.12 contains a description of the following components:

1. The environmental setting as it relates to the specific issue
2. The regulatory framework governing that issue
3. The methodology used in identifying the impacts
4. The significance criteria
5. An evaluation of the project-specific impacts and identification of mitigation measures
6. A determination of the level of significance after mitigation measures are implemented

Level of Significance

Determining the severity of project impacts is fundamental to achieving the objectives of CEQA. CEQA Guidelines Section 15091 requires that decision makers mitigate, to a level of insignificance if
feasible, the significant impacts identified in the Final EIR. If the EIR identifies any significant
unmitigated impacts for which mitigation is unavailable or infeasible, CEQA Guidelines Section
15093 requires decision makers in approving a project to adopt a statement of overriding
considerations that explains why the benefits of the project outweigh the adverse environmental
consequences identified in the EIR.

The level of significance for each impact examined in this Draft EIR was determined by considering
the predicted magnitude of the impact against the applicable threshold. Thresholds were developed
using criteria from the CEQA Guidelines and checklist; state, federal, and local regulatory
requirements; local and regional plans and ordinances; accepted practice; consultation with
recognized experts; and professional opinions.

### Impact Analysis and Mitigation Measure Format

The format adopted in this EIR to present the evaluation of impacts is described and illustrated below.

#### Summary Heading of Impact

| Impact AES-1: | An impact summary heading appears immediately preceding the impact
description (Summary Heading of Impact in this example). The impact
abbreviation identifies the section of the report (AES for Aesthetics, Light,
and Glare in the example) and the sequential order of the impact (1 in the
example) within that section. To the right of the impact number is the
impact statement, which identifies the impact. |

#### Impact Analysis

A narrative analysis follows the impact statement.

#### Significance Before Mitigation

This section identifies the level of significance of the impact before any mitigation is
proposed.

#### Mitigation Measures

In some cases, following the impact discussion, reference is made to state and federal
regulations and agency policies that would fully or partially mitigate the impact. Also,
policies and programs from applicable local land use plans that partially or fully mitigate the
impact may be cited.

Project-specific mitigation measures, beyond those contained in other documents, are set off
with a summary heading and described using the format presented below:

| MM AES 1a | Project-specific mitigation is identified that would reduce the significance of
potentially significant impacts to a level of less than significant, where
feasible. In some cases, the proposed mitigation may not fully reduce the
residual significance of the impact to a level of less than significant;
therefore, the impact would remain significant. The mitigation number links |
the particular mitigation to the impact it is associated with (AES 1 in this example); the letter identifies the sequential order of that mitigation for that impact (a in this example).

**Significance After Mitigation**

This section identifies the residual level of significance of the impact following mitigation.
4.1 - Aesthetics, Light, and Glare

4.1.1 - Introduction
This section describes the existing visual and aesthetic resources for the project site, the setting, and the potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on the City of Suisun City Development Guidelines For Architecture and Site Planning, adopted on December 11, 1989 by the City of Suisun City.

4.1.2 - Environmental Setting

Visual Character

Regional Setting
The City of Suisun City is located between the City of Fairfield, Suisun Marsh, and Travis Air Force Base. The topography of Suisun City is relatively flat, though foothills to the west and the Potrero Hills to the southeast are visible in the distance. The natural character of Suisun City is defined by the land and water features of the Suisun Marsh and the Suisun Channel. The Suisun Marsh and associated preserves and wildlife provide scenic views that give residents and visitors a chance to connect with nature. Suisun City’s Historic Downtown Waterfront District is located on the Suisun Slough. The Downtown is a mix of modern buildings, renovated historic buildings and homes, a harbor, and a promenade to walk along and enjoy the scenery.

Project Site
The project site is undeveloped and mostly contains non-native grasslands. The most prominent feature on the project site is a 1,025-foot-long drainage ditch that bisects the project site from north to south. The drainage ditch enters the site from a culvert under Petersen Road and leaves the site via a large culvert under State Route 12 (SR-12). The drainage ditch conveys stormwater runoff to Hill Slough, located 0.5 mile south of the project site.

A gentle, 2-foot-high soil berm is present on the western portion of the site. Tilled gravel is present on the southern portion of the site near SR-12. A pad-mounted transformer, owned by Pacific Gas & Electric Company (PG&E), is located along the eastern border of the site along Walters Road. Photos of the project site can be found in Exhibits 3-3a and 3-3b.

Surrounding Land Uses and Views

West
SR-12, a four-lane divided expressway, forms the northwest-southeast curving western boundary. Between SR-12 and the northwest corner of the project is a mostly undeveloped parcel containing a pump station. This parcel mostly contains tall grasses. On the opposite side of SR-12 is the Lawler Ranch subdivision, which contains detached, single-family residential uses developed in the early 2000s. A sound wall separates SR-12 from the Lawler Ranch subdivision.
North
Petersen Road, a two-lane undivided roadway with curb, gutter, and sidewalk on the north side, forms the northern boundary of the project site. The Central County Bikeway, a Class I bicycle facility, follows the north side of Petersen Road and continues west along the north side of SR-12. North of Petersen Road is the Quail Glen subdivision, which contains detached, single-family residential uses developed in the 1980s. The residences abutting Petersen Road are protected with a 6-foot-high wood fence.

East
Walters Road, a four-lane, divided arterial roadway, forms the eastern boundary of the project site. Curb and gutter are present on both sides of the roadway, and a sidewalk is located on the east side of the roadway. The median of Walters Road contains decorative metalwork. On the east side of Walters Road is grazing land. Most of this land is located in unincorporated Solano County and is designated for Extensive Agriculture; however, a 3.02-acre parcel located at the intersection of SR-12 and Walters Road is within the Suisun City limits and is designated for General Commercial uses by the City of Suisun City General Plan.

A gas station and convenience store occupy the northeast quadrant of the intersection of Petersen Road and Walters Road. Approximately 0.75 mile northeast of the project site is Travis Air Force Base.

South
SR-12 and its signalized intersection with Walters Road are immediately south of the project site. South of SR-12 is the Lawler Ranch subdivision and a small-lot, detached, single-family residential subdivision developed in the early 1990s. Suisun Slough is located south of the subdivision.

Views of surrounding land uses are provided in Exhibit 4.1-1.

Light and Glare
Project Site
There are no sources of light on the site itself. The project site receives light and glare from streetlights and vehicular headlights on Petersen Road, Walters Road, and SR-12.

Surrounding Land Uses
Sources of light and glare from surrounding land uses include vehicular headlights of SR-12, Walters Road, and Petersen Road; streetlights; and light from the gas station and convenience store.

4.1.3 - Regulatory Setting
Local
City of Suisun City General Plan
The City of Suisun City General Plan establishes the following policies that relate to aesthetics, light, and glare:
View of the Lawler Ranch subdivision on the opposite side of State Route 12.

View of the gas station and convenience store located at Walters Road and Petersen Road.

View of the grazing land on the east side of Walters Road, opposite the project site.

View of the Quail Glen subdivision on the north side of Petersen Road, opposite the project site.

• The visual aspects of development (signs, fences, walls, landscaping, screening, lighting, color, materials, size, bulk, height, etc.) must be integrated and relate to their surroundings in a complimentary manner. (Chapter III - Community Character and Design, Policy 2)

• New development will be expected to adhere to a continually improving standard of design quality, environmental sensitivity, and image of the community. The quality of all private and public development should be upgraded with the addition of each new development project. (Chapter III - Community Character and Design, Policy 3)

• Infill development should be of superior quality than the surrounding development, particularly older developments from the 1960s and 1970s. Infill development should be sensitive to their surroundings and not appear out of scale, at odds in design, or overly dense in relation to neighboring land uses. (Chapter III - Community Character and Design, Policy 8)

• New developments should enhance the appearance of the community along arterial streets, collector streets, and at major entry ways to the City. Development design should reduce visual clutter through the undergrounding of utility lines, the regulation of signs, and the use of trees and other landscaping. (Chapter III - Community Character and Design, Policy 15)

• The General Plan Land Use Map will identify the key entry ways into the City. Major entry ways include Highway 12 east of the City limits near the future Walters Road extension, Sunset Avenue at the Southern Pacific Railroad tracks, Walters Road between Tabor Avenue and Prosperity Lane, and Highway 12 between Ledgewood Creek and the overpass. (Chapter III - Community Character and Design, Policy 16)

• The City will implement set-back requirements for buildings at key entry ways to the City to ensure that the intent of this section is achieved. Through its Development Guidelines, the City will ensure that buildings at key entry ways are designed to accent the entry way and accommodate entry signage and related features. (Chapter III - Community Character and Design, Policy 18)

• The City will require that arterial and collector streets contain sufficient widths to allow for landscaping along the right-of-way, such as landscaping strips between street and sidewalk, landscaped medians, and landscaping along sound walls and entry walls. Landscape setbacks vary depending on character, function, and location of streets. Appropriate landscaping widths and setbacks are specified by the Development Guidelines and the Downtown/Waterfront Specific Plan. Developments proposed along Highway 12 will be conditioned by development review procedures and will avoid the creation of foreground views, which will be detrimental to the objectives of maintaining and improving visual quality along the Highway. Development projects which fall within the foreground view from Highway 12 and which are adjacent to Highway 12 right-of-way will be subject to conditions of approval, which provide for sound control and the installation of ornamental landscaping along the highway right-of-
way. Site planning, landscaping, and building configurations will be controlled by the City’s Development Guidelines. (Chapter III - Community Character and Design, Policy 19)

- Development design should seek to reduce the visual perception of automobile domination. Design considerations include the location of garages relative to the “streetscape,” the use of architectural features and landscaping to reduce the prominence of garages, the use of planting strips, street design, and the use of variable lot sizes and setbacks. (Chapter III - Community Character and Design, Policy 22)

- Buildings in the General Commercial classification should be a maximum of three stories. The maximum coverage of buildings and paved surfaces (including parking) should be no more than 80 percent of the land area, and the maximum floor area ratio should be 1.0. The average FAR is more likely to be 0.35 when parking and landscaping requirements are considered. At this building intensity, the maximum worker density would range from 40 to 175 persons per acre, depending on the types of land uses, with the average worker density ranging from 15 to 60 workers per acre. The maximum building intensity could only be achieved with a three-story building and underground or multi-story parking. (Chapter IV - Land Use Element, Policy 14)

**City of Suisun City Development Guidelines**

Detailed development guidelines have been established for the City of Suisun City and are provided in the City of Suisun City Development Guidelines for Architecture and Site Planning. These guidelines reflect the objectives and policies of the Community Character and Design chapter of the City of Suisun City General Plan.

**4.1.4 - Methodology**

The aesthetic analysis performed in this section is based upon (1) reconnaissance of the existing project site and surrounding land uses, (2) photographing the site and surrounding land uses, (3) review of project plans and the architectural design narrative, and (4) review of the City of Suisun City Development Guidelines for Architecture and Site Planning.

Analysis of visual quality is inherently a subjective judgment; however, there are commonly accepted standards used to evaluate the significance of such impacts, including building height, building massing, color, density of placement, and vegetation. Analyses of light and glare impacts are less subjective: they concern the intensity, height, and shielding of lighting fixtures as they relate to degrading daytime and nighttime views.

**4.1.5 - Impacts and Mitigation Measures**

This section discusses potential visual and aesthetic impacts associated with the development of the project. Mitigation measures are provided where appropriate.
Thresholds of Significance

According to the CEQA Guidelines’ Appendix G Environmental Checklist, to determine whether impacts to aesthetic resources are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

- Have a substantial adverse effect on a scenic vista?
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? (Refer to Section 7, Effects Found Not To Be Significant.)
- Substantially degrade the existing visual character or quality of the site and its surroundings?
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

Scenic Vistas

Impact AES-1: The proposed project would not have substantial adverse effects on a scenic vista.

Impact Analysis

The City of Suisun City General Plan does not identify any scenic vistas within the City, nor does the project site does not contain any features that could be considered scenic vistas (e.g., ridgelines, overlooks, peaks).

Suisun Marsh and its associated waterways, vegetation, and wildlife are considered scenic resources. The project site is located north of the upland boundary of Suisun Marsh. The marsh is not visible from the project site because of the Lawler Ranch subdivision to the south. The view looking south toward the Lawler Ranch subdivision is shown in Exhibit 4.1-1. Development of the project site would not adversely affect views of Suisun Marsh from either the project site or surrounding areas.

Grazing land is located east of the project site on the opposite side of Walters Road. This land is part of a larger expanse of grazing land throughout central and eastern Solano County. Note that development of this land is restricted because of its proximity to Travis Air Force Base. Views of the grazing land are available from surrounding roadways, including SR-12 and Walters Road, and these views would not be affected by the development of the proposed project. Views of the grazing land from the Quail Glen subdivision to the north and the Lawler Ranch subdivision to the south are obstructed by fences and vegetation; therefore, the proposed project would not change the quality of views from these land uses.
For these reasons, the development of the proposed project would not have a substantial adverse effect on a scenic vista.

**Level of Significance Before Mitigation**
Less than significant impact.

**Mitigation Measures**
No mitigation is necessary.

**Level of Significance After Mitigation**
Less than significant impact.

**Visual Character**

| Impact AES-2: | The proposed project would irreversibly and permanently alter the visual character of the project site. |

**Impact Analysis**
This section assesses the proposed project’s impact on visual character. This section analyzes the proposed project’s architectural design features, landscaping and signage, perspectives, views from surrounding land uses, and its consistency with City standards. Each is discussed below.

**Architectural Design**
The Wal-Mart Supercenter design is characterized as California contemporary retail. The main entrance of the building would feature a broken pediment that would serve as the visual focal point. An adjacent gabled entrance would be located on each side of the main entrance. The roofline would alternate in height from 24 feet, 8 inches at the lowest point to 40 feet, 8 inches at the peak of the gables. (A conditional use permit will be required for architectural elements in excess of 35 feet.) All rooftop equipment would be concealed from public view by parapets. The building materials would range in a variety of earth-tone colors consisting of concrete block masonry units, stone veneer panels, and exterior insulation and finish system. Elevations of the Wal-Mart Supercenter are provided in Exhibit 3-5. Note that these elevations have been prepared for preliminary presentation and visual aesthetics only. Minor changes may occur during the design review process; therefore, these elevations may not be exactly mirror the final design.

The restaurant and gas station would employ contemporary architectural design features. Both uses are expected to be tenanted by national chains; therefore, the design of each building would reflect each chain’s respective branding identity. The maximum height of both structures would be less than 35 feet, in accordance with the zoning requirements.

**Landscaping and Signage**
Landscaping would be located at entry points, in parking areas, and along the project frontages. The landscaping would consist of trees and shrubs. Tree species would include majestic beauty, coast live oak, California pepper, chitalpa, crape myrtle, flowering pear, strawberry, mayten, golden rain,
Chinese pistache, true green elm, California buckeye, London plane, and raywood ash. Shrub species would include lily-of-the-Nile, manzanita, dwarf bottlebrush, camellia, coleonema, fortnight lily, hopseed bush, blue oat grass, evergreen day lily, toyon, dwarf holly, myrtle, heavenly bamboo, New Zealand flax, and pittosporum. Groundcover species would include gazania, trailing lantana, carpet rose, star jasmine, and rosemary. Many of these plant species are drought-tolerant. The conceptual landscaping plan is shown in Exhibit 3-6. Note that the landscaping plan has been prepared for preliminary presentation and visual aesthetics only. Minor changes may occur during the design review process; therefore, the exhibit may not be exactly mirror the final landscaping plan. However, the landscaping plan would still be required to meet City design standards. A pylon sign identifying the commercial tenants of the proposed project would be located on the project site near the intersection of SR-12 and Walters Road or further west along the project frontage with SR-12. The 35-foot-high sign would signify the entrance to the City, with lettering reading, “Welcome to Suisun City,” and would contain an LED screen that displays the date, temperature, and, possibly, City announcements. The conceptual sign elevation is shown in Exhibit 3-7. Note that the sign elevation has been prepared for preliminary presentation and visual aesthetics only. Minor changes may occur during the design review process; therefore, the exhibit may not be exactly mirror the final pylon plan. However, the pylon sign would still be required to meet City design standards.

Parking Area
The proposed project would provide 1,014 parking spaces onsite. Parking areas would contain landscaped islands. The Wal-Mart store would use approximately 35 to 40 parking spaces for outdoor seasonal sales and storage. Consistent with practices at many Wal-Mart stores, overnight recreational vehicle (RV) parking would be allowed in the parking area intended for the convenience of travelers who are looking for a place to sleep for one night. To ensure that overnight RV parking does not create unsightly aesthetics (e.g., litter, extended stays, excessive numbers of RVs), mitigation is proposed that would require Wal-Mart store management to post and enforce overnight RV parking requirements. In addition, Suisun City Municipal Code Chapter 10.36 prohibits outdoor storage of abandoned, dismantled, wrecked, or inoperable vehicles and establishes procedures for requiring property owners to comply with this requirement. Implementation of the mitigation measure and compliance with the Municipal Code requirements would ensure that overnight RV parking does not diminish the visual character of the project site.

Perspectives
Perspectives were prepared illustrating the proposed project’s visual appearance from adjacent roadways and land uses. The perspective vantage points are shown in Exhibit 4.1-2. A perspective from Walters Road is illustrated in Exhibit 4.1-3, and a perspective from SR-12 is depicted in Exhibit 4.1-4.

Views from Surrounding Land Uses
Most of the residential land uses to the west, north, and south of the project site would not have direct views of the proposed project.
A sound wall and landscaping along the south side of SR-12 screen views of the project site from most of the residences in the Lawler Ranch subdivision. Some two-story residences have views of the project site that would be altered by the development of the proposed project. However, the existing quality of these views is marginal, because of the lack of significant visual features on the project site and because they include SR-12.

Wooden fences and mature landscaping screens views of the project site from almost all of the residences in the Quail Glen subdivision to the north. A few residences on Fulmar Drive have existing partial views of the project site, but the alteration of these views would not be significant because of the marginal existing aesthetic quality of the project site.

Views from public roadways (e.g., SR-12, Walters Road, Petersen Road) would experience change. With the development of the project site, motorists on the three aforementioned roadways would see a developed commercial center instead of an undeveloped site. Although the aesthetic quality of the project site is degraded and of marginal aesthetic value, the conversion of the site from open agricultural land to a commercial setting would permanently change the visual character of the site, and this change is considered significant.

**City Design Requirements**

Detailed development guidelines have been established for the City of Suisun City and are provided in the City of Suisun City Development Guidelines for Architecture and Site Planning. These guidelines reflect the objectives and policies of the Community Character and Design chapter of the City of Suisun City General Plan. A brief summary of zoning ordinances and development guidelines that apply to the visual character of the proposed project follows.

The project site is designated General Commercial by the City of Suisun City General Plan. The General Plan stipulates that building height should be a maximum of three stories, and the maximum coverage of buildings and the Floor Area Ratio (FAR) should not exceed 1.0. The retail areas of the proposed Wal-Mart Supercenter would be single-story, but other non-retail areas (e.g., store offices) may be multi-level; however, they would not exceed three stories. The proposed project’s FAR is approximately 0.25.

The development regulations of the General Commercial (GC) zoning district limit building height to 35 feet, which applied to the project site on March 1, 1988, with additional height exceptions allowed with the issuance of a Conditional Use Permit (CUP). The maximum height of the Wal-Mart Supercenter would be 40 feet, 8 inches and, therefore, would require the issuance of a CUP.

The General Plan also identifies the intersection of SR-12 at Walters Road as an entryway to Suisun City. The pylon sign would note this entry point with lettering reading, “Welcome to Suisun City.” The sign would be surrounded with decorative landscaping.
View 1: Walters Road Vantage Point (Exhibit 4.1-3)
View 2: State Route 12 Vantage Point (Exhibit 4.1-4)


Exhibit 4.1-2
Perspective Vantage Points

CITY OF SUISUN CITY • WALTERS ROAD WEST PROJECT
ENVIRONMENTAL IMPACT REPORT
In addition, the City will review and approve the proposed project’s site plan, landscaping plan, signage, and architectural design for consistency with City requirements.

**Summary**

Development of the proposed project would irreversibly and permanently change the visual character of the project site. While the existing visual character of the project site is considered marginal, the irreversible conversion of 20.8 acres of undeveloped land to urban development at the eastern fringe of Suisun City would represent a substantial alteration in the visual character of the project site and its surroundings. The proposed project contains a variety of design elements (e.g., architectural treatments, landscaping, signage) intended to present an aesthetically appealing commercial center to passing motorists and surrounding land uses. However, the development of the proposed project would be considered a substantial adverse impact on the project site and its surroundings because of the project site’s location at the eastern edge of Suisun City. Mitigation is proposed related to an operational aspect of the proposed project (overnight RV parking), but this would not be sufficient to address the conversion of the site from undeveloped land to urban use. Therefore, degradation of visual character is considered a significant and unavoidable impact of the project.

**Level of Significance Before Mitigation**

Potentially significant impact.

**Mitigation Measures**

**MM AES-2**

Prior to occupancy of the Wal-Mart Supercenter, the project applicant shall implement the measures listed below and the restrictions related to overnight RV parking. Store management shall regularly monitor overnight RV parking and enforce the restrictions, up to and including removing offending RVs from the parking area by towing.

- Signage shall be posted at multiple, highly visible locations in the parking area identifying a designated overnight RV parking and listing the aforementioned restrictions:
  - Prohibition of consecutive nights of overnight parking
  - No more than 10 overnight parked RVs on any night
  - Prohibition of “camping” activities in parking areas (e.g., setting up lawn chairs, barbeques, recreational facilities, etc.)
  - Prohibition on litter
  - Prohibition on parking abandoned, dismantled, inoperable, or wrecked RVs in the parking lot

- Convenient trash receptacles shall be located in or near the overnight RV parking area.
Level of Significance After Mitigation
Significant unavoidable impact.

Light and Glare
Impact AES-3: Implementation of the proposed project may result in substantial sources of light and glare that may adversely impact daytime and nighttime views.

Impact Analysis
The proposed project would introduce commercial retail uses to an undeveloped site at the eastern edge of Suisun City. New sources of light and glare that would be present 24 hours a day may potentially be intrusive to surrounding land uses because the site does not currently emit any sources of light. The proposed project would include freestanding lighting in parking lots and along walkways, a 35-foot pylon sign with an LED screen, and exterior building lighting. In addition, construction of buildings with glass windows or other reflective surfaces would introduce new sources of daytime glare and nighttime glow. Note that during late-night hours, the Wal-Mart Supercenter would dim interior lights, and the sit-down restaurant would be closed.

Existing uses in the project area, as a whole, contribute to existing ambient nighttime lighting. These additional sources of light and glare would be expected to be incremental and visible from surrounding land uses and may degrade daytime and nighttime views. The residences of the Quail Glen subdivision, located across Petersen Road to the north, and the residences of the Lawler Ranch subdivision, located across SR-12 to the south, could be adversely affected by light spillover from exterior and parking lot lighting. Mitigation is proposed that would require the applicant to submit a lighting plan to the City that identifies how lighting would be shielded and recessed and avoid spillover onto adjacent land uses. The implementation of mitigation would reduce the potential for spillover lighting impacts into the neighboring residential areas to a level of less than significant.

The pylon sign at the intersection of Walters Road and SR-12 would contain an LED sign. The pylon sign would be 35 feet tall and would be oriented to motorists of SR-12. The sign would not be uplit or otherwise oriented toward aircraft. LED signs are common features associated with commercial retail development, including those located near major aviation facilities (e.g., San Francisco International Airport, Oakland International Airport, San Jose International Airport). The use of an LED pylon sign would not create any substantial distractions or hazards to aviation activities at Travis Air Force Base, because the sign would be too low to the ground to be visible to planes taking off and landing. Moreover, the Travis Air Force Base Land Use Compatibility Plan does not identify LED signs as potential hazards to aviation. For these reasons, the proposed project’s LED pylon sign would not be expected to emit unusually intense or distracting amounts of light and glare.

Level of Significance Before Mitigation
Potentially significant impact.
Mitigation Measures

**MM AES-3**  
Prior to issuance of building permits for the project, the applicant shall provide a lighting plan for the City of Suisun City to review and approve.

- The plan shall include provisions to ensure that outdoor lighting, including illumination of the pylon sign, is designed so that potential glare or light spillover to surrounding land uses is minimized through appropriate site design, dimming, and shielding of light fixtures.

- The City will review the final site design plans to ensure that all lighting is directed downward and away from residences.

- This mitigation measure does not preclude the use of small-scale decorative lighting that may be directed upward, such as wall wash lighting or spot lighting for landscaping. This type of lighting is allowed if it does not spill over onto adjacent properties.

*Level of Significance After Mitigation*

Less than significant impact.
4.2 - Air Quality

4.2.1 - Introduction

This section describes the existing air quality setting and potential effects from project implementation on the air quality in the project area and the San Francisco Bay Area Air Basin. Descriptions and analysis in this section are provided by Michael Brandman Associates, which performed an air quality analysis of the proposed project in July 2007. The air quality modeling is included in this EIR as Appendix B, Air Quality Analysis. The air quality analysis was based on information from the project description, from the Bay Area Air Quality Management District (BAAQMD), and from the Traffic Impact Analysis, prepared by Kimley-Horn and Associates, Inc.

4.2.2 - Environmental Setting

San Francisco Bay Area Air Basin

The proposed project is located in the San Francisco Bay Area Air Basin (Air Basin). Air quality in the Air Basin is regulated by the Bay Area Air Quality Management District (BAAQMD), in conjunction with the U.S. Environmental Protection Agency and the California Air Resources Board. The regulatory responsibilities of all three agencies are discussed in detail in Section 4.2.3, Regulatory Framework.

Air pollution is directly related to a region’s topography, climate, and meteorology. These attributes of the Air Basin and the project area are described below.

Topography

The San Francisco Bay and Pacific Ocean lie to the west of the Air Basin, and to the east are the Sacramento and Central valleys. The Air Basin consists of varying terrain, including coastal mountain ranges, inland valleys, and bays. In its efforts to understand more completely the varying climatological and topographical conditions that affect air pollution potential, the BAAQMD has identified 11 climatological subregions within the Air Basin. The project site is located within the Carquinez Strait subregion that contains the only sea-level gap between the San Francisco Bay and the Central Valley. The subregion includes the lowlands bordering the strait to the north and south, and includes the area adjoining Suisun Bay and the western part of the Sacramento-San Joaquin Delta as far east as Bethel Island. The subregion extends from Rodeo in the southwest and Vallejo in the northwest to Fairfield in the northeast and Brentwood in the southeast.

