EXHIBIT A

UNIONHOUSE CREEK
CHANNEL IMPROVEMENTS PROJECT

MITIGATED NEGATIVE DECLARATION/
FINAL INITIAL STUDY

PREPARED FOR:

Sacramento Area Flood Control Agency
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June 2012

ICF International. 2012. *Unionhouse Creek Channel Improvements Project Mitigated Negative Declaration/Final Initial Study*. June. (ICF 00217.12.) Sacramento, CA. Prepared for Sacramento Area Flood Control Agency, Sacramento, CA.

Unionhouse Creek Channel Improvements Project

Mitigated Negative Declaration

~~Proposed~~ Mitigated Negative Declaration
Unionhouse Creek Channel Improvements Project

The Sacramento Area Flood Control Agency (SAFCA), acting as the California Environmental Quality Act (CEQA) lead agency and project proponent, has reviewed the proposed project described below to determine whether it could have a significant effect on the environment as a result of project completion. "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in the any of the physical conditions within the area affected by the project, including land use, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Name of Project: Unionhouse Creek Channel Improvements Project

Project Description: The proposed project consists of modifying the channel of Unionhouse Creek for approximately 1.6 miles, from immediately downstream (west) of Bruceville Road to upstream (east) of Franklin Boulevard in the city of Sacramento, California. The proposed project includes flood risk-reduction measures in two segments of the creek: lining the side slopes with concrete and re-lining the channel bottom ~~and side slopes~~ with concrete from Bruceville Road ~~downstream to~~ to the downstream (west) side of the crossing of Center Parkway; and widening the channel by an additional 8 feet, to a total width of 20 feet, from immediately west of Center Parkway downstream to Franklin Boulevard. The primary purpose of this effort is to increase the creek channel's capacity to contain 100-year storm flows within the proposed banks of the channel.

Construction of the proposed project would occur between August and October, 2012. No known hazardous waste sites exist in the project area.

Project Location: The project is located in the southern portion of the city of Sacramento, along Unionhouse Creek, from immediately downstream (west) of Bruceville Road to upstream (east) of Franklin Boulevard.

Contact Information of Lead Agency Representative: Ms. Megan Smith, Project Manager, ICF International, 630 K Street, Suite 400, Sacramento, CA 95814. (916) 231-7677, **msmith3@icfi.com**.

Findings: SAFCA finds the project described above will not have a significant effect on the environment. The attached Final Initial Study identifies one or more potentially significant effects on the environment for which the project proponent, before public release of this proposed Mitigated Negative Declaration, has made or agrees to make project revisions that clearly mitigate the effects to a less-than-significant level. SAFCA further finds that there is no substantial evidence that this project may have a significant effect on the environment.

Public Review Period: The Unionhouse Creek Channel Improvements Project Initial Study and proposed Mitigated Negative Declaration (IS/MND) ~~is~~ was available for review and comment from May 15, 2012, to June 13, 2012. The IS/MND ~~may be viewed~~ was available for public review at the following locations:

- SAFCA: 1007 7th Street, 7th Floor Sacramento, CA 95814
- Sacramento Public Library – Valley Hi-North Laguna Branch: 7400 Imagination Parkway, Sacramento, CA 95823
- online at **http://www.safca.org/Programs_SoSacStreams.html**.

Digital or physical copies ~~may also be~~ could be requested from Ms. Megan Smith by email at **msmith3@icfi.com**, at the above address or at **(916) 231-7677**.

No later than **June 13, 2012**, any person ~~may~~ could:

(1) Review the IS/MND; and

(2) Submit written comments regarding the information, analysis, and mitigation measures in the IS/MND to the contact person above by mail or email.

Public Comment: In response to public comment and additional lead agency review, the following minor clarifications were made to finalize the Initial Study:

- Page 1-3: Future additional flood risk-reduction projects in the area are not precluded by this project. This clarification will not result in any new or undisclosed impacts.
- Page 2-1: The project's upstream measure – concrete sideslope lining – will continue westward under the Center Parkway bridge, ending on the downstream side of the creek crossing. This clarification will not result in any new or undisclosed impacts.
- Page 2-3: Channel excavation would be conducted with disclosed equipment using both in-channel and channel-adjacent construction methods. This clarification will not result in any new or undisclosed impacts.
- Page 3.3-4: At the request of Sacramento Metropolitan Air Quality Management District (SMAQMD), the IS/MND has been revised to include SMAQMD rules that may relate to the project.

Name: _____

Title: _____

Signed: _____

Circulated on: May 15, 2012

Adopted on: June 21, 2012

Unionhouse Creek Channel Improvements Project

Final Initial Study

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Acronyms and Abbreviations

AB	Assembly Bill
AB 939	Assembly Bill 939
ACHP	Advisory Council on Historic Preservation
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
APE	area of potential effects
ARB	California Air Resources Board
B.P.	before present
BA	biological assessment
BAAQMD	Bay Area Air Quality Management District
Basin Plans	Water Quality Control Plans
BO	biological opinion
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CCAs	Community Choice Aggregations
CCR	California Code of Regulations
CDTSC	California Department of Toxic Substances Control
CEQ	Council on Environmental Quality
CEQA	California Environmental Policy Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CHRIS	California Historical Resources Information System
CIWMP	countywide integrated waste management plan
CNDDB	California Natural Diversity Database
CNPS's	California Native Plant Society's
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO2 equivalents
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CVFPB	California Central Valley Flood Control Board
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
dbh	diameter at breast height
DFG	California Department of Fish and Game
DWR	Department of Water Resources
EA	Environmental Assessment
EIR	Environmental Impact Report

EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESPs	energy service providers
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FR	Federal Register
Ft	feet
FTA	Federal Transit Administration
GHG	greenhouse gas
GPS	global positioning system
GWP	global warming potential
HSC	Health and Safety Code and
I-5	Interstate 5
ICF	ICF International
IOUs	investor-owned utilities
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
km	kilometers
L_{dn}	day-night level
L_{eq}	equivalent sound level
L_{eq} 1h	1-hour A-weighted equivalent sound level
L_{max}, L_{min}	maximum and minimum sound levels
LOS	level of service
L_V	vibration noise levels
L_{XX}	percentile-exceeded sound level
MBTA	Migratory Bird Treaty Act
MDAQMD	Mojave Desert Air Quality Management District
mi	mile
MLD	most likely descendant
MOA	memorandum of agreement
MPOs	metropolitan planning organizations
MRZ-3	Mineral Resource Zone–3
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOI	notice of intent
NO_X	oxides of nitrogen

NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O&M	operations and maintenance
O_3	ozone
OHWM	ordinary high-water mark
PG&E	The Pacific Gas and Electric Company
PM	particulate matter
PM10	PM less than or equal to 10 microns in diameter
PM2.5	PM less than or equal to 2.5 microns in diameter
ppm	parts per million
ppt	parts per trillion
PPV	peak particle velocity
PRC	Public Resources Code
psi	pounds per square inch
Regional Water Boards	Regional Water Quality Control Boards
ROG	reactive organic gases
RPS	California's Renewable Portfolio Standard
RT	Regional Transit
SAFCA	Sacramento Area Flood Control Agency
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCEMD	Sacramento County Environmental Management Department
SHPO	State Historic Preservation Officer