Climate and Meteorology

In general, the climate in the project area includes hot, dry summers and cool, rainy winters.

Wind Speed and Direction

Wind speed and direction play an important role in dispersion and transport of air pollutants. Wind at the surface and aloft can disperse pollution by vertical mixing of an air mass and by transporting it to other locations.
Westerly winds prevail in the Carquinez Strait, particularly during the summer and fall months when offshore high pressure coupled with low pressure in the Central Valley causes marine air to flow eastward. The wind is strongest in the afternoon, with speeds of 15 to 20 miles per hour (mph). Annual average wind speeds in the subregion are 8 to 10 mph. Occasionally, in the summer and fall months, atmospheric conditions cause easterly winds. Airflow from the east usually contains more pollutants than the cleaner marine air from the west. This can cause elevated pollutant levels in the central Bay Area via the Carquinez Strait. These high-pressure periods are usually accompanied by low wind speeds, shallow mixing depths, higher temperatures, and little or no rainfall.

Many industrial facilities (e.g., chemical plants and refineries) are located along the Carquinez Strait. While the strong afternoon winds typically mitigate the potential for pollution in this area, certain atmospheric and industrial conditions can result in short-term pollution episodes and emissions of unpleasant odors. Receptors downwind of these facilities could suffer more long-term exposure to air contaminants than individuals elsewhere.

Areas of the subregion that are traversed by major roadways (e.g., Interstate 80) also may be subject to higher local concentrations of carbon monoxide (CO) and particulate matter and to certain toxic air contaminants.

**Temperatures**

Temperature and solar radiation are particularly important in the chemistry of ozone formation. Ozone is formed in a photochemical reaction requiring sunlight. Generally, the higher the temperature, the more ozone formed, since reaction rates increase with temperature. However, extremely hot temperatures can “lift” or “break” the inversion layer, which is discussed in the next section.

In the project area, the average maximum temperature is around 90 degrees Fahrenheit (°F) during the summer, and the average minimum temperature is around 40°F during the winter.

**Inversions**

The vertical dispersion of air pollutants in the Bay Area is limited by the presence of persistent temperature inversions. Because of expansional cooling of the atmosphere, air temperature usually decreases with altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. Inversions can exist at the surface or at any height above the ground. The height of the base of the inversion is known as the “mixing height.” This is the level to which pollutants can mix vertically.

Air above and below the inversion base does not mix because of differences in air density. Warm air above the inversion is less dense than below the base. The inversion base represents an abrupt density change where little exchange of air occurs. Inversion layers are significant in determining ozone formation and CO and particulate matter concentrations. Ozone and its precursors will mix
and react to produce higher concentrations under an inversion, and inversions trap and hold directly emitted pollutants such as CO. Particulate matter is both directly emitted and created in the atmosphere as a chemical reaction. Concentration levels are directly related to inversion layers because of the limitation of mixing space.

### Pollutants

#### Criteria Pollutants

Criteria pollutants are air pollutants regulated by the Federal Clean Air Act and the California Clean Air Act. Below are descriptions of criteria pollutants of concern in the Air Basin.

**Ozone (O₃)**

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air, but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROG) and nitrogen oxides (NOₓ). The principal sources of ROG and NOₓ are the combustion of fuels and the evaporation of solvents, paints, and fuels. Motor vehicles are often the major generator of ozone precursors. The time required for ozone formation allows the reacting compounds to spread over a large area, producing a regional pollution problem. Ozone problems are the cumulative result of regional development patterns rather than the result of a few significant emission sources. Depending on meteorological conditions, ozone precursors can be transported well away from the source area before ozone concentrations peak.

While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems such as forests and foothill communities, and damages agricultural crops and some man-made materials, such as rubber, paint, and plastics. Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. The Air Basin is nonattainment for federal and State ozone standards.

**Carbon Monoxide (CO)**

CO is an odorless, colorless gas that is formed by the incomplete combustion of fuels. Ambient CO concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. Wind speed and atmospheric mixing influence CO concentrations. Under inversion conditions, CO concentrations may be distributed more uniformly over an area, out some distance from vehicular sources.
CO binds strongly to hemoglobin, the oxygen-carrying protein in blood, and thus reduces the blood’s capacity for carrying oxygen to the heart, brain, and other parts of the body. At high concentrations, CO can cause heart difficulties, impair mental abilities, and result in death.

CO concentrations have declined dramatically in California because of cleaner burning motor vehicles and motor vehicle fuels. CO concentrations are expected to continue declining because of the steady retirement of older, more polluting vehicles from the mix of vehicles on the road network. The Air Basin is in attainment for federal and State CO standards.

**Nitrogen Dioxide (NO₂)**
The major sources of nitrogen dioxide (NO₂), essential to the formation of photochemical smog, are vehicular, residential, and industrial fuel combustion. NO₂ is the whiskey brown-colored gas evident during periods of heavy air pollution. NO₂ increases respiratory disease and irritation and may reduce resistance to certain infections. The standard for NO₂ is being met in the Bay Area Air Basin, and BAAQMD does not expect that the standard will be exceeded in the near future.

**Suspended Particulate Matter (PM₁₀ and PM₂.₅)**
PM₁₀ and PM₂.₅ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. (A micron is one-millionth of a meter.) PM₂.₅ is a subset of PM₁₀ and, therefore, is incorporated by reference in any mention of PM₁₀. One common source of PM₁₀ is diesel emissions. Traffic generates PM₁₀ and PM₂.₅ emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM₁₀ also is emitted by burning wood in residential wood stoves and fireplaces and from open agricultural burning. PM₁₀ can remain in the atmosphere for up to 7 days before gravitational settling, rainout, and washout remove it.

Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases; heart and lung disease; and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant, direct association between mortality and daily concentrations of particulate matter in the air. Additional effects include reduced visibility and soiling of buildings. State standards for PM₁₀ and PM₂.₅ are periodically exceeded in the Air Basin.

**Sulfur Dioxide (SO₂)**
Sulfur dioxide is a colorless acid gas with a strong odor. It can damage materials and can produce adverse health effects at high concentrations. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. Sulfur dioxide can irritate lung tissue and increase the risk of acute and chronic respiratory disease. The standard for SO₂ is being met in the Air Basin; BAAQMD does not expect that the standard will be exceeded in the near future.

**Local Air Quality**
Local air quality in Solano County is measured at several air quality monitoring stations dispersed throughout the County. For the purposes of assessing local air quality in the Suisun City area, data
from the following air quality monitoring stations was used: Chadbourne Road in Fairfield, Merchant Street in Vacaville, and Tuolumne Street in Vallejo. Data collected at these stations are considered generally representative of air quality at the project site, especially for regional pollutants such as O₃, NO₂, and SO₂. Table 4.2-1 summarizes the highest average concentrations of the aforementioned pollutants from 2004 through 2006 and compares ambient air pollutant concentrations with the federal and State standards (further discussed in Section 4.2.3, Regulatory Setting). In 2004, the State 1-hour ozone standard had been exceeded on 1 day, and in 2006, the State 1-hour ozone standard had been exceeded on three days. The State 8-hour ozone standard is new, so prior to 2006, no formal exceedances of that standard have been determined, but the data suggests that the project area may at times exceed the State 8-hour ozone standard. In 2006, there was 1 day that had exceeded the State 8-hour ozone standard.

Table 4.2-1: Local Air Quality

<table>
<thead>
<tr>
<th>Criteria Pollutant</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Highest Average</td>
<td>Days Over Standard (State/National)</td>
<td>Highest Average</td>
</tr>
<tr>
<td>O₃ (1-Hour)</td>
<td>0.09 ppm</td>
<td>—</td>
<td>0.09 ppm</td>
</tr>
<tr>
<td>O₃ (8-Hour)</td>
<td>0.070 ppm</td>
<td>0.08 ppm</td>
<td>0.077 ppm</td>
</tr>
<tr>
<td>CO (8-Hour)</td>
<td>9.0 ppm</td>
<td>9.0 ppm</td>
<td>3.39 ppm</td>
</tr>
<tr>
<td>NO₂ (1-Hour)</td>
<td>0.18 ppm</td>
<td>—</td>
<td>0.049 ppm</td>
</tr>
<tr>
<td>PM₁₀ (24-Hour)</td>
<td>50 μg/m³</td>
<td>150.0 μg/m³</td>
<td>44.0 μg/m³</td>
</tr>
<tr>
<td>PM₁₀ (Annual Average)</td>
<td>20 μg/m³</td>
<td>50.0 μg/m³</td>
<td>18.7 μg/m³</td>
</tr>
<tr>
<td>PM₂.₅ (24-Hour)</td>
<td>—</td>
<td>35 μg/m³</td>
<td>39.7 μg/m³</td>
</tr>
<tr>
<td>PM₂.₅ (Annual Average)</td>
<td>12 μg/m³</td>
<td>15 μg/m³</td>
<td>11.1 μg/m³</td>
</tr>
<tr>
<td>SO₂ (24-Hour)</td>
<td>0.04 μg/m³</td>
<td>0.14 μg/m³</td>
<td>0.005 μg/m³</td>
</tr>
</tbody>
</table>

Notes:
- ppm = parts per million
- μg/m³ = micrograms per cubic meter
- N/A = not available or applicable
Air quality measurements reflect the highest recorded readings at the Chadbourne Road, Merchant Street, and Tuolumne Street air quality monitoring stations.
**Toxic Air Contaminants (TACs)**
Non-criteria air pollutants or TACs are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic [cancer-causing]) adverse human health effects, such as injury or illness. TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, diesel engines, dry cleaners, industrial operations, and painting operations. TACs are regulated separately from the criteria air pollutants at both federal and state levels. Unlike criteria pollutants, TACs are regulated on the basis of risk rather than specification of safe levels of contamination.

In 1998, the California Air Resources Board (CARB) identified diesel-engine particulate matter as a TAC. The exhaust from diesel engines contains hundreds of different gaseous and particulate components, many of which are toxic. Many of these components adhere to the particulate matter that is small enough to penetrate deep into the lungs. Mobile users—such as trucks, buses, automobiles, trains, ships, and farm equipment—are by far the largest sources of diesel emissions.

**Sensitive Receptors**
Some land uses are considered more sensitive to air pollution than others. Sensitive receptors are facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, schools, convalescent facilities, and residential areas. Sensitive receptors in the project vicinity include residential subdivisions approximately 120 feet to the north, 170 feet to the south, and 200 feet to the west of the project site and residential areas located along roadways affected by project-related traffic. There are two schools located within 2 miles of the site. Suisun Elementary School is less than 1 mile northwest of the site on Pintail Drive and Tolenas Elementary School is roughly 1.25 miles north of the site on Tolenas Avenue.

**Global Climate Change**
Climate change is a shift in the “average weather” that a given region experiences. This is measured by changes in temperature, wind patterns, precipitation, and storms. Global climate is the change in the climate of the earth as a whole. It can occur naturally, as in the case of the ice age, or occur as a result of anthropogenic activities. The extent to which anthropogenic activities influence climate change has been the subject of extensive scientific inquiry in the past several decades. The Intergovernmental Panel on Climate Change (IPCC), recognized as the leading research body on the subject, issued its Fourth Assessment Report in February 2007, which asserted that there is “very high confidence”\(^1\) that human activities have resulted in a net warming of the planet since 1750.

Gases that trap heat in the atmosphere are referred to as greenhouse gases. Greenhouse gases consist of water vapor, carbon dioxide (CO\(_2\)), methane (CH\(_4\)), nitrous oxide (N\(_2\)O), hydrofluorocarbons

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\(^1\) The IPCC defined “very high confidence” as meaning a 9 in 10 chance of being correct.
(HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). Some greenhouse gases such as CO₂ are emitted to the atmosphere through natural processes and as well as human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The earth’s surface temperature would be about 61°F colder than it is now if it were not for the natural heat trapping effect of greenhouse gases. The accumulation of these gases in the earth’s atmosphere is considered the cause of the observed increase in the earth’s temperature, known in conventional terms as global warming.

**Water Vapor**

Water vapor is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to hold more water when it is warmer), leading to more water vapor in the atmosphere. As a greenhouse gas, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor. This is referred to as a positive feedback loop. The extent to which this positive feedback loop will continue is unknown, as dynamics exist that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will condense into clouds, which can reflect more incoming solar radiation, thus allowing less energy to reach the earth’s surface and heat it.

**Carbon Dioxide**

The natural production and absorption of CO₂ is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood; since the industrial revolution began in the mid 1700s, each of these activities has increased in scale and distribution. Carbon dioxide was the first greenhouse gas demonstrated to be increasing in atmospheric concentration, with the first conclusive measurements taken in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The IPCC indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This could result in an average global temperature rise of at least 2 degrees Celsius.

**Methane**

CH₄ is an extremely effective absorber of radiation, though its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10 to 12 years), compared with some other
greenhouse gases, such as CO₂, N₂O, and chlorofluorocarbons (CFCs). CH₄ has both natural and anthropogenic sources. It is released as part of the biological processes in low-oxygen environments, such as in swamplands or in rice production, at the roots of the plants. Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropogenic sources include fossil-fuel combustion and biomass burning.

**Nitrous Oxide**
Concentrations of N₂O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb). Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in nitrogen-containing fertilizer. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, e.g., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh, in rocket engines, and in race cars.

**Chlorofluorocarbons**
CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C₂H₆) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth’s surface). CFCs have no natural source but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Because they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

**Hydrofluorocarbons**
HFCs are synthesized chemicals that are used as a substitute for CFCs. Of all the greenhouse gases, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are, in order, HFC-23 (CHF₃), HFC-134a (CF₃CH₂F), and HFC-152a (CH₃CHF₂). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing because of its use as a refrigerant. Concentrations of HFC-23 and HFC-134a now occur at about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are synthesized for applications such as automobile air conditioners and refrigerators.

**Perfluorocarbons**
PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above earth’s surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF₄) and hexafluoroethane (C₂F₆).
Concentrations of CF₄ in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

**Sulfur Hexafluoride**

SF₆ is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF₆ has the highest global warming potential of any gas evaluated—23,900 times that of CO₂. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

**Aerosols**

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (soot) is emitted during biomass burning/incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

**4.2.3 - Regulatory Setting**

Air pollution is regulated through both national and State ambient air quality standards and through emissions limits on individual sources of air pollutants. Local Air Quality Management Districts (AQMDs) and Air Pollution Control Districts (APCDs) are responsible for demonstrating attainment with State air quality standards through the adoption and enforcement of Attainment Plans. The roles of each agency are briefly described here.

**International**

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations’ Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling greenhouse gas emissions. As a result, the Climate Change Action Plan was developed to address the reduction of greenhouse gases in the United States. The plan consists of more than 50 voluntary programs.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, the first three by 2000 and methyl chloroform by 2005.
Federal
The Federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for O₃, CO, NO₂, SO₂, PM₁₀, PM₂.₅, and lead. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect the public welfare from non-health-related adverse effects such as visibility reduction. These pollutants are called “criteria” air pollutants because standards for each have been established to meet specific public health and welfare criteria set forth in the FCAA. The primary NAAQS are intended to protect, with an adequate margin of safety, those persons most susceptible to respiratory distress, such as people suffering from asthma or other illness, the elderly, very young children, or others engaged in strenuous work or exercise.

Pursuant to the 1990 Federal Clean Air Act Amendments (Amendments), the EPA classifies air basins (or portions thereof) as “attainment” or “nonattainment” for each criteria air pollutant, based on whether or not the NAAQS had been achieved. The FCAA required each state to prepare an air quality control plan called the State Implementation Plan (SIP). The Amendments added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The EPA is responsible for reviewing all state SIPs to determine if they conform to the mandates of the Amendments and will achieve air quality goals when implemented. If the EPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions applied to transportation funding and stationary air pollution sources in the air basin.

State
CARB manages air quality, regulates mobile emissions sources, and oversees the activities of County and regional APCDs and AQMDs. CARB regulates local air quality indirectly by establishing State ambient air quality standards and vehicle emissions and fuel standards, and by conducting research, planning, and coordinating activities.

California has adopted the California Ambient Air Quality Standards (CAAQS) for the criteria air pollutants. The CAAQS are more stringent that the national standards and include air quality standards for some pollutants for which there are no corresponding national standards.

Under the California Clean Air Act (CCAA), patterned after the FCAA, areas have been designated as attainment or nonattainment with respect to the State standards. The State must verify compliance with the District’s plan for achieving attainment before inclusion in the SIP.
California Assembly Bill 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB will apply to 2009 and later model-year vehicles. CARB estimates that the regulation will reduce climate-change emissions from light duty passenger vehicles by an estimated 18 percent in 2020 and by 27 percent in 2030.

Notwithstanding the wide-scale lack of EPA regulation of greenhouse gas emissions, in 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve greenhouse gas emissions equivalent to statewide levels in 1990 by 2020. On or before June 30, 2007, CARB is required to publish a list of discrete greenhouse gas emission reduction measures that can be implemented. Emission reductions shall include carbon sequestration projects and best management practices that are technologically feasible and cost effective.

Local
Bay Area Air Quality Management District
CARB has divided California into regional air basins according to topographic air drainage features. The project is located in Suisun City, Solano County, within the San Francisco Bay Area Air Basin. BAAQMD is the regional government agency charged with regulating sources of air pollution in the Air Basin to maintain clean air and protect the health of the public and the environment. BAAQMD is responsible for bringing and/or maintaining air quality in the Air Basin into compliance with federal and State air quality standards. Specifically, BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the Air Basin and to develop and implement attainment strategies to ensure that future emissions are within federal and State standards.

The Air Basin is currently designated as a nonattainment area for State and national ozone standards and as a nonattainment area for the State PM$_{10}$ standard. Both ozone and PM$_{10}$ are considered criteria pollutants because they are two of several prevalent air pollutants known to be hazardous to human health. The attainment status of the Air Basin for all criteria pollutants is provided in Table 4.2-2. As required by federal and State air quality laws, the Bay Area 2005 Ozone Strategy has been prepared to address ozone nonattainment issues. The Bay Area 2005 Ozone Strategy was prepared by the BAAQMD in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments. This document describes the Bay Area’s strategy for compliance with State 1-hour ozone standard planning requirements, and its strategy to improve air quality in the region and to reduce transport to neighboring air basins. The strategy includes stationary source control measures to be implemented through BAAQMD regulations; mobile source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with MTC, local governments, transit agencies and others. No PM$_{10}$ plan has been prepared, nor is one currently required under State air quality planning law.
Table 4.2-2: Air Basin Attainment Status

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Federal Status</th>
<th>State Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>(O_3)</td>
<td>Nonattainment</td>
<td>Nonattainment</td>
</tr>
<tr>
<td>CO</td>
<td>Unclassified/Attainment</td>
<td>Attainment</td>
</tr>
<tr>
<td>(NO_2)</td>
<td>Unclassified/Attainment</td>
<td>Attainment</td>
</tr>
<tr>
<td>(PM_{10})</td>
<td>Unclassified</td>
<td>Nonattainment</td>
</tr>
<tr>
<td>(PM_{2.5})</td>
<td>Unclassified/Attainment</td>
<td>Nonattainment</td>
</tr>
<tr>
<td>(SO_2)</td>
<td>Attainment</td>
<td>Attainment</td>
</tr>
</tbody>
</table>


BAAQMD prepared its CEQA Guidelines - Assessing the Air Quality Impacts of Projects and Plans, as a guidance tool to provide lead government agencies, consultants, and project proponents with standard procedures for assessing air quality impacts and preparing the air quality sections of environmental documents for projects subject to CEQA. This document describes the criteria that BAAQMD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies mitigation measures that can be used to avoid or reduce air quality impacts.

**City of Suisun City General Plan**

The City of Suisun City General Plan Open Space and Conservation Element contains policies that encourage emission reduction strategies from mobile, stationary, and area sources that comply with State and federal standards. These policies are provided below.

**Policy 14: Commercial and Industrial Land Uses.** Suisun City will encourage commercial and industrial uses to meet the air pollution control objective of the appropriate air pollution control district.

**Policy 15: Traffic.** Suisun City will implement traffic and transportation policies as part of the Circulation Element to mitigate the air quality effects of increasing vehicular traffic in the City.

**4.2.4 - Methodology**

The impact analysis for this section was prepared using the BAAQMD CEQA Guidelines and supplemented with information included in the traffic impact analysis prepared for the proposed project by Kimley-Horn and Associates (see Section 4.12, Transportation). Data included level of service (LOS) calculations, peak-hour net new vehicle trips, and peak-hour turning movements at project area intersections. This information was used to determine the vehicular emissions of the proposed project. Daily increases in vehicular and area source emissions associated with the proposed project were estimated using the CARB-approved URBEMIS 2002 (Version 8.7) computer model.
program based on default assumptions contained in the model. Caltrans’ CALINE4 model was used to calculate 1-hour and 8-hour increases in CO concentrations from vehicular emissions associated with the proposed project.

Construction-related emissions are generally of short-term duration but may still cause adverse air quality impacts. The BAAQMD historically considered PM10 the pollutant of greatest concern related to construction activities. PM10 emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. The BAAQMD is concerned that construction-related emissions can cause substantial increases in localized concentrations of PM10 and can lead to adverse health effects as well as nuisance concerns such as reduced visibility and soiling of exposed surfaces.

Historically, the BAAQMD had identified a set of feasible PM10 control measures for construction activities that were considered the determining factor of significance for construction activities. However, the BAAQMD is increasingly recognizing the importance of PM10 and PM2.5 from construction activities and the emissions of CO and ozone precursors from construction equipment. Therefore, they no longer recommend that quantification of construction emissions is unnecessary.

4.2.5 - Impacts and Mitigation Measures

This section discusses potential air quality impacts associated with the development of the project. Mitigation measures are provided where appropriate.

Thresholds of Significance

According to the CEQA Guidelines’ Appendix G Environmental Checklist, to determine whether impacts to air quality are significant environmental effects, the following questions are analyzed and evaluated. Does the project:

- 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 thresholds for ozone precursors)?
- Expose sensitive receptors to substantial pollutant concentrations?
- Create objectionable odors affecting a substantial number of people?

Since the BAAQMD have not yet officially set specific thresholds of significance for construction activities but would like analyses to assign it greater importance, this report will use the threshold
established by the BAAQMD for operational emissions. Therefore, an air quality impact is considered significant if implementation of the proposed project or alternatives under consideration would generate construction-related emissions that exceed 80 lb/day for NO₃, ROG, or PM₁₀.

Total emissions from project operations are compared with the thresholds established by BAAQMD. Total operational emissions evaluated under these thresholds should include all emissions from motor vehicle use associated with the project. According to the guidelines, a project would have a significant impact on air quality if the development and operation of the project would produce total criteria pollutant emissions (stationary and mobile sources) equal to or greater than the BAAQMD thresholds of 80 lb/day for ROGs, NO₃, or PM₁₀.

In addition, a CO analysis would be necessary if:

1. Vehicle emissions of CO would exceed 550 lb/day.
2. Project traffic would impact intersections or roadway links operating at Level of Service (LOS) D, E, or F or would cause a decrease in LOS to D, E, or F.
3. Project traffic would increase traffic volumes on nearby roadways by 10 percent or more, unless the increase in traffic volume is less than 100 vehicles per hour.

A project would have a significant impact if it contributed to an increase in CO above the State Ambient Air Quality Standard of 9 parts per million (ppm) averaged over 8 hours and 20 ppm for 1 hour.

The BAAQMD CEQA Guidelines states that any project with the potential to expose sensitive receptors (including residential areas) or the general public to substantial levels of TACs would be deemed to have a significant impact. Cancer risk is defined as the lifetime probability of developing cancer from exposure to carcinogenic substances and is expressed as increased chances in one million of contracting cancer. Non-cancerous adverse health risks are measured against a hazard index—the ratio of the predicted exposure concentration to a threshold level—that compares adverse health effects, as established by Office of Environmental Health Hazard Assessment. The ratio, or Hazard Index (HI), of each non-carcinogenic substance affecting a certain organ system is added to the calculated HIs of the other non-carcinogens to produce an overall HI for that organ system. Overall HIs are calculated for each organ system.

Projects that exceed the following thresholds of significance for TACs would be considered to have a significant impact:

1. The probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million.
2. Ground-level concentrations of non-carcinogenic TACs would result in an HI greater than 1 for the MEI.

BAAQMD also recommends that buffer zones be established between a TAC-emitting source and nearby sensitive receptors to reduce the potential for significant impacts. BAAQMD CEQA Guidelines are also in agreement with AB 2588, as well as Proposition 65, that public notification is required if the incremental risk equals or exceeds 10 in one million for carcinogenic TACs, or if the HI significance threshold is greater than 1.

BAAQMD Rule 7 requires all new fuel stations to implement Best Available Control Technology (BACT) to limit the release of these substances. Standard BACT for new fuel stations include Phase I and Phase II vapor recovery systems.

The California Air Resources Board Air Quality and Land Use Handbook recommends avoiding siting new sensitive land uses within 50 feet of a typical fuel station (i.e., less than 3.6 million gallons per year). For large fuel stations (i.e., 3.6 million gallons a year or greater), the Handbook recommends a separation distance of 300 feet.

In accordance with the BAAQMD CEQA Guidelines, a project that would individually have a significant impact on air quality would also be considered to have a significant cumulative air quality impact.

Greenhouse gas emissions are also addressed in this section, although they are not specifically identified as a threshold on the CEQA checklist. No federal, State, or local agency has adopted a quantifiable threshold at the time of this writing for determining the significance of greenhouse gas emissions; therefore, the significance of such emissions are evaluated qualitatively on an ad hoc basis.

**Project Impacts and Mitigation Measures**

This section assesses the effects that implementation of the proposed project could have on air quality. The analysis includes consistency with applicable plans and policies, short-term effects because of construction emissions, and long-term operational effects because of increased vehicle and area source emissions.

**Air Quality Management Plan**

| Impact AIR-1: | The proposed project would not conflict with the Bay Area Air Quality Management District’s air quality management plans. |

**Impact Analysis**

If a project is proposed in a city or county with a general plan that is consistent with the most recently adopted Clean Air Plan (CAP), and if the project is consistent with that general plan, then the project would be considered consistent with applicable air quality plans and policies.
The 1992 City of Suisun City General Plan designates the Walters Road West Commercial Project site for General Commercial uses. The proposed project is consistent with this land use designation; therefore, the project does not require a General Plan Amendment. The applicable air quality management plan is the Bay Area 2005 Ozone Strategy (Ozone Strategy). As noted in Section 4.2.3 – Regulatory Setting, the Bay Area 2005 Ozone Strategy was prepared by the BAAQMD in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments. The Ozone Strategy describes the Bay Area’s strategy for compliance with State 1-hour ozone standard planning requirements, and its strategy to improve air quality in the region and to reduce transport to neighboring air basins. The Ozone Strategy incorporates current data and projections from its jurisdictions (e.g., the land use designations for the City of Suisun), and the BAAQMD reviews and updates the Ozone Strategy every 3 years to correct for deficiencies and to incorporate new data and projections. In summary, the project is consistent with the City of Suisun General Plan, and the 1992 City of Suisun General Plan is consistent with the Ozone Strategy because data and projections from the General Plan are incorporated into the Ozone Strategy.

While the project does generate significant air quality impacts (discussed later in this section), this does not imply that the project is inconsistent with the General Plan or with the assumptions in the Ozone Strategy. As noted above, the Ozone Strategy accounts for projected growth with an underlying assumption that project impacts are analyzed and mitigated on a project-by-project basis through the CEQA process.

Since the proposed project is consistent with the General Plan and the General Plan is consistent with the Ozone Strategy, the project would not conflict with the BAAQMD’s air quality management plans and would, therefore, be considered a less than significant impact.

**Level of Significance Before Mitigation**
Less than significant impact.

**Mitigation Measures**
No mitigation is necessary.

**Level of Significance After Mitigation**
Less than significant impact.

**Short-Term Construction Emissions - Particulate Matter**

<table>
<thead>
<tr>
<th>Impact AIR-2:</th>
<th>Construction activities would result in temporary earth movement that may expose sensitive receptors to short-term emissions of suspended and inhalable particulate matter.</th>
</tr>
</thead>
</table>

**Impact Analysis**
Short-term impacts will include fugitive dust and other particulate matter emissions generated by earthmoving activities and operation of grading equipment during site preparation. Construction emissions are caused by onsite or offsite activities. Onsite emissions principally consist of fugitive
dust (mainly PM$_{10}$) from disturbed soil. Offsite emissions are caused by motor vehicles and include road dust (PM$_{10}$). Major construction-related activities that generate fugitive dust include the following:

- Grading/clearing, including the excavation
- Excavation and earthmoving for infrastructure construction of the utilities, both on- and offsite, and dwelling unit foundations and footings
- Building construction

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions.

The construction fleet was estimated using a spreadsheet developed by the San Joaquin Valley Air Pollution Control District for their Indirect Source Rule. Table 4.2-3 summarizes all construction-related emissions (without mitigation) for the proposed project. Only emissions with quantifiable thresholds are presented. The emission estimates were derived from the project description using the CARB URBEMIS Version 8.7 emission model. The URBEMIS data files are provided in Appendix B.

<table>
<thead>
<tr>
<th>Pollution Source</th>
<th>Maximum Emissions (pounds per day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ROG</td>
</tr>
<tr>
<td>Maximum Daily Emissions</td>
<td>68</td>
</tr>
<tr>
<td>BAAQMD Thresholds</td>
<td>80</td>
</tr>
<tr>
<td>Exceeds Threshold?</td>
<td>No</td>
</tr>
</tbody>
</table>


The information shown in Table 4.2-3 indicates that the BAAQMD construction emission thresholds will not be exceeded. Therefore, without mitigation, the short-term construction emissions are considered to have a less than significant impact. However, fugitive dust could still potentially cause local, temporary, significant nuisance effects. Residents to the north of the project site and Petersen Road would be approximately 120 feet from construction activities. Therefore, the mitigation measures would be implemented to minimize construction-related, fugitive dust impacts of the project. With implementation of the mitigation measures listed below, project construction would not be expected to cause a locally significant nuisance effect.

Table 4.2-4 summarizes these construction-related mitigated emissions for the proposed project. Again, only emissions with quantifiable thresholds are presented. The emission estimates were derived by applying mitigation measures in URBEMIS.
### Table 4.2-4: Mitigated Construction Emissions

<table>
<thead>
<tr>
<th>Pollution Source</th>
<th>Maximum Emissions (pounds per day)</th>
</tr>
</thead>
<tbody>
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<td>80</td>
</tr>
<tr>
<td>Exceeds Threshold?</td>
<td>No</td>
</tr>
</tbody>
</table>


**Level of Significance Before Mitigation**

Potentially significant impact.

**Mitigation Measures**

**MM AIR-2** During construction of the proposed project, the City of Suisun City shall require the construction contractor(s) to implement BAAQMD’s basic and enhanced dust control procedures required for all construction sites. Elements of the enhanced dust control program follow.

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).
- 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 (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles (e.g., dirt, sand).
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.
Level of Significance After Mitigation
Less than significant impact.

Short-Term Construction Emissions - Other Criteria Pollutants

| Impact AIR-3: | Construction activities, such as the use of heavy equipment or vehicular trips, may expose sensitive receptors to short-term exhaust emissions. |

Impact Analysis
Short-term impacts will also include exhaust emissions generated by earthmoving activities and operation of grading equipment during site preparation. Construction emissions are caused by onsite or offsite activities. Onsite emissions principally consist of exhaust emissions (NOx, SOx, CO, ROG, PM_{10}, and PM_{2.5}) from heavy-duty construction equipment, and motor vehicle operation. Offsite emissions are caused by motor vehicle exhaust from delivery vehicles, as well as worker traffic. Major construction-related activities that generate exhaust emissions include the following:

- Grading/clearing, including the excavation
- Excavation and earthmoving for infrastructure construction of the utilities, both on- and offsite, and dwelling unit foundations and footings
- Building construction
- Asphalt paving of access roads throughout the development
- Application of architectural coatings for such items as dwelling stucco and interior painting

Construction equipment such as scrapers, bulldozers, forklifts, backhoes, water trucks, and industrial saws are expected to be used on the project site and would result in exhaust emissions. During the finishing phase, paving operations and application of architectural coatings will release ROG emissions. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions.

Table 4.2-3 summarizes all construction-related emissions (without mitigation) for the proposed project. The emission estimates were derived from the project description using the CARB URBEMIS Version 8.7 emission model. The URBEMIS data files are provided in Appendix B.

The information shown in Table 4.2-3 indicates that the BAAQMD construction emission thresholds would not be exceeded. Therefore, without mitigation, the short-term construction emissions are considered to have a less than significant impact. However, diesel exhaust could still potentially cause local, temporary, significant nuisance effects. Residents to the north of the project site would be approximately 100 feet from construction activities. Therefore, these mitigation measures would be implemented to minimize construction-related air quality impacts of the project. With implementation of the mitigation measures listed below, project construction would not be expected to cause a locally significant nuisance effect.
Table 4.2-4 summarizes these construction-related mitigated emissions for the proposed project. As discussed above, only emissions with quantifiable thresholds are presented. The emission estimates were derived from the project description using the CARB URBEMIS Version 8.7 emission model and applying mitigation measures. The URBEMIS data files are provided in Appendix B.

**Level of Significance Before Mitigation**
Potentially significant impact.

**Mitigation Measures**

**MM AIR-3**

The City shall include the measures listed below in the project construction contract documents for the proposed project to minimize construction equipment exhaust emissions:

- To the extent that use of the equipment and technology is feasible, the contractor shall use catalyst and filtration technologies.

- All diesel-fueled engines used in construction of the project shall use ultra-low sulfur diesel fuel containing no more than 15 ppm sulfur, or a suitable alternative fuel.

- All construction diesel engines, which have a rating of 50 hp or more, shall meet the Tier II California Emission Standards for off-road compression-ignition engines, unless certified by the contractor that such engine is not available for a particular use. In the event that a Tier II engine is not available, Tier I-compliant or 1996 or newer engines will be used preferentially. Older engines would only be used if the contractor demonstrates and certifies that compliance is not feasible.

- Heavy-duty diesel equipment and emission systems shall be maintained in optimum running condition, in accordance with manufacturers’ specifications.

- The construction contractor shall discourage idling of construction equipment and vehicles (or minimize idling time to a maximum of 5 minutes when construction equipment is not in use), consistent with Section 2485 within Chapter 10 - Mobile Source Operational Controls, Article 1 - Motor Vehicles, Division 3 of the Air Resources Board, Title 13, California Code of Regulations. The contractor will post temporary signs on the construction site to remind equipment operators to minimize idling time.

**Level of Significance After Mitigation**
Less than significant impact.
Long-Term Operational Emissions - Criteria Air Pollutants

Impact AIR-4: Implementation of the proposed project would result in substantial increases of criteria air pollutant emissions associated with operation of the proposed project.

Impact Analysis

As they pertain to the 24-hour operational phase of the project, emissions would be generated primarily from vehicle trips to the project site and, to a lesser extent, emissions from any stationary equipment. Based on peak-hour traffic estimates from the traffic study prepared for this project, net new vehicle trips are estimated at 878 trips during the afternoon peak hour. Using the BAAQMD’s assumption that peak hour traffic is 10 percent of the average daily trips, this would result in 8,780 net new vehicle trips per day for the proposed project. The BAAQMD generally recommends a detailed air quality analysis for projects generating more than 2,000 vehicle trips per day. In accordance with the recommendation, an air quality analysis has been conducted (the results are presented below) to determine whether the proposed project would exceed the significance criteria identified in the BAAQMD CEQA Guidelines.

In addition, the project proposes a gasoline station. The gas station would contain 12 pumps on six islands (two pumps on each island). Calculations were made to assess the amount of emissions that would be generated by the proposed gas station in its normal operations. Emissions consist of ROGs and are generated from the underground storage tanks, including both the breathing loss and the working loss, and from the evaporation from fuel dispensing and spillage. The breathing losses occur when the liquid expands and contracts from changes in ambient temperature or barometric pressure. Working losses occur when the storage tank is emptied or filled. The emissions are presented in Table 4.2-5 and in Appendix B.

As stated above in the Thresholds of Significance, the BAAQMD has identified the following thresholds of significance for criteria air pollutants from project operations:

- Reactive organic gases (ROG) - 80 lbs/day
- Nitrogen oxides (NOx) - 80 lbs/day
- Respirable particulates (PM10) - 80 lbs/day

PM2.5 is a subset of PM10 and is considered in this analysis. The BAAQMD does not have a significance threshold or a preferred methodology for calculating PM2.5. However, the South Coast Air Quality Management District (SCAQMD) has recently established a methodology used to calculate PM2.5, which has been adopted for this analysis. Based on review of particulate matter inventories in the region, the SCAQMD found that the fraction of combustion PM10 that is composed of PM2.5 is consistently 99 percent, and that percentage has been used in the analyses below.

URBEMIS2002 for Windows Version 8.7 was used to estimate air emissions from the project. URBEMIS2002 uses EMFAC2002 vehicle emission factors developed by the California Air Resources Board. The proposed project would open in 2008 (near-term conditions), and its daily
vehicular and area source emissions of criteria air pollutants are shown in Table 4.2-5, which also indicates that emissions from the project would be significant, based on BAAQMD significance criteria. Table 4.2-6, shows project-related emissions in 2030 (long-term conditions) exceeding PM$_{10}$ standards. Model runs are included in Appendix B. Because URBEMIS assumes 16-hour operations, adjustments for area source emissions from natural gas were made to account for 24-hour operations of the project. The reduction in emissions between near-term and long-term conditions is due to the assumed technological advancements of cleaner burning motor vehicles and motor vehicle fuels and retirement of older, more polluting vehicles.

**Table 4.2-5: Criteria Air Pollutant Emissions from Operations - 2008**

<table>
<thead>
<tr>
<th>Emissions</th>
<th>Criteria Air Pollutants (Pounds Per Day)</th>
<th>ROG</th>
<th>CO</th>
<th>NO$_x$</th>
<th>PM$_{10}$</th>
<th>PM$_{2.5}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline Station Emission Estimates</td>
<td></td>
<td>5.79</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Area Source Emission Estimates</td>
<td></td>
<td>3.53</td>
<td>2.60</td>
<td>3.10</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Operational (Vehicular) Emission Estimates*</td>
<td></td>
<td>118.55</td>
<td>1,480.29</td>
<td>125.37</td>
<td>135.84</td>
<td>134.48</td>
</tr>
<tr>
<td><strong>Total Project Emissions - Year 2008</strong></td>
<td></td>
<td>127.87</td>
<td>1,482.89</td>
<td>128.47</td>
<td>135.85</td>
<td>134.49</td>
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<tr>
<td>BAAQMD Thresholds</td>
<td></td>
<td>80</td>
<td>550</td>
<td>80</td>
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<td>80</td>
</tr>
<tr>
<td>Significant Impact?</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Notes:
* Vehicle trips per day include internal and pass by trips, at BAAQMD’s recommendations.
** PM$_{2.5}$ is assumed to be 99 percent of operational PM$_{10}$ (SCAQMD, 2006). Because the BAAQMD does not have an identified significance threshold for PM$_{2.5}$, the threshold identified here is the same as the PM$_{10}$ threshold, since up to 99 percent of PM$_{10}$ can be in the form of PM$_{2.5}$, as vehicle combustion emissions and vehicle emissions are the largest source of PM$_{10}$ for this project.

**Table 4.2-6: Criteria Air Pollutant Emissions from Operations - 2030**

<table>
<thead>
<tr>
<th>Emissions</th>
<th>Criteria Air Pollutants (Pounds Per Day)</th>
<th>ROG</th>
<th>CO</th>
<th>NO$_x$</th>
<th>PM$_{10}$</th>
<th>PM$_{2.5}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area Source Emission Estimates</td>
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<td>3.48</td>
<td>2.60</td>
<td>3.12</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Operational (Vehicular) Emission Estimates*</td>
<td></td>
<td>25.16</td>
<td>269.28</td>
<td>20.81</td>
<td>120.36</td>
<td>119.16</td>
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<tr>
<td><strong>Total Project Emissions - Year 2008</strong></td>
<td></td>
<td>28.64</td>
<td>271.88</td>
<td>23.93</td>
<td>120.37</td>
<td>119.17</td>
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<tr>
<td>BAAQMD Thresholds</td>
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<td>80</td>
<td>550</td>
<td>80</td>
<td>80</td>
<td>80</td>
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<tr>
<td>Significant Impact?</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</tbody>
</table>
Table 4.2-6 (Cont.): Criteria Air Pollutant Emissions from Operations - 2030

<table>
<thead>
<tr>
<th>Emissions</th>
<th>Criteria Air Pollutants (Pounds Per Day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ROG</td>
</tr>
</tbody>
</table>

Notes:
* Vehicle trips per day include internal and pass by trips, at BAAQMD’s recommendations.
** PM2.5 is assumed to be 99 percent of operational PM10. Because the BAAQMD does not have an identified significance threshold for PM2.5, the threshold identified here is the same as the PM10 threshold, since up to 99 percent of PM10 can be in the form of PM2.5 for vehicle combustion emissions, and vehicle emissions are the largest source of PM10 for this project.


Because the proposed project would exceed BAAQMD thresholds for gasoline station, daily vehicular, and area source emissions, operational impacts would be considered significant.

Typical Health Effects Related to Criteria Pollutants
The following discussion addresses the adverse health effects associated with these increased levels of ozone (from ROG and NOx), CO, and PM10. The most recent measurements (Years 2006 and 2005) for each pollutant serve as the baseline for the following descriptions of potential health effects related to an increase in pollutant concentration and exposure.

Ozone
- NOx and ROG emissions are precursors to ozone formation. Health effects of ozone include lung inflammation and lung tissue damage and a reduction in the amount of air inhaled into the lungs (EPA 1999)
- Studies have shown that exposure to ambient concentrations of 0.12 ppm ozone for 1 to 3 hours results in increased respiratory irritation and a 10-percent decrease in the FEV1² in 10 to 25 percent of exposed subjects. No effects were observed at concentrations less than 0.12 ppm. Subjects were healthy adults performing moderate exercise.
- Studies have shown that exposure to ambient concentrations of 0.18 to 0.20 ppm ozone for 1 hour results in bronchial responsiveness and pulmonary inflammation, capable of aggravating pre-existing chronic respiratory diseases such as bronchitis, asthma, or emphysema.
- Studies have shown that exposure to ambient concentrations of 0.24 ppm ozone for 1 to 3 hours results in increased shortness of breath and pain on deep breath.
- Studies have shown that exposure to ambient concentrations of 0.08 ppm ozone for 6.6 to 8.0 hours results in significant effects on lung function, respiratory symptoms, and airway hyper-responsiveness among healthy, exercising individuals.

² FEV1 is the most common measure of lung function. FEV1 is the volume of air exhaled during the first second of a forced expiratory test of the lungs started from the level of total lung capacity. FEV1 is used to test for airway obstructions, bronchoconstriction, and bronchodilation.
The highest recently measured levels of ozone in Suisun (Table 4.2-1) are 0.106 ppm (1-hour average) and 0.087 ppm (8-hour average). Any increases in ozone levels due to the project would probably occur in other areas of the region (away from the project site) from the dispersion of ozone precursors (ROG and NOx) and the time it takes for ozone to form. Although detailed photochemical modeling was not performed for the proposed project, emissions of both ROG and NOx would be less than 1 percent of countywide emissions, and increases in ozone concentrations would be minor and difficult to quantify. As such, any increases in ozone would be minimal but would add to ozone levels that already exceed federal and State standards and can cause respiratory problems.

**Carbon Monoxide**

CO can cause harmful health effects by reducing oxygen delivery to the body’s organs and tissues, because CO is absorbed through the lungs and absorbed by red blood cells. Once absorbed, CO binds to red blood cells, forming carboxyhemoglobin. Such binding reduces the oxygen-carrying capacity of blood and interferes with oxygen release in tissues. The U.S. National Ambient Air Quality Standards for outdoor air are 9 ppm for 8 hours and 35 ppm for 1 hour. The maximum exposure allowed by OSHA in the workplace is 35 ppm over an 8-hour period.

The range of health effects includes mild headaches at 15 percent carboxyhemoglobin or 200 ppm over a 2- to 3-hour period to death at over 50 percent carboxyhemoglobin or 12,800 ppm within 1 to 3 minutes. Intermediate health effects may include chest pain, vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. CO can also contribute to general respiratory problems.

Based on air quality monitoring data in the project area, the highest average 8-hour CO level in 2006 was 2.94 ppm. The 8-hour CO levels analyzed in Impact AIR-5 for the years 2006, 2008, and 2030 are in the range of 1.8- to 2.5-ppm range, well below the levels for measured health effects, as well as the maximum exposure allowed by OSHA and the National standard.

**PM$_{10}$**

Studies have shown increased mortality due to increases of 10 μg/m$^3$ in ambient concentration levels of PM$_{10}$:

- A 0.5- to 2.0-percent increase in total mortality risk. Notably, the elderly, individuals with chronic heart or lung disease, and infants appear to be at the greatest risk of PM-associated mortality.
- A 0.8- to 1.8-percent increase in carboxyhemoglobin risk of cardiac mortality.
- A 1.3- to 3.7-percent increase in risk of respiratory mortality.
Studies have shown increased morbidity due to increases of 10 $\mu g/m^3$ of PM$_{10}$:

- A 0.6- to 2.0-percent increase in cardiovascular-related hospitalizations (i.e., cardiovascular disease, congestive heart failure, and ischemic heart disease$^3$). The majority of hospitalizations reported were individuals over age 65.

- A 1.25- to 5-percent increase in respiratory disease hospitalizations or urgent care visits (i.e., total respiratory disease, COPD$^4$, asthma, pneumonia). These effects have been reported primarily for individuals over 65, but effects have been reported for all age groups.

- A 10- to 15-percent decrease in activity for adults (i.e., more days spent in bed, days missed from work, or days when activities are partially restricted due to illness).

- A 4-percent increase in absenteeism (elementary school subjects).

The highest recently measured levels of PM$_{10}$ in Suisun (Table 4.2-1) are 23 $\mu g/m^3$ (24-hour average) and 16.4 $\mu g/m^3$ (annual average). Based on measurements taken at large construction sites, PM$_{10}$ levels could potentially increase by 10 $\mu g/m^3$ during project construction. A 10-$\mu g/m^3$ average increase in PM$_{10}$ levels could lead to the mortality and morbidity health effects discussed above.

The BAAQMD CEQA Guidelines identify potential mitigation measures for reducing vehicle trip generation, including rideshare, transit, service, parking, bicycle, and path measures, and resulting motor vehicle emissions. As described in Impact TRANS-8 in Section 4.11, Transportation, the proposed project would provide public transit, pedestrian, and bicycle facilities that would promote trip reduction. The proposed project would provide an enhanced Fairfield-Suisun Transit bus stop on the project frontage, install sidewalks on the project frontage with Walters Road and Petersen Road that would connect with an internal sidewalk system, and provide bicycle storage facilities for customers and employees. The proposed project would also maintain the existing Class II bicycle facilities on Walters Road and maintain access to the Central County Bikeway. In addition, the proposed project would internally capture vehicular trips between project uses (e.g., a Wal-Mart customer may patronize the sit-down restaurant without moving his or her vehicle). The range of effectiveness of these mitigations in reducing motor vehicle emissions, as identified by the BAAQMD, is provided at the end of each measure, below.

- Include roadway improvements that would maintain the existing Class II bicycle facilities (0.5- to 2.0-percent effectiveness)

- Not impair access to the existing Central County Bikeway (0.5- to 2.0-percent effectiveness)

- Provide amenities such as bicycle racks (0.5- to 2.0-percent effectiveness)

$^3$ Deficient blood supply and oxygen to the heart tissues.

$^4$ Chronic Obstructive Pulmonary Disease, such as emphysema or chronic bronchitis.
• Improve Walters and Petersen roads to include curb, gutter, sidewalks, and street lighting (0.5- to 1.5-percent effectiveness)

• Provide internal sidewalks and designated crosswalks to link the pedestrian facilities on Walters and Petersen Roads with the proposed project (0.5- to 1.5-percent effectiveness)

• Include onsite shops and services for employees, such as restaurants, bank/ATM, dry cleaners, convenience market, etc. (0.5- to 5.0-percent effectiveness)

Assuming the minimum to maximum effectiveness value for each of the other categories of mitigation identified in the above (bus stop, bicycles, pedestrian, and shops and services), the overall effect of the proposed project’s trip reduction features would be a 2.5- to 12-percent reduction in project-related motor vehicle emissions.

The proposed Wal-Mart Supercenter also includes energy efficiency measures that would reduce demand for electricity and, ultimately, the need to generate power. These measures are listed below.

• T-8 fluorescent lamps and electronic ballasts, which are the most energy-efficient lighting systems available and reduces the energy load of a single store by approximately 15 to 20 percent compared with conventional lighting.

• Light Emitting Diode (LED) lighting in all internally illuminated building signage. LED technology is more than 70 percent more energy-efficient than fluorescent illumination and provides an extended life span of 12 to 20+ years.

• LED lighting in frozen food cases and other refrigerated cases with doors. This lighting is motion-activated and turns itself off whenever it is not needed. This lighting utilizes 50 percent less energy than traditional lighting, lasts three to four times longer, and contains no mercury.

• Daylight harvesting systems (e.g., skylights, electronic dimming ballasts, computer-controlled daylight sensors) that automatically and continuously dim all of the lights as the daylight contribution increases.

• Nighttime lighting dimming, in which illumination is reduced to 65 percent during the late-night hours.

• Super-high-efficiency packaged heating, ventilation, and air conditioning (HVAC) units that have a weighted Energy Efficiency Ratio of 11.25. This ratio is 10 percent higher than the industry standard, weighted average.

• An energy management system that is monitored and controlled from corporate headquarters in Bentonville, Arkansas. This energy management system enables corporate headquarters to monitor energy usage, analyze refrigeration temperatures, and observe HVAC and lighting
performance. It also allows corporate headquarters to adjust lighting, temperature, or refrigeration set points from a central location.

- Refrigeration waste-heat recapture systems that are used to heat water in the kitchen preparation areas. On average, waste heat accounts for 70 percent of the hot water heating needs.

- A white membrane roof with a high solar reflectivity that lowers the cooling load by approximately 8 percent.

- Occupancy sensors in non-sales areas that automatically turn off the lights when the space is unoccupied.

- Actively dehumidifying the store, which allows for the climate control system to be set at a higher indoor temperature and results in better refrigeration system efficiency.

Mitigation is proposed that would require the proposed project to implement standard operational air quality control measures. However, this mitigation and the trip reduction features discussed previously would not reduce project emissions to within BAAQMD thresholds. Therefore, this would be a significant unavoidable impact.

**Level of Significance Before Mitigation**
Potentially significant impact.

**Mitigation Measures**

**MM AIR-4** The following emissions control measures shall be incorporated into the proposed project:

- The Wal-Mart Supercenter loading dock areas shall include:
  - Signage advising truck drivers to turn off engines when not in use
  - Signage advising truck drivers of State law prohibiting diesel idling of more than five minutes
  - Auxiliary 110 v and 220 v power units so trucks can power refrigeration units or other equipment without idling

- The project owner shall provide adequate ingress and egress at entrances to public facilities to minimize vehicle idling and traffic congestion and dedicated turn lanes as appropriate.

- The project owner shall provide loading and unloading facilities for carpool/vanpool users with clear visible signage. Where safety and space constraints do not take precedence, loading and unloading facilities shall be provided near building entrances for carpool/vanpool users.
4.2-28 Michael Brandman Associates

- The project owner shall install high albedo and emissive roofs or install EPA “Energy Star” approved roofing materials.

- The project owner shall use energy-efficient lighting and process systems, such as low NOx water heaters, furnaces, and boiler units in commercial facilities.

**Level of Significance After Mitigation**
Significant unavoidable impact.

**Long-Term Operational Emissions - Localized Carbon Monoxide Emissions**

| Impact AIR-5: | Implementation of the proposed project would not result in substantial increases of carbon monoxide concentrations at land uses near roadways and intersections. |

**Impact Analysis**

CO from mobile sources is the main pollutant of local concern and correlates to traffic volume, speed, and delay. CO emissions disperse quickly under normal meteorological conditions but can reach unhealthy levels with more stagnant meteorological conditions. High concentrations of CO used to be found occasionally near signalized intersections or roadway segments operating at poor levels of service (LOS E or worse) during peak traffic. However, CO concentrations have declined dramatically in California because of cleaner-burning motor vehicles and motor vehicle fuels. CO concentrations are expected to continue declining because of the steady retirement of older, more polluting vehicles from the mix of vehicles on the road network. The Air Basin is in attainment for federal and State CO standards.

Based on BAAQMD modeling guidelines, local CO concentrations were estimated for peak-hour traffic at roadway segments most affected by the proposed project. The CO emissions shown in Table 4.2-7 were calculated using Caltrans’ CALINE4 air dispersion model and the results of the traffic study for this project. Although the area is in attainment for CO, and CO levels are declining because of improvements in vehicle engines, CO concentrations have been modeled to identify any localized hot spot areas with high CO concentrations. CO concentrations were modeled at five sensitive receptors at the edge of the roadway.

Existing conditions (2006), near-term conditions with and without the project (2008), and long-term conditions with and without the project (2030) were analyzed. Analyzing 2008 brackets the worst-case conditions that could occur, because, when compared with 2030, 2008 has a slightly higher background CO concentration, and the CO emission factor for vehicles is slightly higher in 2008. Estimated CO concentrations would be significant if they exceed the CAAQS standards:

- CAAQS 1-hour standard - 20 ppm
- CAAQS 8-hour standard - 9 ppm
The results of the CO modeling are presented in Table 4.2-7 and the calculations are included in Appendix B. Table 4.2-7 shows that the emissions from the project would not exceed the CO standard and, thus, would be considered less than significant.

Table 4.2-7: Localized Carbon Monoxide Concentration

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>West of Walters Road</td>
<td>1-hour</td>
<td>20.0</td>
<td>4.3</td>
<td>4.4</td>
<td>4.5</td>
<td>3.7</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Near Pintail Drive</td>
<td>8-hour</td>
<td>9.0</td>
<td>2.3</td>
<td>2.4</td>
<td>2.4</td>
<td>1.9</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>East of Walters Road</td>
<td>1-hour</td>
<td>20.0</td>
<td>4.3</td>
<td>4.3</td>
<td>4.4</td>
<td>3.7</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Near Montebello Drive</td>
<td>8-hour</td>
<td>9.0</td>
<td>2.3</td>
<td>2.3</td>
<td>2.4</td>
<td>1.9</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>West of Walters Road</td>
<td>1-hour</td>
<td>20.0</td>
<td>4.3</td>
<td>4.4</td>
<td>4.5</td>
<td>3.7</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Near Petersen Road</td>
<td>8-hour</td>
<td>9.0</td>
<td>2.3</td>
<td>2.4</td>
<td>2.4</td>
<td>1.9</td>
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<tr>
<td>East of Walters Road</td>
<td>1-hour</td>
<td>20.0</td>
<td>4.4</td>
<td>4.5</td>
<td>4.6</td>
<td>3.7</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td>North of Main Driveway</td>
<td>8-hour</td>
<td>9.0</td>
<td>2.3</td>
<td>2.4</td>
<td>2.5</td>
<td>1.9</td>
<td>1.9</td>
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<tr>
<td>West of Walters Road</td>
<td>1-hour</td>
<td>20.0</td>
<td>3.9</td>
<td>3.7</td>
<td>3.8</td>
<td>3.5</td>
<td>3.6</td>
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<tr>
<td>At Main Driveway</td>
<td>8-hour</td>
<td>9.0</td>
<td>2.0</td>
<td>1.9</td>
<td>2.0</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Notes:
\(^a\) The 1-hour and 8-hour CO analysis focuses on the weekday evening (p.m.) peak hour because the project’s effects on traffic congestion and related CO concentrations are greater during that period. CO estimates shown above include background concentrations for 1-hour and 8-hour as calculated according to the BAAQMD’s CEQA Guidelines.
\(^b\) Other receptors farther from the project vicinity would experience lower CO concentrations, and the impact would also be less than significant.

As shown in Table 4.2-7, no exceedances of the carbon emission standard would occur at the analyzed roadways under existing (2006), near-term (2008), or long-term (2030) conditions. Impacts would be less than significant.

**Level of Significance Before Mitigation**
Less than significant impact.
Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Long-Term Operational Emissions - Toxic Air Contaminants

| Impact AIR-6: | Implementation of the proposed project would not result in substantial increases of emissions of diesel particulate matter and toxic air contaminants from the loading dock and service station areas, respectively. |

Impact Analysis

Implementation of the project would locate a Wal-Mart Supercenter and fuel dispensing facility near existing residential developments. The loading docks at these retail stores primarily accommodate diesel trucks. A human health risk assessment (HRA), which is summarized within this section, was conducted to assess the diesel particulate matter (DPM) impacts on these nearby sensitive receptors caused by diesel vehicle traffic and transportation refrigeration units (TRUs) at the loading docks and toxic air contaminant (TAC) impacts caused by fuel dispensing operations. (See Appendix B for a full discussion.)

The BAAQMD has established a significance threshold of 10 cancers per million population over a 70-year exposure period for health risk exposure to diesel emissions (DPM) that are due to heavy-duty trucks at loading docks and other TAC emissions such as benzene, 1,3-butadiene, and formaldehyde from fuel-dispensing operations. The cancer risk is the probability of an individual developing cancer as a result of exposure to DPM and other TACs. The cancer risks from DPM occur exclusively through the inhalation pathway.

Based on diesel truck engine and truck TRU activity at an existing Wal-Mart Supercenter in Stockton (3223 East Hammer Lane), it was determined that, for the proposed project, the annual DPM concentrations would be greatest (0.0107 µg/m³) to the north of the proposed Wal-Mart Supercenter, along the site boundary, south of Peterson Road within the Quail Glen Subdivision. These DPM concentrations equate to health risks that are less than 10 cancers per million at locations of existing or potential residences near the project site (the maximum cancer risk was estimated at 4.4 cancers per million).

Based on expected fuel dispensing operations at the proposed gas station, the TAC concentrations would be greatest to the southwest of the proposed Wal-Mart Supercenter, along the site boundary, west of State Route 12 (SR-12) within the Lawler Ranch Subdivision. These TAC concentrations equate to health risks that are less than 10 cancers per million at locations of existing or potential residences near the project site (the maximum cancer risk was estimated at 3.0 cancers per million). TAC emissions of benzene and 1,3-butadiene represent the majority of the cancer risk contribution from fuel dispensing operations. Given the typical wind pattern and the layout of the proposed project, the impacts of DPM from the loading docks and impacts of TACs from the gas station...
generally do not overlap. The maximum total incremental cancer risk from the loading docks and the service station would be 4.6 cancers per million. This would be a less than significant impact. The maximum incremental cancer risk of 4.6 cancers per million is relatively small compared with the overall lifetime cancer incidence of 200,000 to 250,000 per million in the United States.

The HI is a measure of potential non-cancer health effects. The BAAQMD has established a significance threshold for non-cancer health risk based on ground-level concentrations of TACs that would result in an HI greater than 1.0 for the Maximum Exposed Individual (MEI). Based on the modeling analysis of diesel truck engine and truck TRU activity and service station, the non-cancer health risks are well below the HI of 1.0 at all receptors. This would be a less than significant impact.

In addition, compliance with the following rules would be required during operations:

- All diesel truck operators shall strictly abide by the applicable State law requirements for idling, as described in the Airborne Toxic Control Measure (CCR, Title 13, Section 2485), which limits vehicles with gross vehicular weight ratings of more than 10,000 pounds to no more than 5 minutes of idling of the primary engine or the diesel-fueled auxiliary power system at any location. Secondly, TRU operation shall be limited to no more than 5 minutes within the loading dock area or anywhere else on the project site.

- All gasoline dispensing facilities shall meet the requirements of BAAQMD’s Regulation 8, Rule 7 to limit emissions of organic compounds from gasoline dispensing facilities, including but not limited to using CARB-certified vapor recovery systems and spill boxes and periodic testing of the equipment.

Finally, the gas station would contain 12 fueling positions and, on the basis of average throughput for similar-sized fuel stations in California, would have an estimated throughput of 2.0 million gallons a year. This amount of throughput would be below the 3.6 million-gallon threshold established by the CARB Air Quality and Land Use Handbook for a large fuel station and, therefore, would be classified as a typical fuel station. The CARB advisory guidelines suggest that new typical fuel stations be located a minimum of 50 feet from the nearest sensitive receptor. As shown on the project site plan, the fuel canopy would be more than 250 feet from the nearest residences on the west side of SR-12; therefore, it would be consistent with the advisory separation distance recommendations.

Impacts associated with toxic air contaminants would be less than significant.

**Level of Significance Before Mitigation**
Less than significant impact.

**Mitigation Measures**
No mitigation is necessary.
Level of Significance After Mitigation
Less than significant impact.

Odors

Impact AIR-7: Development of the proposed project would not create objectionable odors affecting a substantial number of people.

Impact Analysis
Any project with the potential to frequently expose members of the public to objectionable odors will be deemed to have a significant impact. As a general matter, the types of development that pose potential odor problems include agriculture, food processing, dairies, rendering, refineries, chemical plants, wastewater treatment plants, landfills, composting facilities, and transfer stations. As proposed, no such uses would occupy the project site. Therefore, the project would not create objectionable odors that would affect a substantial number of people. Impacts would be less than significant.

Level of Significance Before Mitigation
Less than significant impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less than significant impact.

Long-Term Operational Emissions - Cumulative Impacts

Impact AIR-8: Implementation of the proposed project would contribute to a cumulative air quality impact in the project area.

Impact Analysis
Construction emissions from the project would result in the generation of air pollutants in the project area and in the immediate vicinity, and would incrementally add to cumulative emissions. The project’s ongoing operations would also add to ozone precursor emissions on a regional basis and would incrementally add to PM$_{10}$, PM$_{2.5}$ and CO emissions on a local basis. As discussed in Impact AIR-5, however, CO emissions associated with the project on a near- and long-term basis would be less than significant.

Based on the procedure for evaluating cumulative impacts of projects specified by the BAAQMD’s CEQA Guidelines, any project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. Emissions from project sources would be combined with emissions from other sources, primarily including area traffic (local streets and freeways) from existing and future development in the greater project area.
Although cumulative traffic volumes would increase by 2030 over the estimated traffic associated with project operation in 2008, attrition of older, high-polluting vehicles, improvements in the overall automobile fleet, and improved fuel mixtures (as a result of ongoing State and federal emissions standards and programs for on-road motor vehicles) would reduce the cumulative NOx, ROG, and CO emissions from associated motor vehicles. Table 4.2-5 and Table 4.2-6 show the operational emissions of criteria pollutants caused by the project, as estimated using the CARB model URBEMIS 2002, and Table 4.2-7 shows the specific CO emissions generated by project traffic, as estimated using Caltrans’ CALINE4 model. Although ROG, NOx, and CO emissions decline in future years for project operations (Table 4.2-5 and Table 4.2-6), the project individually has significant air quality impacts (estimated emissions of the project would exceed the significance criteria of 80 pounds per day for ROG, NOx, and PM10 and PM2.5 in 2008 and for PM10 and PM2.5 in 2030). Therefore, the project would be considered to have a cumulatively considerable contribution to a significant regional cumulative air quality impact. The proposed project’s trip reduction features and air quality mitigation discussed in Impact AIR-4 would partially reduce project-related emissions; however, it would not reduce project emissions to within BAAQMD thresholds. Therefore, this would be a significant unavoidable impact.

**Level of Significance Before Mitigation**
Potentially significant impact.

**Mitigation Measures**
Refer to Mitigation Measure AIR-4.

**Level of Significance After Mitigation**
Significant unavoidable impact.

**Greenhouse Gas Emissions**

| Impact AIR-9: | The proposed project would emit cumulatively considerable amounts of greenhouse gases. |

**Impact Analysis**
Greenhouse gases have varying global warming potential. The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas. One teragram of carbon dioxide equivalent (Tg CO2 Eq) is essentially the emissions of the gas multiplied by the global warming potential. One teragram is equal to one million metric tons. The carbon dioxide equivalent is a good way to assess emissions because it gives weight to the global warming potential of the gas. A summary of the atmospheric lifetime and global warming potential of selected gases is summarized in Table 4.2-8. As shown in the table, global warming potential ranges from 1 to 23,900.
Table 4.2-8: Global Warming Potentials and Atmospheric Lifetimes

<table>
<thead>
<tr>
<th>Gas</th>
<th>Atmospheric Lifetime</th>
<th>Global Warming Potential (100 Year Horizon)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide</td>
<td>50–200</td>
<td>1</td>
</tr>
<tr>
<td>Methane</td>
<td>12 ± 3</td>
<td>21</td>
</tr>
<tr>
<td>Nitrous oxide</td>
<td>120</td>
<td>310</td>
</tr>
<tr>
<td>HFC-23</td>
<td>264</td>
<td>11,700</td>
</tr>
<tr>
<td>HFC-134a</td>
<td>14.6</td>
<td>1,300</td>
</tr>
<tr>
<td>HFC-152a</td>
<td>1.5</td>
<td>140</td>
</tr>
<tr>
<td>PFC: tetrafluoromethane</td>
<td>50,000</td>
<td>6,500</td>
</tr>
<tr>
<td>PFC: hexafluoroethane</td>
<td>10,000</td>
<td>9,200</td>
</tr>
<tr>
<td>Sulfur hexafluoride</td>
<td>3,200</td>
<td>23,900</td>
</tr>
</tbody>
</table>


**Carbon Dioxide**

The project will generate emissions of CO₂ primarily in the form of vehicle exhaust and in the consumption of natural gas for heating. CO₂ emissions from vehicles were calculated using URBEMIS2002 assumptions and EMFAC2002 emission factors that are used in URBEMIS2002. CO₂ emissions from natural gas combustion were generated using an EPA AP-42 emission factor. The emissions are estimated in tons per year, which are converted to teragrams of CO₂ equivalents (Tg CO₂ Eq) using the formula Tg CO₂ Eq = (tons of gas) x (global warming potential) x (Tg/1,000,000). One Tg is equal to one million metric tons.

The carbon dioxide emissions are shown in Table 4.2-9. At buildout, the project will emit 0.0185 Tg CO₂ Eq, which is 0.004 percent of California’s emissions (492 Tg CO₂ Eq).

**Table 4.2-9: Greenhouse Gas Emissions**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Vehicular (pounds per day)</th>
<th>Natural Gas (pounds per day)</th>
<th>Total (tons per year)</th>
<th>Total (Tg CO₂ Eq)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide</td>
<td>107,165</td>
<td>2.4</td>
<td>19,558</td>
<td>0.0177</td>
</tr>
<tr>
<td>Methane</td>
<td>26.17</td>
<td>0.000216</td>
<td>4.776</td>
<td>0.000091</td>
</tr>
<tr>
<td>Nitrous oxide</td>
<td>13.44</td>
<td>0.000000433</td>
<td>2.452</td>
<td>0.00069</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>107,204</strong></td>
<td><strong>~2.4</strong></td>
<td><strong>19,565</strong></td>
<td><strong>0.0185</strong></td>
</tr>
</tbody>
</table>


**Methane**

The project will generate some methane gas from vehicle emissions and natural gas combustion. CH₄ from natural gas combustion were generated using an EPA AP-42 emission factor. CH₄ emissions from vehicles were estimated using U.S. EPA emission factors for on-highway vehicles and the same
assumptions used to estimate criteria pollutants in URBEMIS2002. As shown in Table 4.2-9, emissions would be 0.000091 Tg CO₂ Eq, which is 0.000002 percent of California’s greenhouse gas emissions.

Nitrous Oxide
The project generates small amounts of N₂O from vehicle emissions. Emissions from natural gas combustion were generated using an EPA AP-42 emission factor. N₂O from vehicles was estimated using EPA emission factors for on-highway vehicles and the same assumptions that were used to estimate criteria pollutants. As shown in Table 4.2-9, emissions would be 0.00069 Tg CO₂ Eq, which is 0.00012 percent of California’s GHG emissions.

Water Vapor
The project does not contribute to this greenhouse gas because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks and not emissions from industrial and commercial activities.

Ozone
O₃ is a greenhouse gas; however, unlike the other greenhouse gases, O₃ in the troposphere is relatively short-lived and, therefore, is not global in nature. According to CARB, it is difficult to make an accurate determination of the contribution of ozone precursors—NOₓ and volatile organic compounds (VOCs)—to global warming. Therefore, the small amount of project emissions of O₃ precursors would not likely make a significant contribution to global climate change.

Chlorofluorocarbons
As mentioned previously, there is an international ban on CFCs; therefore, the project would not generate emissions of these greenhouse gases and is not considered any further in this analysis.

Hydrofluorocarbons
The project may emit a small amount of HFC emissions from leakage and service of refrigeration and air conditioning equipment and from disposal at the end of the life of the equipment. However, the project plans to install super-high-efficiency packaged HVAC units that have a weighted Energy Efficiency Ratio of 11.25. This ratio is 10 percent higher than the industry-standard, weighted average. Since the project’s air conditioning units also have reduced levels of HFCs in relation to standard units, the project’s emissions of HFCs would be minimal.

Perfluorocarbons and Sulfur Hexafluoride
Perfluorocarbons and sulfur hexafluoride are typically used in industrial applications, none of which would be used by the project. Therefore, it is not anticipated that the project would emit any of these greenhouse gases.
Summary
The primary greenhouse gas generated by the project would be carbon dioxide. At buildout, total unmitigated carbon dioxide equivalents would be 0.0185 Tg CO$_2$ Eq, which is 0.004 percent of California’s 2004 emissions (492 Tg CO$_2$ Eq).

The IPCC constructed several emission trajectories of greenhouse gases needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of greenhouse gases at 400–450 ppm carbon dioxide-equivalent concentration is required to keep global mean warming below 2°C, which in turn is assumed to be necessary to avoid dangerous climate change.

California Governor Arnold Schwarzenegger issued Executive Order S 3-05 in June 2005, which established the following greenhouse gas emission reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels

AB-32 requires that by January 1, 2008, the State board shall determine what the statewide greenhouse gas emissions level was in 1990, and approve a statewide greenhouse gas emissions limit that is equivalent to that level, to be achieved by 2020. While the approved level of 1990 greenhouse gas emissions has not been approved on this date, other publications indicate that levels varied from 425 to 468 Tg CO$_2$ Eq. In 2004, the emissions were estimated at 492 Tg CO$_2$ Eq. Using the range of 1990 emissions, a reduction between 5 and 13 percent would be needed to reduce 2004 levels to 1990 levels.

The California Environmental Protection Agency Climate Action Team developed a report that proposes a path to achieve the Governor’s targets that will build on voluntary actions of California businesses, local government and community actions, and State incentive and regulatory programs. The report indicates that the strategies would reduce California’s emissions to the levels proposed in Executive Order S-3-05. The strategies that apply to the project are contained in Table 4.2-10. As shown in the table, with mitigation, the project complies with the potential measures to bring California to the emission reduction targets.

Table 4.2-10: Project Compliance with Greenhouse Gas Emission Reduction Strategies

<table>
<thead>
<tr>
<th>Agency</th>
<th>Strategy</th>
<th>Project Compliance With Reduction Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Air Resources Board</td>
<td>Vehicle Climate Change Standards</td>
<td>Compliant. The vehicles that access the project will be in compliance with any vehicle standards that CARB proposes.</td>
</tr>
<tr>
<td></td>
<td>Diesel Anti-Idling</td>
<td>Compliant. CARB’s Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling ensures that diesel trucks accessing the project site would not idle.</td>
</tr>
</tbody>
</table>
### Table 4.2-10 (Cont.): Project Compliance with Greenhouse Gas Emission Reduction Strategies

<table>
<thead>
<tr>
<th>Agency</th>
<th>Strategy</th>
<th>Project Compliance With Reduction Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>cont.</td>
<td>HFC Reduction Strategies</td>
<td><strong>Compliant.</strong> The proposed project would use air conditioning units that contain reduced levels of HFCs relative to other conventional models.</td>
</tr>
<tr>
<td></td>
<td>Heavy-Duty Vehicle Emission Reduction Measures</td>
<td><strong>Compliant.</strong> These are CARB-enforced standards; vehicles that access the project that are required to comply with the standards will comply with the strategy.</td>
</tr>
<tr>
<td></td>
<td>Transportation Refrigeration Units (TRUs)</td>
<td><strong>Compliant.</strong> The project may have TRUs visiting the project site. Mitigation AIR-8 represents an available and feasible strategy to reduce emissions from TRUs.</td>
</tr>
<tr>
<td></td>
<td>Achieve 50 Percent Statewide Recycling Goal</td>
<td><strong>Compliant.</strong> Recycling facilities provided at the Wal-Mart Supercenter would exceed the City’s solid waste requirements and would serve to divert waste that would otherwise be disposed of in the waste stream.</td>
</tr>
<tr>
<td>Department of Forestry</td>
<td>Urban Forestry</td>
<td><strong>Compliant.</strong> The Conceptual Landscaping Plan includes drought-tolerant large trees, shrubs, and groundcover.</td>
</tr>
<tr>
<td>Department of Water Resources</td>
<td>Water Use Efficiency</td>
<td><strong>Compliant.</strong> The project requires restroom sinks to use sensor-activated, low-flow faucets. The low-flow faucets, because they regulate flow, reduce water usage by 84 percent, while the sensors, which regulate the amount of time the faucets flow, save approximately 20 percent in water usage over similar, manually operated systems. The Conceptual Landscaping Plan includes drought-tolerant large trees, shrubs, and groundcover.</td>
</tr>
<tr>
<td>California Energy Commission</td>
<td>Building Energy Efficiency Standards</td>
<td><strong>Compliant.</strong> The proposed project will exceed the 2005 Title 24 standards for building construction including exterior lighting requirements. Some of the additional energy efficiency features to be designed into the buildings include T-8 fluorescent lamps and electronic ballasts; LED lighting in all internally illuminated building signage; LED lighting in the frozen food cases and other refrigerated cases with doors; daylighting systems that automatically and continuously dim all of the lights as the daylight contribution increases; nighttime lighting dimming, in which illumination is reduced to 65 percent during the late-night hours; super-high-efficiency packaged HVAC units that have an Energy Efficiency Ratio of 10.8 to 13.2; an energy management system that is monitored and controlled from corporate headquarters in Bentonville, Arkansas; refrigeration waste-heat recapture systems that are used to heat water in the kitchen preparation areas; a white membrane roof with a high solar reflectivity; and occupancy sensors in non-sales areas.</td>
</tr>
<tr>
<td></td>
<td>Appliance Energy Efficiency Standards</td>
<td><strong>Consistent.</strong> Appliances that are purchased for the project will be consistent with existing energy efficiency standards.</td>
</tr>
</tbody>
</table>
Table 4.2-10 (Cont.): Project Compliance with Greenhouse Gas Emission Reduction Strategies

<table>
<thead>
<tr>
<th>Agency</th>
<th>Strategy</th>
<th>Project Compliance With Reduction Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Department of Business, Transportation, and Housing</td>
<td>Measures to Improve Transportation Energy Efficiency</td>
<td>Compliant. The proposed project is infill development in an existing urbanized area. Residential land uses are within walking distance of the project. The site is also adjacent to the Central County Bike Trail, which provides pedestrian and bicycle access throughout Suisun City. The project site would also be served by Fairfield-Suisun Transit bus service. All of these features promote transportation energy efficiency.</td>
</tr>
<tr>
<td></td>
<td>Smart Land Use and Intelligent Transportation Systems (ITS)</td>
<td>Compliant. Smart land use strategies “encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors.” The proposed project locates commercial uses next to residential land uses on an existing arterial roadway (SR-12), which meets the above definition of smart land use. ITS is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services. The proposed project provides goods to those located near the project site, thereby improving the efficiency of goods movement.</td>
</tr>
<tr>
<td>Consumer Services Agency</td>
<td>Green Buildings Initiative</td>
<td>Compliant. The project is initiating energy efficiency insulation measures that will exceed the 2005 Title 24 standards for building construction, including exterior lighting requirements.</td>
</tr>
</tbody>
</table>


While the proposed project would be consistent with the Climate Action Team’s greenhouse gas reduction strategies, it would still result in a net increase in greenhouse gas emissions. Mitigation Measure AIR-9 would require the implementation of several greenhouse gas emissions reduction features into the proposed project. In addition, as discussed under Impact AIR-4, the proposed project includes several trip-reduction features that would promote convenient and safe access to the project site for pedestrians, bicyclists, and bus riders. However, greenhouse gas emissions would still occur after mitigation. The proposed project is expected to generate more than 8,000 daily vehicle trips, and it would consume more than 3.6 million kilowatt hours of electricity and 272,423,000 British Thermal Units of natural gas. Although no greenhouse gas emissions thresholds have been established at the time of this writing, the aforementioned figures indicate that the proposed project would result in substantial greenhouse gas emissions that would be cumulative considerable at the global level. No further feasible mitigation is available that would result in substantial reductions of greenhouse gas emissions. Therefore, the project’s incremental contribution to climate change would be significant and unavoidable.

Level of Significance Before Mitigation
Potentially significant impact.
Mitigation Measures

**MM AIR-9** To reduce emissions of greenhouse gases, the following measures shall be implemented:

- Overhead panels shall be installed over the loading bays to provide shade for docked trucks in order to keep the truck cabin and trailer cooler and to decrease the need for truck idling to power air conditioning units. The panels shall be of sufficient size and oriented to shade the cabin during the summer season.

- Shade trees shall be planted near HVAC equipment to directly shield it from sunlight.

- Low nitrogen oxide-emitting or high-efficiency water heaters shall be used.

Level of Significance After Mitigation

Significant unavoidable impact.
4.3 - Biological Resources

4.3.1 - Introduction
This section describes the existing biological resources setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are primarily based on information contained in the Biological Resources Analysis, dated July 2007, prepared by Olberding Environmental. Additional information was provided by the Jurisdictional Delineation, prepared by Olberding Environmental, Inc., dated June 2006 and field-verified by the U.S. Army Corps of Engineers (USACE) in February 2007; directed surveys for Contra Costa goldfields and other special-status plant species by Olberding Environmental in spring and summer 2006 and spring 2007; protocol surveys for vernal pool shrimp species conducted in October 2006 (dry season) and during the wet season of 2007 by Brent Helm; and the Delta green ground beetle Habitat Assessment Survey, prepared by Entomological Consulting Services, Ltd., dated April 2007. Copies of the reports are included in this EIR as Appendix C.

4.3.2 - Environmental Setting
The project site is an undeveloped 20.8-acre parcel located in the eastern portion of the City of Suisun City. This site is vacant with no discernable land-use and is routinely disked for weed abatement purposes. Surrounding land use includes single-family residential development to the immediate north, west, and south. Undeveloped land, similar to that occurring onsite, extends to the east, and Walters Road separates the project site from this adjacent undeveloped land.

Plant Communities and Habitat Types
The project site supports three habitat types: non-native annual grassland, intermittent drainage ditch, and seasonal wetland. With the exception of a lone cottonwood tree (Populus fremontii) on the northern boundary, the project site lacks tree cover. The plant communities, associated habitat, and wildlife are discussed below.

Non-Native Annual Grassland
The majority of the project site is composed of non-native annual grasses. Non-native grassland, a prevalent community throughout California, is characterized by a dense to sparse cover of non-native annual grasses often associated with numerous weedy species as well as some native annual forbs (wildflowers), especially in years of plentiful rain. Seed germination occurs with the onset of winter rains. Some plant growth occurs in winter, but most growth and flowering occurs in the spring. Plants then die in the summer and persist as seeds in the uppermost layers of soil until the next rainy season. Dominant plant genera typically found within non-native grasslands include bromes (Bromus spp.), wild oats (Avena spp.), fescues (Vulpia spp.), and barleys (Hordeum spp.).

The grasslands on the project site are disked on a bi-annual basis, reducing the potential that disturbance-intolerant native perennials will be present.
The dominant grass species present are:

- Foxtail barley (*Hordeum murinum* ssp. *leporinum*)
- Italian rye grass (*Lolium multiflorum*)
- Ripgut brome (*Bromus diandrus*)
- Wild oat (*Avena fatua*)

Commonly occurring forbs include:

- Bristly oxtongue (*Picris echioides*)
- Black mustard (*Brassica nigra*)
- Common vetch (*Vicia sativa*)
- Cutleaf geranium (*Geranium dissectum*)
- Hop clover (*Trifolium dubium*)
- Redstem filaree (*Erodium cicutarium*)
- Rose clover (*Trifolium hirtum*)
- Winter vetch (*Vicia villosa*)

Wildlife species typifying this habitat include Botta’s pocket gopher (*Thomomys bottae*), house mouse (*Mus musculus*), California vole (*Microtus californicus*), and deer mouse (*Peromyscus* sp.). Because of the development of the majority of the lands surrounding the project site, larger mammals are unlikely to occupy the site. Reptiles such as gopher snake (*Pituophis melanoleucus*), western fence lizard (*Sceloporus occidentalis*), and common garter snake (*Thamnophis sirtalis*) may be present. A variety of bird species including lesser goldfinch (*Carduelis psaltria*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), American crow (*Corvus brachyrrhynchos*), mourning dove (*Zenaida macroura*) and Brewer’s blackbird (*Spizella breweri*) are likely to occur in grassland habitats. Aerial foragers, including tree swallow (*Tachycineta bicolor*), violet-green swallow (*Tachycineta thalassina*), cliff swallow (*Petrochelidon pyrrhonota*), barn swallow (*Hirundo rustica*), and whitethroated swift (*Aeronautes saxatalis*) may also frequent annual grasslands. Raptor species potentially feeding on small mammals within this habitat include red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*).

**Drainage Ditch**

A constructed drainage ditch bisects the project site in a north to south direction, approximately 500 feet west of Walters Road. The drainage ditch conveys runoff from the residential neighborhood on the north side of Petersen Road south via a culvert under State Route 12 (SR-12) that ultimately empties into Hill Slough, 0.5 mile to the south.

The drainage ditch has been colonized by disturbance tolerant forbs and emergent vegetation. Wetland vegetation dominates the bed of the ditch. The banks of the ditch are vegetated with disturbance-tolerant, non-native forbs and grasses, including:
• Harding grass (*Phalaris aquatica*)
• Sweet fennel (*Foeniculum vulgare*)
• Black mustard (*Brassica nigra*)
• Pepper grass (*Lepidium latifolium*)

In-channel vegetation consists of:

• Cattail (*Typha sp.*)
• Curly dock (*Rumex crispus*)
• Mexican rush (*Juncus mexicanus*)
• Rabbit’s foot grass (*Polypogon monspelinensis*)
• Sapling willow (*Salix lasioplepis*)
• Sapling cottonwood (*Populus fremontii*)
• Water plantain (*Alissma plantago-aquatica*)
• Mexican rush (*Juncus mexicanus*)

The drainage ditch provides dense vegetative cover for wildlife within the drainage, but not along the top of the bank. Waterfowl, including mallard (*Anas platyrhynchos*) and American coot (*Fulica americana*) could be expected to forage in the channel and nest in the dense, in-channel vegetation. Waders such as the great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and snowy egret (*Egretta thula*) could be expected to forage within the channel.

**Seasonal Wetland**

The project site has generally poor drainage because of the presence of soils with high clay content. There is also a berm consisting of excavated material on the west edge of the drainage ditch that largely prevents surface flows from the western portion of the property from reaching the ditch. The project site contains several shallow depressions that seasonally pond during the rainy season. Even with bi-annual disking, the seasonal wetlands continue to support some native vernal pool flora. However, non-native species that are more upland and invasive in nature dominate these depressions, including:

• Loosestrife (*Lythrum hyssopifolia*)
• Rabbit’s foot grass (*Polypogon monspeliensis*)
• Spiny-fruited buttercup (*Ranunculus muricatus*)
• Mediterranean barley (*Hordeum marinum* var. *gussoneanum*)

Species more typical of vernal pools communities occurring in these depressions onsite include:

• Brass buttons (*Cotula coronopifolia*)
• Cow clover (*Trifolium fucatum*)
• Dwarf sack clover (*Trifolium depauperatum* var. *depauperatum*)
• Flowering quillwort (*Lilaea scilloides*)
• Popcorn flower (*Plagiobothrys stipitatus*)
• Toad rush (*Juncus bufonius*)
• Valley downingia (*Downingia pulchella*)
• White-tipped clover (*Trifolium varigatum*)
• Water starwort (*Callitriche* sp.)
• Alkali mallow (*Malvella leprosa*)
• Coyote thistle (*Eryngium vasyii*)

The wetlands contain ruts from past disking and have uneven surfaces throughout. Depending upon the duration of inundation, the plant species within the individual pools vary. Where topographic depressions occur on the project site, wetland areas have formed and exhibit a dominance of hydrophytic vegetation.

During rainy periods, the seasonal wetlands support wildlife species such as Pacific tree frogs (*Hyla regilla*) and small invertebrates. Wading birds such as snowy egret (*Egretta thula*), great egret (*Ardea alba*), and common snipe (*Gallinago gallinago*) may forage in these areas during wet conditions as well. During the dry season, wildlife species that use the annual grasslands onsite will also be found using the vegetated swales, seeps, and seasonal wetlands.

**Observed Plant and Wildlife Species**

In addition to the plant species previously mentioned, other plant and wildlife species observed on or adjacent to the project site are listed below.

**Plant Species Observed**

- Willow herb (*Epilobium branchycarpum*)
- Whitestem filaree (*Erodium moschatum*)
- California poppy (*Eschscholzia californica*)
- Catchweed bedstraw (*Gallium aparine*)
- Prickly lettuce (*Lactuca serriola*)
- Lotus (*Lotus* sp.)
- Cheeseweed (*Malva parviflora*)
- Burclover (*Meticago polymorpha*)
- Prickly ox-tongue (*Picris echioides*)
- English plantain (*Plantago lanceolata*)

**Wildlife Species Observed**

**Birds**

- Western scrub-jay (*Aphelocoma californica*)
- Anna’s hummingbird (*Calypte anna*)
- Lesser goldfinch (*Carduelis psaltria*)
- American crow (*Corvus brachyrhynchos*)
Mammals

- Botta’s pocket gopher (*Thomomys bottae*)

**Special-Status Species**

Special-status species are plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the United States Fish and Wildlife Service (USFWS) or by the California Department of Fish and Game (CDFG); plants occurring on lists 1B or 2 of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California, Sixth Edition (2001); and animals designated as Species of Special Concern by the CDFG.

The CDFG California Natural Diversity Database (CNDDB) and background data were reviewed for the Denverton, Fairfield South, Fairfield North, and Elmira 7.5-minute topographic quadrangles to identify special-status species that are known to occur in the region, or have the potential to occur on the project site. According to the results, 58 special-status species were identified. Of these, 33 were reviewed for their potential to occur on the project site, based on the presence of suitable habitat. In addition, the project site is partially within critical habitat boundaries of one special-status plant species, Contra Costa goldfields (*Lasthenia conjugens*), and two special-status wildlife species, vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardi*). In addition, the project site is near, but not within, the critical habitat boundaries of the conservancy fairy shrimp (*Branchinecta conservatio*). The critical habitat boundaries are shown in Exhibits 4.3-1a through 4.3-1d. As discussed in Impact BIO-5, there is the possibility that a mapping error may have occurred and a portion of the project site is erroneously within the boundaries of the aforementioned critical habitat designations.

**Plant Species**

Sixteen special-status plant species were identified as having the potential to occur on the project site based on the presence of suitable habitats observed during the March 2006 reconnaissance survey. The bi-annual disking of the project site reduces the potential for disturbance-intolerant perennials to be present but is not expected to preclude the presence of many annuals. Of the 16, four were considered unlikely to occur because of rarity, lack of occurrence in the area, or soil disturbance. The remaining 12 special-status plants with some potential to occur on the project site are listed below.

- Alkali milk-vetch (*Astragalus tener var. tener*)
- Heartscale (*Atriplex cordulata*)
- Brittlescale (*Atriplex depressa*)
- San Joaquin spearscale (*Atriplex joaquinia*)
- Pappose tarplant (*Centromadia parryi ssp. parryi*)
• Hispid bird’s-beak (Cordylanthus mollis ssp. hispidus)
• Recurved larkspur (Delphinium recurvatum)
• Dwarf downingia (Downingia pusilla)
• Contra Costa goldfields (Lasthenia conjugens)
• Baker’s navarretia (Navarretia leucocephala ssp. bakeri)
• San Joaquin Valley orcutt grass (Orcutta inaequalis)
• Saline clover (Trifolium depauperatum var. hydrophilum)

Focused special-status plant surveys were conducted in March, April, May, and June 2006 and spring 2007 by Olberding Environmental during the recognized blooming period for all plants listed above. These surveys resulted in a negative finding of all special-status plant species on the project site. Note that the Carquinez goldenbush is not included in the above list, as it was considered unlikely to occur because of rarity and unsuitable habitat created by bi-annual diskimg.

Wildlife (Invertebrate) Species
Seven special-status invertebrate species have been identified as having the potential to occur in the vicinity of the project site and are listed below. Bi-annual diskimg of the project site may have reduced the potential for the occurrence of all of the special-status invertebrates.

• Conservancy fairy shrimp (Branchinaeconservatio)
• Vernal pool fairy shrimp (Branchinecta lynchi)
• Midvalley fairy shrimp (Branchinecta mesovallensis)
• Delta green ground beetle (Elaphrus viridis)
• Ricksecker’s water scavenger beetle (Hydrochara rickseckeri)
• Vernal pool tadpole shrimp (Lepidurus packardi)
• California linderiella (Linderiella occidentalis)

Brent Helm conducted protocol-level surveys for vernal pool crustacean species in fall 2006 (dry season) and in winter 2007 (wet season). These surveys resulted in a negative finding for all four fairy shrimp, linderiella, and tadpole shrimp species. Dr. Dick Arnold of Entomological Consulting Services, Ltd. conducted a habitat assessment on February 3, 2007 for the Delta green ground beetle. Surveys resulted in a negative finding for the beetle, and the report concluded that no habitat was present.

Wildlife (Bird) Species
Eight special-status bird species, listed below, were identified as possibly existing on the project site. Suitable foraging habitat is present for all species; however, either because of regular diskimg of the project site or because tree and shrub cover is lacking, little suitable nesting habitat occurs for any of the species.
Legend
- Project Boundary
- Vernal Pool Tadpole Shrimp

Source: Google Earth and MBA GIS Data.
• Burrowing owl (*Athene cunicularia*)
• Red-tailed hawk (*Buteo jamaicensis*)
• Swainson’s hawk (*Buteo swainsoni*)
• Northern harrier (*Cicus cyaneus*)
• White-tailed kite (*Elanus caeruleus*)
• American kestrel (*Falco sparverius*)
• Tricolored blackbird (*Agelaius tricolor*)
• Loggerhead shrike (*Lanius ludovicianus*)

None of the special-status bird species were observed during the 2006 spring surveys.

Additional information about the special-status species listed above, and a full list of species with potential to occur in the region of the project site can be found in the Biological Resources Analysis in Appendix C of this document.

**Wetlands**

**Jurisdictional Delineation**

A jurisdictional delineation of the project site was prepared in May 2006 and field-verified by the USACE in February 2007. The delineation indicated that 2.996 acres of Waters of the U.S., including wetlands, were identified within the established project site boundaries. A vegetated drainage ditch and multiple seasonal wetlands were identified across the project site. All of the features meet USACE criteria for Waters of the U.S. or wetlands and, therefore, are protected by USACE’s regulatory authority under Section 404 of the federal Clean Water Act. These features were observed to be dominated by hydrophytic vegetation, had primary and secondary hydrology indicators, and contained hydric soils. All jurisdictional features would also be subject to Regional Water Quality Control Board (RWQCB) jurisdiction and regulated as Waters of the State under the Porter-Cologne Act. Table 4.3-1 identifies the type of wetland and the approximate size, as represented in Exhibit 4.3-2.

**Table 4.3-1: Jurisdictional Waters of the U.S. and Wetlands**

<table>
<thead>
<tr>
<th>Location</th>
<th>Feature</th>
<th>Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland 1</td>
<td>Adjacent Wetland</td>
<td>0.065</td>
</tr>
<tr>
<td>Wetland 2</td>
<td>Adjacent Wetland</td>
<td>0.018</td>
</tr>
<tr>
<td>Wetland 3</td>
<td>Adjacent Wetland</td>
<td>0.219</td>
</tr>
<tr>
<td>Wetland 4</td>
<td>Adjacent Wetland</td>
<td>0.379</td>
</tr>
<tr>
<td>Wetland 5</td>
<td>Adjacent Wetland</td>
<td>0.007</td>
</tr>
<tr>
<td>Wetland 6</td>
<td>Adjacent Wetland</td>
<td>0.041</td>
</tr>
<tr>
<td>Wetland 7</td>
<td>Adjacent Wetland</td>
<td>0.012</td>
</tr>
</tbody>
</table>
Table 4.3-1 (Cont.): Jurisdictional Waters of the U.S. and Wetlands

<table>
<thead>
<tr>
<th>Location</th>
<th>Feature</th>
<th>Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland 8</td>
<td>Adjacent Wetland</td>
<td>0.038</td>
</tr>
<tr>
<td>Wetland 9</td>
<td>Adjacent Wetland</td>
<td>0.091</td>
</tr>
<tr>
<td>Wetland 10</td>
<td>Adjacent Wetland</td>
<td>1.452</td>
</tr>
<tr>
<td>Wetland 11</td>
<td>Adjacent Wetland</td>
<td>0.191</td>
</tr>
<tr>
<td>Wetland 12</td>
<td>Adjacent Wetland</td>
<td>0.433</td>
</tr>
<tr>
<td>Wetland 13</td>
<td>Drainage Ditch</td>
<td>0.050</td>
</tr>
<tr>
<td><strong>Total USACE Regulated Wetlands</strong></td>
<td><strong>2.996</strong></td>
<td></td>
</tr>
</tbody>
</table>


Each type of jurisdictional feature is discussed in detail below.

**Drainage Ditch**

The constructed drainage ditch contained a defined bed and bank, signs of scouring, drift lines, and flowing water at the time of the survey. The ditch is also identified on the USGS quadrangle map as a dashed blue-line feature, which is tributary to Hill Slough Creek to the south. Hill Slough enters the northern portion of Suisun Slough and the Delta. Because it is likely that the ditch was constructed where a former natural drainage feature occurred, and because it is a tributary to Hill Slough, a known Waters of the U.S., the ditch would be considered by USACE as a tributary to a Waters of the U.S. Therefore, impacts to the ditch below the ordinary high water mark would require prior Section 404 authorization from USACE.

**Seasonal Wetland Features**

All 12 seasonal wetland features meet the USACE multi-parameter requirements to be considered jurisdictional wetlands, pursuant to the 1987 USACE delineation manual. All of the seasonal wetlands occur in topographical depressions scattered throughout the project site, which could mean that they are hydrologically isolated. However, after visiting the project site, USACE has determined that these features would capture precipitation and then would likely spill over into adjacent features including, potentially, the drainage ditch. Therefore, all seasonal wetland features would be considered “adjacent,” hydrologically connected, and would be regulated as Waters of the U.S.

**Solano Multi-Species Habitat Conservation Plan**

The proposed Solano Multi-Species Habitat Conservation Plan (Solano MSHCP) is intended to promote the conservation of biologically significant areas while simultaneously allowing urban development and the continuation of ongoing land use activities, such as agriculture. Version 2.2 of the Solano MSHCP was released by the Solano County Water Agency in February 2007, but it has not been formally adopted. As proposed, the Solano MSHCP is a 50-year plan designed to create a reserve of connected natural habitats throughout Solano County and a portion of Yolo County. In exchange for protecting the reserve area, the Solano MSHCP allows for the “take” of threatened,
endangered, rare, and covered plant and animal species and habitats as part of “covered activities” in
non-reserve areas. The project site is located in an Urban Zone 1 of the MSHCP, which allows
complete development of the property, with impacts to covered species and habitats to be fully
mitigated at offsite preserve areas. However, the timeframe for completing the MSHCP and
subsequent agency approval and authorization of its take and conservation provisions is unknown.

4.3.3 - Regulatory Setting

Federal

Clean Water Act

Section 401 of the Clean Water Act (CWA) requires an applicant who is seeking a 404 permit first to
obtain a water quality certification from the Regional Water Quality Control Board. To obtain the
water quality certification, the Regional Water Quality Control Board must indicate that the proposed
fill would be consistent with the water quality standards set forth by the State.

Section 404 of the CWA of 1977 provides the basis for regulating the preservation of wetlands and
riparian habitats. This section requires that any landowner seeking to add dredged or fill material to a
navigable waterway (i.e., a waterway that potentially can be used for interstate commerce) or
tributary of a navigable waterway must receive a permit from USACE’s San Francisco District or risk
being subject to civil and criminal penalties. To obtain a 404 permit, the landowner must demonstrate
that the activity is in the public interest; in states with wetlands protection regulations such as
California, the landowner must also comply with state regulations.

Endangered Species Act

The Endangered Species Act (ESA) of 1973 establishes a framework for protecting and facilitating
the recovery of threatened and endangered populations of animal and plant species. Under the ESA,
the Secretary of the Interior is required to list species of animals and plants that are both threatened
and endangered, a task that is delegated to the U.S. Fish and Wildlife Service (USFWS) and the
National Marine Fisheries Service (NMFS). A species can become threatened or endangered as a
result of the following factors:

- Present or threatened destruction
- Modification or curtailment of its habitat range
- Over-utilization for commercial recreation, scientific, or educational purposes
- Disease or predation
- Inadequacy of existing statutory mechanisms
- Other natural or man-made factors affecting its continued existence

Section 3 of the ESA defines an endangered species as any species or subspecies of fish, wildlife, or
plants “in danger of extinction throughout all or a significant portion of its range.” A threatened
species is defined as any species or subspecies “likely to become an endangered species within the
foreseeable future throughout all or a significant portion of its range.” Designated endangered and
threatened species, as listed through publication of a final rule in the Federal Register, are fully
protected from a take without incidental take coverage issued by the USFWS under Section 7 or Section 10 of the ESA. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap capture, or collect, or to attempt to engage in any such conduct (50 CFR 17.3). The term “harm” in the definition of take in the ESA means an action that actually kills or injures wildlife. Such action may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3). The term “harass” in the definition of take means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR 17.3). Proposed endangered or threatened species are those for which a proposed regulation, but not a final rule, has been published in the Federal Register.

Section 7 of the ESA requires that federal agencies ensure their actions are not likely to jeopardize the continued existence of a listed species or destroy or adversely modify its critical habitat. This obligation requires federal agencies to consult with USFWS or NMFS on any actions (issuing permits including Section 404 permits, issuing licenses, providing federal funding) that may affect listed species to ensure that reasonable and prudent measures will be undertaken to mitigate impacts on listed species. Consultation with USFWS or NMFS can be either formal or informal, depending on the likelihood of the action to adversely affect listed species or critical habitat. Once a formal consultation is initiated, USFWS or NMFS will issue a Biological Opinion (either a “jeopardy” or a “no jeopardy” opinion) indicating whether the proposed agency action will or will not jeopardize the continued existence of a listed species or result in the destruction or modification of its critical habitat. A permit cannot be issued for a project resulting in a jeopardy opinion unless the project is redesigned to lessen impacts.

In the absence of any federal involvement, as in a privately funded project on private land with no federal permit, only Section 10(a) of the ESA can empower the USFWS or NMFS to authorize incidental take of a listed species provided a habitat conservation plan (HCP) is developed. To qualify for a formal Section 10(a) permit, strict conditions must be met, including a lengthy procedure involving discussions with USFWS, NMFS, and local agencies, preparation of an HCP, and a detailed Section 10(a) permit application.

**Migratory Bird Treaty Act**

The Migratory Bird Treaty Act of 1918 (MBTA) makes it unlawful to take (kill, harm, harass, etc.) any migratory birds listed in 50 Code of Federal Regulations (CFR) 10, including their nests, eggs, or products. The MBTA protects over 800 species, including geese, ducks, shorebirds, raptors, songbirds, and many relatively common species, and it was originally drafted to put an end to the commercial trade in birds and their feathers that, by the early years of the 20th century, had wreaked havoc on the populations of many native bird species. The MBTA implements the United States’ commitment to four international conventions (with Canada, Japan, Mexico, and Russia) for the protection of a shared migratory bird resource. Each of the conventions protects selected species of
birds that are common to both countries (i.e., they occur in both countries at some point during their annual life cycle). The MBTA makes it unlawful to disturb or destroy nests that are occupied by native bird species (generally, non-native species are not protected). Therefore, to the extent possible, it is prudent to avoid removal of, or disturbance to, any trees, shrubs, or any other potential nesting habitat during the avian nesting season, which is generally between early February and August. However, if this is not practical, the MBTA contains provisions for issuance of several Special Purpose Permits for such activities as nest salvage, depredation, and scientific study. USFWS administers the MBTA and Special Purpose Permit program.

State

Waste Discharge Requirements
Under California’s Porter-Cologne Water Quality Control Act (Porter-Cologne), the various RWQCBs regulate the “discharge of waste” to “Waters of the State.” All parties proposing to discharge waste that could affect Waters of the State must file a report of waste discharge with the appropriate regional board—in this case, the San Francisco RWQCB. The regional board will then respond to the report of waste discharge by issuing Waste Discharge Requirements (WDRs) in a public hearing, or by waiving WDRs (with or without conditions) for that proposed discharge.

California Endangered Species Act
The CDFG administers the California Endangered Species Act (CESA). The State of California considers an “endangered” species one whose prospects of survival and reproduction are in immediate jeopardy. A “threatened” species is one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A “rare” species is one present in such small numbers throughout its portion of its known geographic range that it may become endangered if its present environment worsens. The rare species designation applies to California native plants.

CESA prohibits the “take” of any species that the California Department of Fish and Game determines to be an endangered, threatened, or rare species. Take is defined as any effort to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill a California listed species. The CDFG authorizes the take of listed plant or wildlife species through an incidental take permit under Section 2081 of the CESA.

The term “species of special concern” is an informal designation used by CDFG for some declining wildlife species that are not State candidates for listing. This designation does not provide legal protection but signifies that project impacts should be evaluated for potential significance under the CEQA process.

Natural Community Conservation and Planning Act
The Natural Community Conservation and Planning Act provides for a regional planning process focused on protecting biological communities through Natural Community Conservation Plans.
(NCCP). The legislation allows CDFG to authorize the taking of threatened, endangered, or rare species protected under the CESA. While NCCPs are similar in nature to HCPs, a key difference is that NCCP conservation requirements exceed State and federal requirements for mitigation of impacts by requiring plan preparers to contribute to the recovery of threatened and endangered species and their habitat.

**California Environmental Quality Act - Treatment of Listed Plant and Animal Species**

Both the federal and State Endangered Species Acts protect only those species formally listed as threatened or endangered (or rare, in the case of the State list). CEQA Guidelines Section 15380, however, independently defines “endangered” species of plants, fish or wildlife as those whose survival and reproduction in the wild are in immediate jeopardy, and “rare” species as those which are in such low numbers that they could become endangered if their environment worsens. Therefore, a project will normally have a significant effect on the environment if it will substantially affect a rare or endangered species or the habitat of the species. The significance of impacts to a species under CEQA must be based on analyzing actual rarity and threat of extinction despite legal status or lack thereof.

**Fish and Game Code**

Sections 3503, 3503.5, and 3800 of the Fish and Game Code prohibit the “take, possession, or destruction of birds, their nests or eggs.” Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a take.

**Local**

**City of Suisun**

The City of Suisun City General Plan establishes the following policy that relates to biological resources present on the project site:

> Natural watercourses and drainage channels shall be protected and preserved to the extent possible; runoff from urban development and upland watershed areas will be contained by channels and reservoirs to control debris, sediment, and the rate and dispersal of runoff. (Chapter VII - Open Space and Conservation, Policy 9)

**4.3.4 - Methodology**

**Biological Resources Analysis Report**

Olberding Environmental, Inc. prepared a Biological Resources Analysis for the proposed project. Olberding Environmental biologists conducted reconnaissance-level surveys of the project site on March 3, 2006. Potential for occurrence of special-status species on and in the vicinity of the project site was determined by database searches. Focused and reconnaissance-level surveys of the project site were conducted to determine occurrence of some special-status species.

Database searches were done to focus special-status analysis prior to the field survey and to identify potential sensitive habitats in and around the project site. Sources reviewed for special-status plant
species include CNDDB occurrence records and CNPS Inventory for the Denverton, Fairfield South, Fairfield North, and Elmira USGS 7.5-minute topographic quadrangles, and standard flora. Sources reviewed for special-status wildlife species include current agency status information from the USFWS for species listed as threatened or endangered, as well as proposed and candidate species for listing, under the federal ESA, and CDFG for species listed as threatened, or endangered by the State of California under CESA, or listed as “species of special concern” by CDFG. From the above sources, a list of special-status plant and wildlife species with potential to occur in the project vicinity was developed.

Olberding Environmental biologists conducted a reconnaissance-level survey of the project site on March 3, 2006. Additional surveys were performed on April 26, May 8, May 24, and June 7, 2006, in association with focused special-status plant surveys and data collection required for the identification of wetland habitats on the project site. The surveys consisted of walking throughout the project site and evaluating the project site and adjacent lands for potential biological resources. Existing conditions, observed plants and wildlife, adjacent land use, soils and potential biological resource constraints were recorded during the visit.

The objectives of the field surveys were to determine the potential presence or absence of special-status species habitat listed in the CNDDB database report and to identify any wetland areas that could be potentially regulated by the USACE. In addition, Olberding Environmental biologists looked for other potential sensitive species or habitats, which may not have been obvious from background database reports or research. Surveys conducted after the growing season or conducted outside of the specific flowering period for a special-status plant cannot conclusively determine the presence or absence of such plant species; therefore, site conditions and habitat type were used to determine potential for occurrence.

U.S. Army Corps of Engineers Jurisdictional Delineation

Potential wetlands were delineated using USACE methodology during the site investigation conducted on May 24, 2006. The existing landforms, as well as associated vegetation, hydrology, and soil conditions, were recorded at the potential wetlands and Waters of the U.S. within the survey area. Potentially jurisdictional areas were identified by walking the border of the features using global positioning system devices (GPS Trimble brand) and comparing data to available aerial photography and topographical maps, which included:

- U. S. Geological Survey 7.5 Minute Quadrangle Map for Denverton, California
- Soils information in the Soil Survey of Solano County, California (1972, SCS)
- Topographical map (scale: 1”=100’), provided by Robert Karn & Associates, Inc.

The extent or boundary of wetland habitats was further defined using the 1987 USACE Wetlands Delineation Manual, as well as published USACE regulatory guidance letters and San Francisco District regulatory policy.
4.3.5 - Impacts and Mitigation Measures
This section discusses potential biological resources impacts associated with the development of the project. Mitigation measures are provided where appropriate.

Thresholds of Significance
According to the CEQA Guidelines’ Appendix G Environmental Checklist, to determine whether impacts to biological resources are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

- 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 CDFG or USFWS?
- 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 CDFG or USFWS?
- 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?
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?
- Substantially reduce the habitat of a fish or wildlife species?
- Cause a fish or wildlife population to drop below self-sustaining levels?
- Threaten to eliminate a plant or animal community?
- Substantially reduce the number or restrict the range of a rare or endangered plant or animal?

Project Impacts and Mitigation Measures
This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.
Special-Status Plant Species

Impact BIO-1: The proposed project may have a substantial adverse impact on special-status plant species.

Impact Analysis

The project site contains habitat to potentially support the following special-status plant species:

- Alkali milk-vetch
- Brittlescale
- Pappose tarplant
- Recurved larkspur
- Contra Costa goldfields
- San Joaquin Valley orcutt grass
- Carquinez goldenbush
- Heartscale
- San Joaquin spearscale
- Hispid bird’s-beak
- Dwarf downingia
- Baker’s navarretia
- Saline clover

Focused plant surveys conducted in the spring and summer of 2006 and in the spring of 2007 found that only the pappose tarplant was present onsite. The pappose tarplant is a CNPS List 1B species and has several listed occurrences in the Fairfield-Suisun area. While it is uncertain if CDFG or USFWS would require mitigation for such a species, mitigation is proposed that would require a pre-construction survey for the species and mitigation for plant species found onsite. The implementation of MM BIO-1a would reduce potentially significant impacts on the pappose tarplant to a level of less than significant.

The focused plant surveys performed for the proposed project occurred during a time of lower than average rainfall. While the City of Suisun City believes the focused surveys to be adequate, it is possible that CDFG and USFWS will reject the focused surveys that were performed in 2006 and 2007 because of lower than average rainfall. Such an action would render MM BIO-1a moot. In the event that this occurs, MM BIO-1b would be implemented in place of MM BIO-1a and would provide comparable mitigation that would reduce potential impacts on special-status plant species to a level of less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

**MM BIO-1a**

Prior to construction of the project, a survey shall be conducted for pappose tarplant, to locate and map any individuals of this species on the site and to estimate the population size. If the pappose tarplant is found, the project applicant shall develop and implement a salvage and recovery plan for individuals prior to initiation of construction activities on the site. The mitigation, which shall be prepared by a qualified botanist experienced in the development and implementation of native plant restoration, mitigation, and management plans, shall include the following:
- Salvage and/or recovery requirements, including clearly defined goals focusing on plant establishment (stability, succession, reproduction) and non-native species control measures.

- Locations and procedures for restoration/replanting of salvaged plant material, including seeds. Onsite relocation in the undeveloped areas of the site shall be considered if suitable habitat for this species is present.

- The project sponsor, subject to approval by CDFG, shall document the progress/success of the revegetation effort. If the revegetation is not successful, an additional period of correction and monitoring shall be specified.

- Specification of a 5-year, post-construction maintenance and monitoring program by a qualified restoration team to ensure that the project goals and performance standards are being met. The monitoring program shall include provision for remedial actions to correct deficiencies, as needed. After 5 years, the species relocation shall be considered successful if the number of plants that were removed on the site is successfully established at the mitigation site at a minimum of a 1:1 ratio. Annual reports and a final report prepared by the project sponsor and subject to approval by CDFG shall document the progress/success of the revegetation effort. If the revegetation is not successful, an additional period of correction and monitoring shall be specified.

- The project sponsor shall provide and secure a source of funding for this salvage and monitoring operation to the satisfaction of the City prior to issuance of grading permits.

- The mitigation shall be considered a success if, for the last 3 years of the 5-year monitoring program, the numbers of pappose tarplants have remained above the number of individuals that were adversely affected by the project (1:1 mitigation). The populations should show no sign of decline during this period. In addition, for at least the last 4 of 5 monitoring years, the growth of grass, presence of thatch, and growth of weeds should not hinder tarplant plants. Grazing is a potential management tool to reduce competition from non-native grasses and weeds. If the mitigation is unsuccessful after 5 years, monitoring shall be continued for a 6th year if it is warranted. If the lack of success after 5 years suggests that a 6th year of monitoring is not warranted, offsite mitigation land that supports this species shall be purchased. The purchase of these lands shall be approved by the City and funded by the project applicant.

**MM BIO-1b** In the event that CDFG or USFWS rejects the previously performed special-status plant focused surveys, the project shall either (1) retain a qualified botanist to perform new focused surveys to reconfirm the conclusions of the original surveys or
(2) assume the presence of all of the special-status plant species and carry out offsite mitigation of the species through the purchase of credits at no less than a 3:1 ratio through an agency-approved mitigation bank.

**Level of Significance After Mitigation**

Less than significant impact.

**Special-Status Wildlife Species**

| Impact BIO-2: | The proposed project may have a substantial adverse impact on special-status wildlife species. |

**Impact Analysis**

The project site contains suitable habitat to support the following special-status invertebrate wildlife species:

- Conservancy fairy shrimp
- Mid-valley fairy shrimp
- Vernal pool fairy shrimp
- California linderiella
- Delta green ground beetle
- Ricksecker’s water scavenger beetle
- Vernal pool tadpole shrimp

USFWS-approved wet- and dry-season protocol surveys determined that conservancy fairy shrimp, mid-valley fairy shrimp, vernal pool fairy shrimp, California linderiella, and vernal pool tadpole shrimp are absent from the existing ponded areas onsite. Project-related impacts would be less than significant for these five species.

The habitat assessment conducted for Delta green ground beetle and Ricksecker’s water scavenger beetle determined that no suitable habitat occurs onsite for these beetle species. Project-related impacts would be less than significant for these two species. Therefore, populations of the above mentioned special-status invertebrate species are not likely to occur onsite.

The project site contains suitable foraging habitat onsite for the following special-status bird species:

- Burrowing owl
- Swainson’s hawk
- White-tail kite
- Tricolored blackbird
- Red-tailed hawk
- Northern harrier
- American kestrel
- Loggerhead shrike

None of the eight species were observed during the spring 2006 reconnaissance-level survey. While it is possible that northern harrier and burrowing owl could nest in the non-native annual grasslands along the drainage ditch and near the seasonal wetlands, these species were not observed, and no nests, potential nest sites, or other diagnostic sign that would indicate these species’ use of the property were found onsite.
Loggerhead shrike and American kestrel could potentially nest in some of the shrubby vegetation within the drainage ditch, but no nests were found and neither species was observed onsite. Red-tailed hawk, Swainson’s hawk, and white-tailed kite typically nest in mature trees. A single cottonwood was observed onsite, but no evidence of current or previous nesting activity was observed. It is not likely that the single cottonwood would be used by these species for nesting activities. Tricolored blackbirds were not observed onsite, and the emergent vegetation in the ditch is not extensive enough to support a colony of this species.

In summary, it is unlikely that any of the above-listed avian species will actively nest onsite; however, the possibility that burrowing owl will use the site in the future cannot be completely ruled out. Therefore, pre-construction nest surveys by a qualified wildlife biologist will be required prior to project implementation. If any active burrows are observed onsite, then appropriate avoidance measures will need to be developed through consultation with CDFG and/or USFWS to ensure compliance with MBTA regulations and Fish and Game Code Sections 3503.5 and 3511.

All of the above-listed special-status raptor species and tricolored blackbird could periodically use the property as foraging habitat, since all frequent agricultural fields and open habitats when feeding or searching for prey items. Loss of foraging habitat would be considered a potentially significant impact, if the loss of habitat would directly affect the existence of one of the above-mentioned species.

With the implementation of mitigation, all impacts on special-status wildlife species would be reduced to a level of less than significant.

Level of Significance Before Mitigation
Potentially significant impact.

Mitigation Measures

**MM BIO-2a**
Prior to any site-disturbing activities, including grading or woody vegetation and tree removal, the applicant will retain a qualified wildlife biologist to conduct a nesting bird survey to determine if nests are active or occupied onsite. Any active nests observed onsite will be avoided until after the nestlings have fledged and left the nest. If avoidance is not feasible, then a biological monitor will be present if construction activities occur during the nesting season. Construction activity within the vicinity of the active nests may only be conducted at the discretion of the biological monitor. If construction activity will likely result in nest failure, the applicant will consult with CDFG and/or USFWS to determine what mitigation or permitting is required. An MBTA Special Purpose Permit will be required if occupied nests will be impacted.

**MM BIO-2b**
Loss of potential foraging habitat for raptor species and tricolored blackbird will be mitigated by applicant’s purchase of credits at an agency-approved mitigation bank within the region. The chosen mitigation bank must have credits available for
purchase in the vernal pool/grassland mosaic habitat type, suitable for foraging habitat for raptor species and tricolored blackbird. The level of compensation must be commensurate with no less than a 1:1 replacement ratio.

**Level of Significance After Mitigation**
Less than significant impact.

**Riparian Habitat and Other Sensitive Natural Communities**

| Impact BIO-3: | The construction phase of the proposed project will result in significant adverse impacts to riparian habitat associated with the drainage ditch. |

**Impact Analysis**
The project site contains riparian habitat associated with the 1,025-foot drainage ditch considered Waters of the U.S. and Waters of the State by federal and state resource agencies. Development of the proposed project would result in filling the entire ditch. This would be a significant impact on riparian habitat. Prior authorization for filling this Waters of the U.S./Waters of the State will be required under a Section 404 Individual Permit from USACE, a Section 401 certification from RWQCB, and a Streambed Alteration Agreement under Section 1602 of the CDFG Code (refer to Impact BIO-4).

The project will require an Individual Permit because the amount of fills exceeds the thresholds authorized under the existing Nationwide Permit 39 (Commercial and Institutional Developments), which poses a not-to-exceed fill limit of 300 linear feet for Waters of the U.S. When applying for an Individual Permit, the applicant must prepare and submit a wetlands mitigation plan, a Section 404(B)(1) Alternatives Analysis, and, probably, an Environmental Assessment for USACE’s internal use in justifying the permit action. Because the permit to fill the ditch can be done as part of one permit that also covers filling the seasonal wetlands (see below), a Section 7 consultation between USACE and USFWS may also be required, because of the occurrence of USFWS-designated critical habitat (refer to Impact BIO-5).

**Level of Significance Before Mitigation**
Potentially significant impact.

**Mitigation Measures**
**MM BIO-3** Loss of riparian habitat within the drainage ditch will be mitigated by the applicant’s purchase of credits at an agency-approved mitigation bank within the region. The chosen mitigation bank must have credits available for riparian habitats. Final mitigation ratios will be negotiated with regulatory agencies during the permit acquisition process, but in any event, the level of compensation must be commensurate with no less than a 1:1 replacement ratio.
Alternatively, if the USACE, CDFG, and/or the RWQCB require mitigation in some other format as part of its permitting mandates, that mitigation may be substituted if it can be demonstrated that it is at least commensurate with a 1:1 replacement ratio.

**Level of Significance After Mitigation**
Less than significant impact.

### Wetlands

| Impact BIO-4: | Implementation of the proposed project will result in adverse impacts to federally protected wetlands. |

**Impact Analysis**

The jurisdictional delineation found that 2.946 acres of jurisdictional seasonal wetlands on the property are regulated by both USACE and RWQCB. Development of the proposed project will result in substantial adverse impacts on jurisdictional wetland features, and this would be a significant impact requiring mitigation. Prior authorization for filling these seasonal wetlands will be required under a Section 404 Individual Permit from USACE, a Section 401 certification from RWQCB, and a Streambed Alteration Agreement under Section 1602 of the CDFG Code.

The project will require an Individual Permit because the amount of fills exceeds the thresholds authorized under the existing Nationwide Permit 39 (Commercial and Institutional Developments), which poses a not-to-exceed fill limit of .5 acre for wetlands. When applying for an Individual Permit, the applicant must prepare and submit a wetlands mitigation plan, a Section 404(B)(1) Alternatives Analysis, and an Environmental Assessment and/or EIS in compliance with NEPA regulations.

The USACE may initiate Section 7 consultation with the USFWS to determine whether issuance of a 404 permit may affect the continued existence of a federally listed species or result in the destruction or adverse modification of critical habitat. A Section 7 consultation will necessitate preparation of a Biological Assessment to support a USFWS Biological Opinion regarding impacts to federally listed species.

**Level of Significance Before Mitigation**
Potentially significant impact.

**Mitigation Measures**

**MM BIO-4**
Loss of seasonal wetland habitat within the property boundaries shall be mitigated by the applicant’s purchase of credits at an agency-approved mitigation bank within the region. The chosen mitigation bank must have credits available for seasonal wetlands or vernal pool/grassland habitats. The level of compensation must be commensurate with no less than a 2:1 replacement ratio, given the sensitive nature of these wetlands as potential vernal pool invertebrate habitat. The purchasing of offsite...
wetland habitat will provide long-term conservation for higher-quality wetland habitat that may otherwise be developed.

Alternatively, if the USACE, CDFG, and/or the RWQCB require mitigation in some other format as part of its permitting mandates, that mitigation may be substituted if it can be demonstrated that it is at least commensurate with a 2:1 replacement ratio.

**Level of Significance After Mitigation**

Less than significant impact.

**Critical Habitat**

<table>
<thead>
<tr>
<th>Impact BIO-5:</th>
<th>The proposed project may result in the adverse modification of critical habitat areas.</th>
</tr>
</thead>
</table>

**Impact Analysis**

The southeastern portion of the project site appears to be within USFWS-designated critical habitat boundaries for tadpole shrimp, vernal pool fairy shrimp, and Contra Costa goldfields. As shown in Exhibits 4.3-1a, 4.3-1c, and 4.3-1d, the boundaries of the critical habitat designations appear to have been intended to follow the eastern edge of Walters Road; however, small portions of the critical habitat designations extend west across the roadway onto the project site. Because only a small portion of the project site adjacent to Walters Road is within the critical habitat designations, it is likely that a mapping error occurred and the project site is erroneously shown as containing critical habitat. In addition, the project site is regularly disked, and focused surveys for tadpole shrimp, vernal pool fairy shrimp, and Contra Costa goldfields did not find any occurrences onsite. Therefore, MM BIO-5a requires the project applicant to obtain a critical habitat mapping revision from USFWS for the tadpole shrimp, vernal pool fairy shrimp, and Contra Costa goldfields designations that removes the portion of the project site from these critical habitat designations. With the successful implementation of MM BIO-5a, no further mitigation would be required.

However, there is the possibility that USFWS may not concur with the request for a mapping revision. If that occurs, Section 7 consultation with the USFWS would be required for tadpole shrimp, vernal pool fairy shrimp, and Contra Costa goldfields critical habitat designations. Under this scenario, MM BIO-5a would be rendered moot, and MM BIO-5b would take effect and require the project applicant to enter into Section 7 consultation with the USFWS and mandate the implementation of any mitigation required by the agency. With the successful implementation of MM BIO-5b, impacts on critical habitat would be reduced to a level of less than significant.

**Level of Significance Before Mitigation**

Potentially significant impact.

**Mitigation Measures**

**MM BIO-5a**

Prior to any ground-disturbing activities, the project applicant shall obtain mapping revisions from USFWS for the critical habitat designations for tadpole shrimp (Unit
11D), vernal pool fairy shrimp (Unit 16A), and Contra Costa goldfields (Unit 4C). The mapping revisions shall remove the small portion of the project site from the boundaries of each aforementioned critical habitat designation.

**MM BIO-5b**

If USFWS does not concur with the request for a mapping revision for the critical habitat designations, prior to any ground-disturbing activities, USFWS shall be consulted pursuant to Section 7 for tadpole shrimp, vernal pool fairy shrimp, and Contra Costa goldfields critical habitat designations. If USFWS determines that the development of the proposed project would result in the adverse modification of designated critical habitat because the project site is unoccupied, no further action is required. If USFWS determines that the development of the proposed project would result in the adverse modification of one or more designated critical habitat areas, the project applicant shall mitigate for the loss of critical habitat by purchasing credits at an agency-approved mitigation bank at no less than a 3:1 ratio.

**Level of Significance After Mitigation**

Less than significant impact.

**Wildlife Movement**

<table>
<thead>
<tr>
<th>Impact BIO-6:</th>
<th>The proposed project would not interfere with wildlife corridors or otherwise impede wildlife movement.</th>
</tr>
</thead>
</table>

**Impact Analysis**

Development of the proposed project would result in the complete removal of the open drainage ditch on the project site and redirect the drainage through a 30- to 36-inch-diameter storm drain piping. However, the drainage ditch has extremely limited biological value as a major wildlife movement corridor because it is very narrow and connects developed urban areas to the north and south of the project site. The ditch may have some potential as a minor, localized movement venue for small mammals that are adapted to urban landscapes, such as raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and opossum (*Didelphis virginiana*). While removal of the ditch would eliminate habitat for small urban mammal species that have been using it, these same species would also adapt to and use buffer landscaping that the applicant plans to install along the edges of the development.

The project site is not located within any key wildlife movement corridors identified in the Solano MSHCP. Urban development surrounds the project site on three sides (west, north, and south); therefore, the project site does not serve as a linkage between two habitat areas. In addition, sound walls are located on both sides of SR-12 in the project vicinity and act as additional physical barriers to wildlife movement.

Impacts on wildlife movement would be less than significant.

**Level of Significance Before Mitigation**

Less than significant impact.
Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less than significant impact.

Local Biological Ordinances

| Impact BIO-7: | The proposed project would not conflict with City of Suisun City's biological resource policies. |

Impact Analysis
The City of Suisun City General Plan includes policies to protect natural features primarily associated with the Suisun Marsh. Guidelines are provided in the Suisun Marsh Protection Plan and the Downtown/Waterfront Specific Plan. The project site is not within the boundaries of either plan; therefore, development of the proposed project would not interfere with the policies therein. Impacts would be less than significant.

Level of Significance Before Mitigation
Less than significant impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less than significant impact.

Habitat Conservation Plan Consistency

| Impact BIO-8: | The proposed project would not conflict with the Solano MSHCP. |

Impact Analysis
The proposed Solano MSHCP has not been formally adopted; therefore, it is not legally binding. However, for the purposes of disclosure, the proposed project’s consistency with the Solano MSHCP is analyzed in this section.

The Solano MSHCP Figure 1-4 indicates that the project site is located within the Urban Zone (Zone 1). Within this zone, development activities that are consistent with those allowed under the “covered activities” set forth in the Solano MSHCP are authorized to take endangered, threatened, rare, and other protected species and habitats. Allowable “covered activities” in the urban zone include the construction of new buildings and associated infrastructure. The Solano MSHCP requires new development in Zone 1 to provide fee payments to preserve habitat elsewhere in the plan boundaries. This has been incorporated into the proposed project as MM BIO-8. Because the plan has not been formally adopted at the time of this writing, the mitigation measure includes a provision requiring the applicant to provide equivalent fees to the City of Suisun City for habitat protection. The payment of fees would reduce potentially significant impacts to a level of less than significant.
Level of Significance Before Mitigation
Potentially significant impact.

Mitigation Measures

**MM BIO-8**  
At the time building permits are sought, the applicant shall pay mitigation fees to the City of Suisun City in accordance with the provisions of the Solano Multi-Species Habitat Conservation Plan. If the plan fee program is not in place at the time building permits are sought, the applicant shall provide an equivalent fee to a City-determined habitat fund.

Level of Significance After Mitigation
Less than significant impact.

Biological Sustainability

| Impact BIO-9: | Development of the proposed project would not substantially reduce habitat for fish or wildlife, cause fish or wildlife populations to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered species. |

Impact Analysis

This impact addresses the multi-part threshold that correlates with the mandatory findings of significance stated in CEQA Guidelines Section 15065.

The project site is currently undeveloped and contains mostly non-native grassland. Observed plant species onsite indicated that only one species, the pappose tarplant, was considered a special-status species. While a special-status species, the pappose tarplant is present at several other locations in the Fairfield-Suisun area. MM BIO-5a would require the project applicant to mitigate for the loss of the pappose tarplant by salvaging and recovering any species found onsite prior to construction. This would ensure that the development of the proposed project would not threaten to eliminate the pappose tarplant or restrict its range. The project site is partially within critical habitat designations for the Contra Costa goldfields; however, a focused survey found that this species is not present on the project site. Nonetheless, either MM BIO-5a or MM BIO-5b would be implemented to address potential critical habitat impacts. This would ensure that the development of the proposed project would not threaten to eliminate the Contra Costa goldfields or restrict its range.

No special-status wildlife species was observed onsite. MM BIO-2a would require that standard pre-construction surveys would be performed for the burrowing owl and nesting birds to ensure that construction activities do not destroy active nests. The project site is partially within critical habitat designations for tadpole shrimp and vernal pool fairy shrimp; however, focused surveys found that these species are not present on the project site. Nonetheless, either MM BIO-5a or BIO-5b would be implemented to address potential critical habitat impacts. This would ensure that the development of the proposed project would not threaten to eliminate these species or restrict their range.
With the implementation of the mitigation measures noted above, impacts would be reduced to a level of less than significant.

Level of Significance Before Mitigation
Potentially significant impact.

Mitigation Measures
Refer to MM BIO-1a, MM BIO-2a, MM BIO-5a, and MM-BIO-5b.

Level of Significance After Mitigation
Less than significant impact.
4.4 - Cultural Resources

4.4.1 - Introduction

This section describes the existing cultural resources setting and potential effects from project implementation on the cultural resources on the site and its surrounding area. Descriptions and analysis in this section are based on information contained in the Phase I Cultural Resources Assessment, prepared by Michael Brandman Associates, dated October 6, 2006, and included in this EIR as Appendix D, Phase I Cultural Resources Assessment.

4.4.2 - Environmental Setting

Overview

The term “cultural resources” encompasses paleontological, archaeological, and historic resources, and burial sites. Below is a brief summary of each component.

- **Archaeological Resources**: Artifacts associated with prehistoric human activities and cultures, usually indigenous
- **Historic Resources**: Artifacts associated with recent human activities and cultures, usually the Spanish, Mexican, and American periods in California history
- **Paleontological Resources**: Animal and plant fossils
- **Burial Sites**: Formal or informal locations where human remains, usually associated with indigenous cultures, are interred

Cultural Setting

Prehistory

The Prehistoric period is classified into three temporal ranges: the Early Horizon (3000 to 1000 B.C.), the Berkeley Pattern or Middle Horizon (1000 B.C. to A.D. 500), and the Augustine Pattern or Late Horizon (A.D. 500 to historic period). Brief descriptions of these temporal ranges and their unique characteristics follow.

**Early Horizon**

Characterized by the Windmiller Pattern, the Early Horizon was centered in the Cosumnes district of the Delta and emphasized hunting rather than gathering, as evidenced by the abundance of projectile points in relation to plant processing tools. Additionally, atlatl, dart, and spear technologies typically included stemmed projectile points of slate and chert but little obsidian. The large variety of projectile point types and faunal remains suggests exploitation of numerous types of terrestrial and aquatic species. Burials occurred in cemeteries and intra-village graves, and they typically were ventrally extended, although some dorsal extensions are known, with westerly orientation, and a high number of grave goods. Trade networks focused on acquisition of ornamental and ceremonial objects in finished form rather than in raw material form. The presence of artifacts made from exotic materials such as quartz, obsidian, and shell indicates an extensive trade network that possibly
represents the arrival of Utian populations into central California. Also indicative of this period are rectangular Haliotis and Olivella shell beads, and usually perforated charmstones.

**Middle Horizon**
The Middle Horizon is characterized by the Berkeley Pattern, which displays considerable changes from the Early Horizon. This period exhibited a strong milling technology represented by minimally shaped cobbles mortars and pestles, although metates and manos were still used. Dart and atlatl technologies during this period were characterized by non-stemmed projectile points made primarily of obsidian. Research suggests that the Berkeley Pattern marked the eastward expansion of Miwok groups from the San Francisco Bay area. Compared with the Early Horizon, there is a higher proportion of grinding implements during the Middle Horizon, implying an emphasis on plant resources rather than on hunting. Typical burials occurred within villages in flexed positions and variable cardinal orientation; and some cremations were evident. The practice of spreading ground ochre over the burial was common at this time. Grave goods were sparse and typically included only utilitarian items and a few ornamental objects. However, objects such as charmstones, quartz crystals, and bone whistles occasionally occurred, suggesting the religious or ceremonial significance of the individual. Larger populations are suggested by the number and depth of sites compared with the Windmiller Pattern. It is believed that the Berkeley Pattern reflects gradual expansion or assimilation of different populations as well as a gradual shift in economic emphasis, rather than sudden population replacement.

**Late Horizon**
The Late Horizon is characterized by the Augustine Pattern, which represents a shift in general subsistence patterns. Changes include the introduction of bow and arrow technology and, most importantly, acorns as the predominant food resource. Trade systems expanded and included raw resources as well as finished products. There are more baked clay artifacts and extensive use of Haliotis ornaments of many elaborate shapes and forms. Burial patterns continued the practice of flexed burials with variable orientation, but less ochre was used; evidence of cremation was widespread. Judging from the number and types of grave goods associated with the two types of burials, cremation seemed to be reserved for individuals of higher status, whereas others were buried in flexed positions. Research suggests that the Augustine Pattern represents expansion of the Wintuan population from the north, which resulted in combining new traits with those established during the Middle Horizon.

**Ethnography**
At the time of European contact in the 18th century, the Fairfield-Suisun area was occupied by the Patwin tribe of California Native Americans. The Patwin occupied the southwestern Sacramento Valley from the town of Princeton, north of Colusa, south to San Pablo and Suisun bays, and from the lower hills of the eastern North Coast Ranges to the Sacramento River. Patwin territory extended approximately 40 miles east to west and 90 miles north to south.
Distinction is made between the Hill and River Patwin. Hill Patwin lived in villages located in valleys along the hills of the Vaca Mountains and Coast Ranges, with populations concentrated in the Indian, Bear, Capay, Cortina, Long, and Napa valleys. The River Patwin, associated with the project vicinity, generally occupied the western banks of the lower Sacramento River below the Feather River, as well as the lower reaches of Cache and Putah creeks in the Sacramento Valley. The River Patwin village closest to the proposed project location is known ethnographically as Liwai.

Patwin political organization was centered on the tribelet, which consisted of a primary village with smaller satellite villages governed by a head chief. Tribelets were autonomous and differed from each other in minor cultural variations. The economic and ceremonial activities of each village were administered by a chief whose position was typically passed on patrilineally, although some chiefs were chosen by village elders. The chief administered subsistence ventures, such as hunting and gathering expeditions, and served as the primary resource distributor.

The Patwin subsistence base varied with the seasons and included gathering seeds and plant resources on the plains, netting migratory waterfowl in the tule marshes, and netting salmon and other fish in the rivers and streams. Acorns were a staple in the Patwin diet and were obtained from communally owned hill and valley oak groves. The Patwin stored the acorns in granaries as insurance against famine in poor harvest years. Ethnographic reports indicate the Patwin obtained large game such as deer, tule elk, and antelope by using nets or shooting with bows and arrows. Fish resources were of particular importance to the River Patwin and included perch, sturgeon, salmon, sucker, trout, pike, and other riverine species such as mussels and turtles, which were caught with bone fishhooks, nets, weirs, and seines.

The Patwin trade system included various resources that were exchanged with the Wappo, Nomlake, Southeastern Pomo, and Hill Patwin. The River Patwin obtained obsidian from sources to the west and east. Initially, finished shell beads were obtained from coastal tribes, but, later, the River Patwin traded for whole shells from the Pacific Coast and produced the beads themselves. Relationships with nearby tribes and other Patwin tribelets were not always friendly. Patwin relations with Napa Valley groups were strained by provocations primarily incited by poaching; subsequent retaliations resulted in organized battles between individuals or groups or surprise attacks on villages.

Patwin mortuary practices included burials in cemeteries located at one end of the village, in which the possessions of the deceased were buried with them; at some locations, property was burned near the grave. Typically, only people who died or were killed away from the village were cremated. According to a Hill Patwin informant, “the River people [Patwin] set a corpse upright, then pushed the head down, broke the back, wrapped the body in a skin, and put it in the grave.” In addition, long burial ropes constructed of hemp were wrapped around the deceased, and the River Patwin utilized temporary containers made of tule reeds.
Recent History

Spanish and Mexican Exploration and Settlement

Spanish exploration into the Central Valley dates back to the late 1700s. Spanish mission records indicate that by 1800, Patwin inhabitants at Aguastos, the south-central area, and other villages were being taken to Mission Dolores, and that Mission Sonoma, built in 1823, was baptizing Patwin tribal members until secularization of the missions in 1833. Many Native Americans were not willing converts: there are numerous accounts of neophytes fleeing the missions, and a series of “Indian Wars” broke out when the Spanish tried to return them to the missions. During this period, Native American populations were declining rapidly because of an influx of Euro-American diseases. In 1832, a party of trappers from the Hudson’s Bay Company, led by John Work, traveled down the Sacramento River, unintentionally spreading a malaria epidemic to Native Californians. Four years later, a smallpox epidemic decimated local populations. It is estimated that up to 75 percent of the Patwin died.

The Mexican Period, 1821 to 1848, was marked by secularization and division of mission lands among the Californios as land grants, termed ranchos. During this period, Mariano G. Vallejo assumed authority of Sonoma Mission and established a friendly relationship with the Native Americans who were living there. In particular, Vallejo worked closely with Chief Solano, a Patwin who served as Vallejo’s spokesperson when problems with Native American tribes arose. The large rancho lands often were worked by Native Americans who were used as forced labor.

The Fairfield-Suisun area lies within the area petitioned by José Francisco Armijo in 1839. Armijo was granted the Rancho Tolenas land by Governor Alvarado the following year. Armijo’s son, Antonia, acquired the land when his father died in 1850, and it was subsequently acquired by Captain R.H. Waterman in 1858. Shortly after acquiring the land, Waterman offered 16 acres to Solano County for a new, more centrally located county seat. Solano County voters accepted the offer, and the county seat was relocated from Benicia to the new town of Fairfield, where it remains today.

Gold Rush

In 1848, James W. Marshall discovered gold at Coloma in modern-day El Dorado County, which started the gold rush into the region that forever altered the course of California’s history. The arrival of thousands of gold seekers in the territory contributed to the exploration and settlement of the entire State. By late 1848, approximately four out of five men in California were gold miners.

The gold rush originated along the reaches of the American River and other tributaries to the Sacramento River, and Hangtown, present-day Placerville, became the closest town offering mining supplies and other necessities for the miners in El Dorado County. Gold subsequently was found in the tributaries to the San Joaquin River, which flowed north to join the Sacramento River in the great delta east of San Francisco Bay.
By 1864, California’s gold rush had essentially ended. The rich surface and river placers were largely exhausted and the miners either returned to their homelands or stayed to start new lives in California. After the gold rush, people in towns such as Jackson, Placerville, and Sonora turned to other means of commerce, such as ranching, agriculture, and timber production.

With the decline of gold mining, agriculture and ranching came to the forefront in the State’s economy. California’s natural resources and moderate climate proved well suited for cultivation of a variety of fruits, nuts, vegetables, and grains.

**Modern Solano County**
Solano County was created in 1850 and is one of the original 18 counties created at statehood. Originally named Benicia County in January 1850, its name was changed 3 months later to Solano County in honor of Chief Solano, who ruled over most of the indigenous tribes between the Sacramento River and Petaluma Creek. The county retains its original boundaries as they were delineated in 1850.

Early settlers into the County cultivated fruits and vegetables for local consumption, and grains were grown on a larger scale for export. Dry farm crops such as wheat and oats used for cattle fodder proved profitable in the area despite limited irrigation. Initially, all products were transported via the waterways but, with the completion of California Pacific Railroad, goods were transported by rail.

Fruit and nut crops were particularly successful in the project vicinity, and by 1910, Solano-Yolo Land and Water Company proposed dam and irrigation systems to support these crops. However, by 1930, government standards resulted in sales and abandonment of orchards with subsequent fruit worker strikes and riots resulting in the 1934 to 1935 closure of the peach and cherry shipping industry. The fruit and nut industries slowly recuperated and were aided by the formation of the Solano Irrigation District in 1948. Solano County continued to grow over the years with the addition of Travis Air Force Base in 1943, new industrial parks, and a resurgence of fruit processing and packing warehouses.

**Fairfield-Suisun**
The primary industry that brought early settlers into the Fairfield-Suisun area was farming. The rich Delta soil and temperate climate proved beneficial for cultivating vegetables and fruit, and the nearby Suisun Slough provided a ready source of transportation for shipping to the gold mining towns of the Sierra Nevada. In addition to growing fruits and vegetables, farmers soon discovered that dry farm crops such as oats and wheat could be grown in the area with minimal irrigation. The first railroad into the Fairfield-Suisun area was the California Pacific built in 1874, which replaced water transport as the main source for transporting local products.

The Fairfield-Suisun area continued to grow throughout the 20th century. Because of its prime location between the major cities of San Francisco and Sacramento, roads and highways were constructed, which supported the increasing agricultural and light manufacturing industries. In
addition, the development Travis Air Force Base brought military personnel who encouraged
construction of homes, schools, and shopping complexes. Construction of the base began in 1942:
originally named the Fairfield-Suisun Army Air base, it was renamed in 1951 after Brigadier General
Robert F. Travis, who was killed in an explosion in 1950. The base is called the “Gateway to the
Pacific” and continues to provide extensive support to United States troops around the globe.

Project Site
The 20.8-acre project site is undeveloped and contains non-native grasses and a drainage ditch. No
structures exist on the project site. Historic aerial photographs indicate that a small, apparently
agricultural-related structure was present on the site during the 1960s. However, site reconnaissance
found no evidence or remnants of the structure.

The project site is not recorded on any national, State, or local historic registers. A records search
conducted at the Northwest Information Center found that no previously recorded cultural resources
exist on the project site.

4.4.3 - Regulatory Setting

Federal
National Historic Preservation Act
Section 106 of the National Historic Preservation Act (NHPA), as amended, requires federal agencies
to consider the effects of proposed federal undertakings on historic properties. NHPA’s
implementing regulations require federal agencies (and their designees, permittees, licensees, or
grantees) to initiate consultation with the State Historic Preservation Officer (SHPO) as part of the
§ 106 review process.

State
State Historic Preservation Programs
The State Office of Historic Preservation oversees four historic preservation programs:

- National Register of Historic Places (NRHP)
- California Register of Historic Places (CRHP)
- California Historical Landmarks
- California Points of Historic Interest

Each program has its own specific eligibility criteria, though historic resources often overlap on
multiple lists.

Resources listed in the National Register, California Historical Landmarks #770 and above are
automatically listed in the California Register (CR). Points of Historical Interest designated after
December 1997 and recommended by the State Historical Resources Commission are also listed in
the CR.
As of October 2004, there are 1,041 California Historical Landmarks, 766 Points of Historical Interest, 2138 National Register listings, and more than 25,000 resources listed in the CR.

4.4.4 - Methodology

Michael Brandman Associates prepared a Phase I Cultural Resources Assessment for the project site, which is included in its entirety in Appendix D. The cultural resources assessment included a records search and a field survey, which are described below.

On June 1, 2006 an archival records search was conducted at the Northwest Information Center (NWIC) at Sonoma State University in Rohnert Park, California (NWIC File No. 05-1168). The records search included the project area and a 0.25-mile radius outside the project area boundaries. The records search included current inventories of the NRHP, the California Register (CR), California Historical Landmarks, California Points of Historical Interest, and the California Inventory of Historical Resources (CIHR). In addition, the Directory of Properties in the Historic Property Data File was reviewed to determine the existence of previously documented local historical resources. Four historic maps—1853 General Land Office (GLO) Plat Map, 1861 Rancho Tolentas Plat Map, 1872 Map of Solano County, and 1908 USGS Antioch quadrangle map—were examined to locate any historic resources within the project area. None of the historic maps shows any development within the project site. The record search indicated that four studies (NWIC #S-16744, 5167, 12752, and 12743) have been conducted within 0.25 mile of the project site. Two of the studies (S-16744 and 5167) included portions of the project site, mainly the southern half of the project site and a linear strip parallel to Petersen Road. The two remaining studies are within 0.25 mile. None of the four surveys resulted in recordation of any cultural resource sites.

No cultural resources are listed on the NRHP, the CR, or local directories within the records search radius.

On May 31, 2006, Michael Brandman Associates sent a request to the NAHC to obtain information related to known Native American sacred sites within the project site. A response was received from NAHC on August 31, 2006 indicating that a search of the Sacred Land File failed to indicate the presence of Native American cultural resources in the immediate project site.

A pedestrian survey of the project site consisting of a series of transects across the site was conducted on June 2, 2006 by Senior Project Archaeologist, Carrie D. Wills. At the time of the survey, the project site was covered with tall, grassy vegetation that obscured the ground surface and reduced ground surface visibility to near zero percent. At random intervals, a trowel was used to scrape away the vegetation to see if any resources were present; none of the scrapings revealed any resources.

No historic or prehistoric resources were discovered during the pedestrian survey of the project site.
4.4.5 - Impacts and Mitigation Measures

This section discusses potential cultural resources impacts associated with the development of the project. Mitigation measures are provided where appropriate.

Thresholds of Significance

According to the CEQA Guidelines’ Appendix G Environmental Checklist, to determine whether impacts to cultural resources are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

- Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
- Disturb any human remains, including those interred outside of formal cemeteries?

Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

Historic Resources

Impact CUL-1: Subsurface construction activities associated with the proposed project have very little potential to damage or destroy previously undiscovered historic resources.

Impact Analysis

No recorded historic resources are present on the project site, nor were any encountered during the field survey. Subsurface construction activities such as trenching and grading associated with the proposed project could potentially damage or destroy previously undiscovered historic resources. However, any resources encountered would likely be damaged or destroyed from regular disking of the project site that has occurred for decades. This would be a less than significant impact. Although the cultural resource surveys indicate that the likelihood for subsurface resources is very small, mitigation is proposed to reduce any possible impacts to undiscovered subsurface historic resources.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

MM CUL-1 If a potentially significant cultural resource is encountered during subsurface earthwork activities, all construction activities within a 100-foot radius of the find shall cease until a qualified archaeologist determines whether the resource requires
further study. The City shall require that the applicant include a standard inadvertent
discovery clause in every construction contract to inform contractors of this
requirement. Any previously undiscovered resources found during construction shall
be recorded on appropriate Department of Parks and Recreation (DPR) forms and
evaluated for significance in terms of California Environmental Quality Act criteria
by a qualified archaeologist. Potentially significant cultural resources consist of, but
are not limited to, stone, bone, fossils, wood, or shell artifacts or features, including
hearth, structural remains, or historic dumpsites. If the resource is determined to be
significant under CEQA, the City and a qualified archaeologist shall determine
whether preservation in place is feasible. Such preservation in place is the preferred
mitigation, if feasible. If such preservation is infeasible, the qualified archaeologist
shall prepare and implement a research design and archaeological data recovery plan
for the recovery, which will capture those categories of data for which the site is
significant. The archaeologist shall also perform appropriate technical analyses,
prepare a full written report and file it with the appropriate information center
(California Historical Resources Regional Information Center), and provide for the
permanent curation of the recovered materials.

Level of Significance After Mitigation
Less than significant impact.

Archaeological Resources

| Impact CUL-2: | Subsurface construction activities associated with the proposed project could potentially damage or destroy previously undiscovered archaeological resources. |

Impact Analysis
No recorded archaeological resources are known to be present on the project site, nor were any
encountered during the field survey. Subsurface construction activities such as trenching and grading
associated with the proposed project could potentially damage or destroy previously undiscovered
historic resources. However, any resources encountered would likely be damaged or destroyed from
regular disking of the project site that has occurred for decades. This would be a less than significant
impact. Although the cultural resource surveys indicate that the likelihood for subsurface resources is
very small, mitigation is proposed to mitigate any possible impact to undiscovered subsurface
archaeological resources.

Level of Significance Before Mitigation
Less than significant impact.

Mitigation Measures
Refer to Mitigation Measure CUL-1.
Level of Significance After Mitigation
Less than significant impact.

Paleontological Resources

Impact CUL-3:

| Subsurface construction activities associated with the proposed project could potentially damage or destroy previously undiscovered paleontological resources. |

Impact Analysis
No recorded paleontological resources are known to be present on the project site, nor were any encountered during the field survey. However, the project area lies on Late Pleistocene (between 10,000 and 30,000 years old) sedimentary alluvial deposits, which can contain significant vertebrate fossils. Vertebrate fossils from these sediments may include, but are not limited to, mammoth, bison, deer, horse, camel, ground sloth, saber-toothed cats, dire wolves, bear, rodents, birds, and reptiles. Subsurface construction activities such as trenching and grading associated with both phases of the proposed project could potentially damage or destroy previously undiscovered paleontological resources. Accordingly, this is a potentially significant impact. Mitigation is proposed to reduce this potentially significant impact to a level of less than significant.

Level of Significance Before Mitigation
Potentially significant impact.

Mitigation Measures

**MM CUL-3**

In the event a fossil is discovered during construction of the proposed project, excavations within 100 feet of the find shall be temporarily halted or delayed until the discovery is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. The City shall require the applicant to include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. The paleontologist shall notify the City to determine procedures to be followed before construction is allowed to resume at the location of the find. If the City determines that avoidance is not feasible, the paleontologist shall design and carry out a data recovery plan consistent with the Society of Vertebrate Paleontology standards. The plan shall be submitted to the City for review and approval. Upon approval, the plan shall be incorporated into the project. Significant paleontological resources should be deposited in an accredited and permanent scientific institution for curation.

Level of Significance After Mitigation
Less than significant impact.
Burial Sites

Impact CUL-4: Subsurface construction activities associated with the proposed project could potentially damage or destroy previously undiscovered burial sites.

Impact Analysis
Subsurface construction activities such as trenching and grading associated with the proposed project could potentially damage or destroy previously undiscovered burial sites. Accordingly, this is a potentially significant impact. Mitigation is proposed to reduce this potentially significant impact to a level of less than significant.

Level of Significance Before Mitigation
Potentially significant impact.

Mitigation Measures
MM CUL-4 If human remains are encountered during earth-disturbing activities, all work in the adjacent area shall stop immediately and the Solano County Coroner’s office shall be notified. If the remains are determined to be Native American in origin, both the Native American Heritage Commission and any identified descendants shall be notified by the coroner and recommendations for treatment solicited and implemented (CEQA Guidelines Section 15064.5; Health and Safety Code Section 7050.5; Public Resources Code Sections 5097.94 and 5097.98).

Level of Significance After Mitigation
Less than significant impact.
4.5 - Geology, Soils, and Seismicity

4.5.1 - Introduction
This section describes the existing geology, soils, and seismicity setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on information contained in the Geotechnical Investigation, prepared by TRC Lowney, dated December 18, 2006 and included in this EIR as Appendix E, Geotechnical Investigation.

4.5.2 - Environmental Setting
Geology
The Suisun area is situated in the Great Valley Geomorphic Province of California. This province is characterized as a relatively undeformed sedimentary basin bounded by highly deformed rock units of the Coastal Ranges to the west and by the gently sloping western foothills of the Sierra Nevada Mountain Range to the east. The Sacramento Valley, which forms the northern portion of the Great Valley Province, is composed of unconsolidated and recent-age alluvial sediments. The underlying bedrock is thought to be composed of early tertiary marine deposits.

The hills and ridges that rise above the adjacent flatlands are large outcrops of the Tehama formation and the Neroly sandstone. Geologic subunits of the project site are Holocene Alluvium. This alluvium consists of sand, silt, and gravel deposited in fan, valley fill, terrace, or basin environments. This unit is typically in smooth, flat valley bottoms, in medium-sized drainages and other areas where terrain allows a thin veneer of this alluvium to deposit, generally in shallowly sloping or flat environments.

Elevations in the immediate project vicinity range from sea level at Hill Slough to 20 feet above mean sea level near the intersection of Walters Road and Montebello Drive. Onsite topography is generally level, with existing site elevations ranging from 12 feet above mean sea level near the southern corner to 18 feet above mean sea level in the north-central portion of the site.

Seismicity
The term seismicity describes the effects of seismic waves that are radiated from an earthquake as it occurs. While most of the energy released during an earthquake results in the permanent displacement of the ground, as much as 10 percent of the energy may dissipate immediately in the form of seismic waves. To understand the implications of seismic events, a discussion of faulting and seismic hazards is provided below.

Faulting
Faults form in rocks when stresses overcome the internal strength of the rock, resulting in a fracture. Large faults develop in response to large regional stresses operating over a long time, such as those stresses caused by the relative displacement between tectonic plates. According to the elastic rebound theory, these stresses cause strain to build up in the earth’s crust until enough strain has built up to
exceed the strength along a fault and cause a brittle failure. The slip between the two stuck plates or coherent blocks generates an earthquake. Following an earthquake, strain will build once again until the occurrence of another earthquake. The magnitude of slip is related to the maximum allowable strain that can be built up along a particular fault segment. The greatest buildup in strain that is due to the largest relative motion between tectonic plates or fault blocks over the longest period will generally produce the largest earthquakes. The distribution of these earthquakes is a study of much interest for both hazard prediction and the study of active deformation of the earth’s crust. Deformation is a complex process, and strain caused by tectonic forces not only is accommodated through faulting but also by folding, uplift, and subsidence, which can be gradual or in direct response to earthquakes.

Faults are mapped to determine earthquake hazards, since they occur where earthquakes tend to recur. A historic plane of weakness is more likely to fail under stress and strain than a previously unbroken block of crust. Faults are therefore a prime indicator of past seismic activity, and faults with recent activity are presumed to be the best candidates for future earthquakes. However, since slip is not always accommodated by faults that intersect the surface along traces, and since the orientation of stresses and strains in the crust can shift, predicting the location of future earthquakes is complicated. Earthquakes sometimes occur in areas with previously undetected faults or along faults previously thought inactive.

**Local Faulting**

The project site is located in the seismically active San Francisco Bay Area. Active faults that could affect the project site include the Concord-Green Valley Fault, the West Napa Fault, the Greenville Fault, the Rodgers Creek Fault, and the Hayward Fault. The Cordelia Fault is considered potentially or conditionally active. Conditionally active refers to faults whose designation could change upon additional investigation or analysis. Based on the geotechnical investigation, the closest active fault to the project site is the Concord-Green Valley Fault, which passes approximately 8 miles to the west. Research indicates that the most severe structural damage occurs within 3 miles of fault rupture. Active faults have been mapped and are classified as A, B, or C type faults specifically for use with the California Building Standards Code. Faults are classified based on the magnitude of earthquakes typically associated with the fault, and the fault’s slip rate. Type A faults cause the greatest potential destruction; Type C cause the least. The Concord-Green Valley fault is classified as a Type B fault. Type B faults typically produce earthquakes with a maximum magnitude of 6.5 to 7; slip rates vary with magnitude between 2 and 5 millimeters. There are no Type A faults within 15 miles of the project site. Based on the Geotechnical Investigation, the estimated maximum ground acceleration at the project site during a 6.5 magnitude earthquake is 0.47. The level of active seismicity results in classification of the area as seismic risk Zone 4, the highest risk category. A fault summary is provided below in Table 4.5-1. A regional fault map is provided in Exhibit 4.5-1.
Table 4.5-1: Fault Summary

<table>
<thead>
<tr>
<th>Fault</th>
<th>Approximate Distance from Project Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cordelia Fault</td>
<td>7.0 miles</td>
</tr>
<tr>
<td>Concord-Green Valley Fault</td>
<td>8.0 miles</td>
</tr>
<tr>
<td>West Napa Fault</td>
<td>15.0 miles</td>
</tr>
<tr>
<td>Greenville Fault</td>
<td>18.5 miles</td>
</tr>
<tr>
<td>Rodgers Creek Fault</td>
<td>22.0 miles</td>
</tr>
<tr>
<td>Hayward Fault</td>
<td>26.0 miles</td>
</tr>
</tbody>
</table>


**Seismic Hazards**

Seismic hazards pose a substantial danger to property and human safety and are present because of the risk of naturally occurring geologic events and processes impacting human development. Therefore, the hazard is as influenced by the conditions of human development as by the frequency and distribution of major geologic events. Seismic hazards present in California include ground rupture along faults, strong seismic shaking, liquefaction, ground failure, landsliding, and slope failure.

**Fault Rupture**

Fault rupture is a seismic hazard that affects structures sited above an active fault. The hazard from fault rupture is the movement of the ground surface along a fault during an earthquake. Typically, this movement takes place during the short time of an earthquake, but it can also occur slowly over many years in a process known as creep. Most structures and underground utilities cannot accommodate the surface displacements of several inches to several feet commonly associated with fault rupture or creep.

**Ground Shaking**

The severity of ground shaking depends on several variables such as earthquake magnitude, epicenter distance, local geology, thickness, and seismic wave-propagation properties of unconsolidated materials, groundwater conditions, and topographic setting. Ground shaking hazards are most pronounced in areas near faults or with unconsolidated alluvium.

The most common type of damage from ground shaking is structural damage to buildings, which can range from cosmetic stucco cracks to total collapse. The overall level of structural damage from a nearby large earthquake would likely be moderate to heavy, depending on the characteristics of the earthquake, the type of ground, and the condition of the building. Besides damage to buildings, strong ground shaking can cause severe damage from falling objects or broken utility lines. Fire and explosions are also hazards associated with strong ground shaking.
While Richter magnitude provides a useful measure of comparison between earthquakes, the moment magnitude is more widely used for scientific comparison, since it accounts for the actual slip that generated the earthquake. Actual damage is due to the propagation of seismic or ground waves as a result of initial failure, and the intensity of shaking is as much related to earthquake magnitude as to the condition of underlying materials. Loose materials tend to amplify ground waves, while hard rock can quickly attenuate them, causing little damage to overlying structures. For this reason, the Modified Mercalli Intensity (MMI) Scale provides a useful qualitative assessment of ground shaking. The MMI Scale is a 12-point scale of earthquake intensity based on local effects experienced by people, structures, and earth materials. Each succeeding step on the scale describes a progressively greater amount of damage at a given point of observation. The MMI Scale is shown in Table 4.5-2, along with relative ground velocity and acceleration.

**Table 4.5-2: Modified Mercalli Intensity Scale**

<table>
<thead>
<tr>
<th>Richter Magnitude</th>
<th>Modified Mercalli Intensity</th>
<th>Effects</th>
<th>Average Peak Ground Velocity (centimeters/second)</th>
<th>Average Peak Acceleration (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1–0.9</td>
<td>I</td>
<td>Not felt. Marginal and long-period effects of large earthquakes</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1.0–2.9</td>
<td>II</td>
<td>Felt by only a few persons at rest, especially on upper floors of building. Delicately suspended objects may swing.</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3.0–3.9</td>
<td>III</td>
<td>Felt quite noticeable in doors, especially on upper floors of building, but many people do not recognize it as an earthquake. Standing cars may rock slightly. Vibration like passing truck. Duration estimated.</td>
<td>—</td>
<td>0.0035–0.007</td>
</tr>
<tr>
<td>4.0–4.5</td>
<td>IV</td>
<td>During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make creaking sound. Sensations like heavy truck striking building. Standing cars rocked noticeably.</td>
<td>1–3</td>
<td>0.015–0.035</td>
</tr>
<tr>
<td>4.6–4.9</td>
<td>V</td>
<td>Felt by nearly everyone, many awakened. Some dishes, windows, broken; cracked plaster in a few places; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.</td>
<td>3–7</td>
<td>0.035–0.07</td>
</tr>
</tbody>
</table>

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### Table 4.5-2 (Cont.): Modified Mercalli Intensity Scale

<table>
<thead>
<tr>
<th>Richter Magnitude</th>
<th>Modified Mercalli Intensity</th>
<th>Effects</th>
<th>Average Peak Ground Velocity (centimeters/second)</th>
<th>Average Peak Acceleration (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0–5.5</td>
<td>VI</td>
<td>Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster and damaged chimneys. Damage slight.</td>
<td>7–20</td>
<td>0.07–0.15</td>
</tr>
<tr>
<td>5.6–6.4</td>
<td>VII</td>
<td>Everyone runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving cars.</td>
<td>20–60</td>
<td>0.15–0.35</td>
</tr>
<tr>
<td>6.5–6.9</td>
<td>VIII</td>
<td>Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monument walls, and heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving in cars disturbed.</td>
<td>60–200</td>
<td>0.35–0.7</td>
</tr>
<tr>
<td>7.0–7.4</td>
<td>IX</td>
<td>Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.</td>
<td>200–500</td>
<td>0.7–1.2</td>
</tr>
<tr>
<td>7.5–7.9</td>
<td>X</td>
<td>Some well-built structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Railway lines bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed, slopped over banks.</td>
<td>≥ 500</td>
<td>&gt;1.2</td>
</tr>
</tbody>
</table>
Table 4.5-2 (Cont.): Modified Mercalli Intensity Scale

<table>
<thead>
<tr>
<th>Richter Magnitude</th>
<th>Modified Mercalli Intensity</th>
<th>Effects</th>
<th>Average Peak Ground Velocity (centimeters/second)</th>
<th>Average Peak Acceleration (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 8.5</td>
<td>XII</td>
<td>Total damage. Waves seen on ground. Lines of sight and level distorted. Objects thrown into the air.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: United States Geologic Survey.

Ground Failure
Ground failure includes liquefaction and the liquefaction-induced phenomena of lateral spreading and lurching.

Liquefaction is a process by which sediments below the water table temporarily lose strength during an earthquake and behave as a viscous liquid rather than a solid. Liquefaction is restricted to certain geologic and hydrologic environments, primarily recently deposited sand and silt in areas with high groundwater levels. The process of liquefaction involves seismic waves passing through saturated granular layers, distorting the granular structure, and causing the particles to collapse. This causes the granular layer to behave temporarily as a viscous liquid rather than a solid, resulting in liquefaction.

Liquefaction can cause the soil beneath a structure to lose strength, which may result in the loss of foundation-bearing capacity. This loss of strength commonly causes the structure to settle or tip. Loss of bearing strength can also cause light buildings with basements, buried tanks, and foundation piles to rise buoyantly through the liquefied soil.

Lateral spreading is lateral ground movement, with some vertical component, as a result of liquefaction. In effect, the soil rides on top of the liquefied layer. Lateral spreading can occur on relatively flat sites with slopes less than 2 percent, under certain circumstances, and can cause ground cracking and settlement.

Lurching is the movement of the ground surface toward an open face when the soil liquefies. An open face could be a graded slope, stream bank, canal face, gully, or other similar feature.

Landslides and Slope Failure
Landslides and other forms of slope failure form in response to the long-term geologic cycle of uplift, mass wasting, and disturbance of slopes. Mass wasting refers to a variety of erosional processes from
gradual downhill soil creep to mudslides, debris flows, landslides and rock fall—processes that are commonly triggered by intense precipitation, which varies according to climactic shifts. Often, various forms of mass wasting are grouped together as landslides, which are generally used to describe the downhill movement of rock and soil.

Geologists classify landslides into several different types that reflect differences in the type of material and type of movement. The four most common types of landslides are translational, rotational, earth flow, and rock fall. Debris flows are another common type of landslide similar to earth flows, except that the soil and rock particles are coarser. Mudslide is a term that appears in non-technical literature to describe a variety of shallow, rapidly moving earth flows.

Soils
Soil mapping by the National Resources Conservation Service indicate that the project site is underlain by soils of the San Ysidro-Antioch association. Table 4.5-3 summarizes the properties of these soils.

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Texture</th>
<th>Permeability</th>
<th>Drainage</th>
<th>Erosion Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Ysidro Series</td>
<td>Surface: sandy loam-fine sandy loam Subsoil: heavy clay loam-sandy clay loam</td>
<td>Slow</td>
<td>Moderately well drained</td>
<td>Slight to moderate</td>
</tr>
<tr>
<td>Antioch</td>
<td>Surface: loam Subsoil: clay</td>
<td>Slow</td>
<td>Moderately well drained</td>
<td>Slight</td>
</tr>
</tbody>
</table>


Laboratory Testing
TRC Lowney performed a subsurface exploration of soils onsite in October 2006. Fifteen borings were drilled within the proposed building footprint to a depth of approximately 20 feet. Thirty-five borings were drilled to a depth of approximately 10 feet in the proposed parking areas. One boring within the proposed building footprint was drilled to a depth of approximately 50 feet to provide data for liquefaction evaluation. Soil plasticity and corrosive potential were also evaluated.

Borings taken in the center of the project site indicate that the subsurface profile consists of 1 to 4 feet of very stiff to hard lean clay with gravelly undocumented fill over most of the project site. The rest of the site is primarily underlain by interbedded layers of stiff to hard lean clay with sand and lean clay with silt to a depth of approximately 50 feet, the maximum depth explored. Some borings encountered a medium dense to dense clayey sand layer between the approximate depths of 12 and 20 feet. Key testing results are summarized below.
• Soil expansion potential is high
• Soils have a high clay content
• Soils have an R-value varying from 8 to 36
• Soil characteristics related to pH, electrical conductivity, redox potential, and chloride concentration, indicate soils are corrosive to uncoated steel and ductile/cast iron
• Soil characteristics related to sulfide concentration indicate soil is slightly corrosive to buried concrete

Groundwater
The Suisun area overlies the Suisun-Fairfield Valley Groundwater Basin. The basin is underlain by a thick sequence of low-permeability marine sedimentary deposits and ash and lava flows of Sonoma Volcanics origin. The most important water-bearing formations are the gravel and sand deposits within the older alluvium, which are up to 200 feet thick. Groundwater resources in the bedrock units are extremely limited and are characterized by low well yields and poor water quality.

The soil testing conducted by TRC Lowney in October of 2006 measured groundwater at an average of 6.2 feet below ground surface. Groundwater generally flows south, toward the Delta. Refer to Section 4.7, Hydrology and Water Quality, for further discussion of groundwater.

4.5.3 - Regulatory Setting
Various federal, State, and local agencies have jurisdiction over the project site. Relevant agencies, and statutory authorities concerned with geology, soils, and seismicity as they relate to the project are outlined below. Refer to Section 4.7, Hydrology and Water Quality, for further discussion of groundwater regulations.

Federal
**Clean Water Act § 402**
Clean Water Act (CWA) Section 402 mandates that certain types of construction activity comply with the requirements of Environmental Protection Agency’s National Pollution Discharge Elimination System (NPDES) stormwater program. Construction activities that disturb one or more acres of land must obtain coverage under the NPDES general construction activity stormwater permit, which is issued by San Francisco Regional Water Quality Control Board (RWQCB). Obtaining coverage under the NPDES general construction activity stormwater permit generally requires that the project applicant complete the following steps:

• File a Notice of Intent with RWQCB that describes the proposed construction activity before construction begins
• Prepare a Storm Water Pollution Prevention Plan (SWPPP) that describes Best Management Practices (BMPs) that would be implemented to control accelerated erosion, sedimentation, and other pollutants during and after project construction

• File a notice of termination with RWQCB when construction is complete and the construction area has been permanently stabilized

State

Alquist-Priolo Earthquake Fault Zoning Act
In response to the severe fault rupture damage of structures by the 1971 San Fernando earthquake, the State of California enacted the Alquist-Priolo Earthquake Fault Zoning Act in 1972. This act required the State Geologist to delineate Earthquake Fault Zones (EFZs) along known active faults that have a relatively high potential for ground rupture. Faults that are zoned under the Alquist-Priolo Act must meet the strict definition of being “sufficiently active” and “well-defined” for inclusion as an EFZ. The EFZs are revised periodically, and extend 200 to 500 feet on either side of identified fault traces. No structures for human occupancy may be built across an identified active fault trace. An area of 50 feet on either side of an active fault trace is assumed to be underlain by the fault, unless proven otherwise. Proposed construction in an EFZ is permitted only following the completion of a fault location report prepared by a California Registered Geologist.

California Building Standards Code
Title 24 of the California Code of Regulations, also known as the California Building Standards Code, sets forth minimum requirements for building design and construction. The California Building Standards Code is a compilation of three types of building standards from three different origins:

• Building standards that have been adopted by state agencies without change from building standards contained in national model codes

• Building standards that have been adopted and adapted from the national model code standards to meet California conditions

• Building standards, authorized by the California legislature, that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns

In the context of earthquake hazards, the California Building Standards Code’s design standards have a primary objective of assuring public safety and a secondary goal of minimizing property damage and maintaining function during and following seismic event. Recognizing that the risk of severe seismic ground motion varies from place to place, the California Building Standards Code seismic code provisions will vary depending on location (Seismic Zones 0, 1, 2, 3, and 4, with 0 the least stringent and 4 the most stringent).
Regional Water Quality Control Board

The RWQCB regulates State water quality standards in the City of Suisun City. Beneficial uses and water quality objectives for surface water and groundwater resources in the project area are established in the water quality control plans (basin plans) of each RWQCB as mandated by the State Porter-Cologne Act and the CWA. The RWQCBs also implement CWA Section 303(d) total maximum daily load (TMDL) process, which consists of identifying candidate water bodies where water quality is impaired by the presence of pollutants. The TMDL process is implemented to determine the assimilative capacity of the water body for the pollutants of concern and to establish equitable allocation of allowable pollutant loading within the watershed. Section 401 of the CWA requires an applicant pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant to obtain a water quality certification (or waiver) from the applicable RWQCB.

The RWQCBs primarily implement basin plan policies through issuing waste discharge requirements for waste discharges to land and water. The RWQCBs are also responsible for administering the NPDES permit program, which is designed to manage and monitor point and nonpoint source pollution. NPDES stormwater permits for general construction activity are required for projects that disturb more than 1 acre of land. Municipal NPDES stormwater permits are required for urban areas with populations greater than 100,000. The Fairfield-Suisun Sewer District (FSSD) administers municipal NPDES permitting in the City of Suisun City. The City of Suisun City must comply with the provisions of the permit by ensuring that, among other things, new development and redevelopment projects mitigate, to the maximum extent practicable, water quality impacts to stormwater runoff during the project’s construction and operational periods.

The general NPDES stormwater permits for general construction activities require the applicant to file a Notice of Intent (NOI) to discharge stormwater with the RWQCB and to prepare and implement an SWPPP. The SWPPP would include a site map, description of stormwater discharge activities, and a list of BMPs that would be employed to prevent water pollution. It must describe BMPs that would be used to control soil erosion and discharges of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources. It must demonstrate compliance with local and regional erosion and sediment control standards, identify responsible parties, provide a detailed construction timeline, and implement a BMP monitoring and maintenance schedule.

Recent changes to the NPDES permit held by the FSSD include Provision C.3, which specifies requirements to treat about 90 percent of runoff from new development projects. The new C.3 provisions include:

- **Numeric Sizing Criteria for Pollutant Removal Treatment Systems.** The project must include source controls, design measures, and treatment controls to minimize stormwater pollutant discharges. Treatment controls must be sized to treat a specific amount—about 85 percent—of average annual runoff.
• **Operation and Maintenance of Treatment Measures.** Treatment controls often do not work unless adequately maintained. The permit requires an operations and maintenance (O&M) program, which includes (1) identifying the properties with treatment controls, (2) developing agreements with private entities to maintain the controls (e.g., incorporation into covenants, conditions, and restrictions), and (3) periodic inspection, maintenance (as needed), and reporting.

• **Limitation on Increase of Peak Stormwater Runoff Discharge Rates.** Urbanization creates impervious surfaces that reduce the landscape’s natural ability to absorb water and release it slowly to creeks. These impervious surfaces increase peak flows in creeks and can cause erosion.

**Local**

**City of Suisun City General Plan**

The City of Suisun City General Plan establishes the following policies that relate to geology, soils, and seismicity:

- The siting of all new land uses and the construction of all new buildings shall conform to the latest seismic requirements of the Uniform Building Code, any amendments to that code adopted by the State Building Standards Commission, and to any additional requirements imposed by the Seismic Safety Commission. (Chapter IX - Noise and Safety, Policy 6)

- Appropriate site investigation may be required at the outset of development projects. For lands confirmed by site investigation to be prone to ground failure, the following procedures shall be followed.
  - a) All proposed site modifications, structures, roads, and utility installations will be completed according to the recommendations of a qualified civil engineer licensed by the State of California.
  
  - b) The City may retain an independent consultant to evaluate the site investigations and professional recommendations required in 3a. The costs of such consulting services shall be borne by the applicant. (Chapter IX - Noise and Safety, Policy 7)

**Suisun City Grading and Erosion Control Ordinance**

Chapter 15.12, of the Suisun City Code sets forth the City’s Grading and Erosion Control Ordinance. Projects involving ground-disturbing activities would need to comply with the conditions and requirements of the grading or erosion and sediment control requirements of this ordinance.

**4.5.4 - Methodology**

TRC Lowney performed a geotechnical evaluation of the project site and summarized its findings in the Geotechnical Investigation, dated December 18, 2006. The geotechnical evaluation included the drilling of 51 borings to analyze the subsurface profile of the site. Cone Penetration Tests were
performed to measure depth to groundwater; liquefaction analysis was performed using methods presented by the National Center for Earthquake Engineering Research, in accordance with the guidelines set forth in the California Division of Mines and Geology; and a chemical analysis was performed to determine corrosive properties of the soil. TRC Lowney also reviewed regional geology, fault, seismic hazard, and soils maps to determine the project site’s susceptibility to geologic, soil, and seismic hazards.

4.5.5 - Impacts and Mitigation Measures

This section discusses potential geology, soils, and seismicity impacts associated with the development of the project. Mitigation measures are provided where appropriate.

Thresholds of Significance

According to the CEQA Guidelines’ Appendix G Environmental Checklist, to determine whether impacts to geology and soils are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)
  - Strong seismic ground shaking?
  - Seismic-related ground failure, including liquefaction?
  - Landslides?
- Result in substantial soil erosion or the loss of topsoil?
- 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?
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? (Refer to Section 7, Effects Found Not To Be Significant.)
Project Impacts and Mitigation Measures

This section identifies potential impacts related to geology, soils, and seismicity. Impacts analyzed in this section include seismic hazards, erosion hazards, expansive soils, and unstable geologic units. Impacts related to septic and alternative wastewater disposal systems were not significant; a summary of this finding is contained in Section 7, Effects Found Not To Be Significant.

Seismic Hazards

<table>
<thead>
<tr>
<th>Impact GEO-1:</th>
<th>Development of the proposed project has the potential to expose persons or property to substantial adverse effects from seismic hazards.</th>
</tr>
</thead>
</table>

Impact Analysis

The City of Suisun City is within a seismically active region of California and is susceptible to seismic hazards such as fault rupture, ground shaking, liquefaction, ground failure, and landsliding. Below is a discussion of each of these seismic hazards.

Fault Rupture

No active faults are mapped on the project site, nor are any within the vicinity of the site. This condition precludes the possibility of fault rupture occurring onsite.

Ground Shaking

The geotechnical report prepared for the proposed project indicates that the project site is highly susceptible to strong ground shaking hazards. To reduce the potential for exposure of persons and property to harm, the proposed project would be required to meet the applicable seismic design standards of Seismic Zone 4 of the California Building Standards Code. As noted above, these design standards correspond to the level of seismic risk in a given location and are intended primarily to protect public safety and secondly to minimize property damage. Compliance with the seismic design standards of the California Building Standards Code would ensure that potential ground shaking impacts would be less than significant.

Ground Failure

According to regional mapping of the site vicinity by the Association of Bay Area Governments and the United States Geological Survey, potential for liquefaction is low. However, based on sandy soils encountered during soil testing, the Geotechnical Investigation indicated that liquefaction and the liquefaction-induced phenomena of lateral spreading and lurching could occur on portions of the project site. Design recommendations to address this condition are provided in the Geotechnical Investigation and are incorporated into the proposed project as MM GEO-1. In addition, the proposed project would comply with all applicable California Building Standards Code seismic design standards. The California Building Standards Code provides criteria for the seismic design of buildings. Seismic design criteria account for Peak Ground Acceleration, soil profile, and other site conditions, and the criteria establish corresponding design standards intended primarily to protect public safety and secondly to minimize property damage. Compliance with these recommendations
and standards would ensure that the proposed structures would not expose persons to liquefaction hazards.

**Landsliding**

The project site and immediate vicinity is characterized by flat relief with slopes of less than 5 percent. This condition precludes the possibility of landslides affecting the project site.

**Conclusion**

The project site is not susceptible to fault rupture or landsliding hazards. Potential ground shaking, liquefaction, and ground failure impacts would be minimized through adherence to California Building Standards Code seismic designs standards and with the implementation of MM GEO-1; therefore, potential seismic hazards would reduced to a level of less than significant.

**Level of Significance Before Mitigation**

Potentially significant impact.

**Mitigation Measures**

**MM GEO-1**  During design and construction of the proposed project, the project applicant shall require the construction contractor(s) to implement the following design recommendations from the Geotechnical Investigation:

- Slabs-on-grade must have sufficient reinforcement and be supported on a layer of non-expansive fill; footings should extend below the zone of seasonal moisture fluctuation.

- Slabs-on-grade used in conjunction with shallow footings must be supported on at least 24 inches of select, non-expansive fill, or lime-treated native soils.

- Excavations extending below the planned finished site grades must be cleaned and backfilled with suitable material compacted to at least 95-percent relative compaction.

- Concrete slabs or asphalt pavements must be scarified to a depth of 8 inches, moisture conditioned, and compacted to at least 95-percent relative compaction.

- Earthwork should be performed during periods of suitable weather conditions, such as the summer construction season. If earthwork is performed during the wet winter season, alternatives to facilitate fill placement and trench backfill must be exercised.

- The amount of surface water infiltrating the soils near structures must be restricted by selecting landscaping materials needing little or no watering; using low-precipitation, regulated, and timed sprinkler heads; providing adequate surface drainage, and avoiding open planting within 3 feet of building perimeters.
Retaining walls must be designed to resist lateral earth pressures from adjoining natural materials, backfill, and surcharge loads.

Any concrete flatwork constructed on expansive soil must be properly prepared with the use of scarifying, moisture conditioning, and re-compacting the subgrade soil. It must be at least 4 inches thick and underlain by 12 inches of select, non-expansive fill.

**Level of Significance After Mitigation**

Less than significant impact.

**Erosion Hazards**

<table>
<thead>
<tr>
<th>Impact GEO-2:</th>
<th>Development of the proposed project would result in ground-disturbing activities that have the potential to cause erosion and sedimentation.</th>
</tr>
</thead>
</table>

**Impact Analysis**

The proposed project would require extensive construction and grading. During these activities, there would be the potential for surface water to carry sediment from onsite erosion into the stormwater system and local waterways. Soil erosion may occur along project boundaries during construction in areas where temporary soil storage is required.

NPDES Phase II stormwater permitting programs regulate stormwater quality from construction sites. Under the NPDES permitting program, the preparation and implementation of SWPPPs are required for construction activities more than 1 acre in size. The SWPPP must identify potential sources of erosion that may be reasonably expected to affect the quality of stormwater discharges, as well as identify and implement BMPs that ensure the reduction of eroded soil during stormwater discharges. BMPs for stormwater quality treatment are classified as structural and non-structural.

Prior to construction grading, the applicant must file a NOI to comply with the General NPDES Permit issued to the RWQCB and then prepare the SWPPP, which addresses the measures that would be included in the project to minimize and control construction and post-construction runoff to the “maximum extent practicable.” Project grading plans are required to conform to the drainage and erosion standard adopted by FSSD. The SWPPP would also be reviewed by FSSD to ensure adequacy and appropriateness of BMPs. The following are examples of specific measures or their equivalent for inclusion in the SWPPP, which would be implemented to prevent stormwater pollution and minimize potential sedimentation during construction.

- Restrict grading to dry season (April through October) or use BMPs for wet season erosion control
- Preclude non-stormwater discharges from the stormwater system
- Perform monitoring of discharges to the stormwater system
• Construction practices would include the use of stabilized construction entrances and/or wash racks; street sweeping; use of erosion control devices, including damp sweeping, straw bales and/or silt fences; and storm drain inlet protection to minimize contamination from stormwater runoff

• Provide temporary cover of disturbed surfaces (e.g., hydrotech) to control erosion during construction

• Provide permanent cover to stabilize the disturbed surfaces after construction has been completed

In addition, project construction activities would be required to comply with the City’s Grading and Erosion Control Ordinance. The ordinance requires that a Grading Plan be submitted identifying erosion control measures. These requirements have been incorporated into the proposed project as mitigation. The preparation and implementation of a Grading Plan and SWPPP, and their associated BMPs, would reduce potential erosion impacts to a level of less than significant.

**Level of Significance Before Mitigation**
Potentially significant impact.

**Mitigation Measures**
Refer to Mitigation Measures HYD-2a and HYD-2b.

**Level of Significance After Mitigation**
Less than significant impact.

**Unstable Geologic Units and Soils**

<table>
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<tr>
<th>Impact GEO-3:</th>
<th>The proposed project’s structures may be susceptible to onsite, unstable geologic units and soils.</th>
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</thead>
</table>

**Impact Analysis**

The Geotechnical Investigation prepared for the project site did not indicate evidence of instability because of landslides, subsidence, or collapse. Liquefaction analysis indicates sand layers that could cause liquefaction and the liquefaction-induced phenomena of lateral spreading and lurching. Design recommendations to address this condition are provided in the Geotechnical Investigation and would be implemented by the proposed project. The proposed project would implement standard grading and soil engineering practices to ensure that foundations and paved areas are adequately supported and do not settle or otherwise fail. This includes excavating the existing soils and replacing it with compacted engineered fill. In addition, all structures associated with the proposed project would be designed in accordance with the provisions of the California Building Standards Code. The code requirements establish minimum structural load requirements for foundations. These requirements
have been incorporated into the proposed project as mitigation. The implementation of this mitigation would reduce impacts to a level of less than significant.

Level of Significance Before Mitigation
Potentially significant impact.

Mitigation Measures
Refer to Mitigation Measure GEO-1.

Level of Significance After Mitigation
Less than significant impact.

Expansive Soils

<table>
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<tr>
<th>Impact GEO-4:</th>
<th>The proposed project's structures may be susceptible to shrinking and swelling of onsite expansive soils.</th>
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</table>

Impact Analysis
Highly expansive native surficial soils were encountered on the project site. In addition, the undocumented fill present on the project site also has a high shrink/swell potential. Design and construction recommendations are provided in the Geotechnical Investigation to address this condition and are incorporated into the proposed project as mitigation. The implementation of MM GEO-4 would ensure that persons and structures are not exposed to hazards associated with expansive soils. Impacts would be reduced to a level of less than significant.

Level of Significance Before Mitigation
Potentially significant impact.

Mitigation Measures
**MM GEO-4** During design and construction of the proposed project, the City of Suisun City shall require the construction contractor(s) to implement the following design recommendations from the Geotechnical Investigation to reduce potential impacts from expansive soils:

- Maintaining positive surface water drainage gradients (2-percent minimum) within 5 feet of buildings to direct surface water away from foundations and slabs
- Lime-treating native soils to reduce expansive potential and improve engineering characteristics of the soil
- Landscaping and irrigation considerations to reduce the amount of water used around buildings and to avoid water collecting near building foundations, slabs-on-grade, or pavements

Level of Significance After Mitigation
Less than significant impact.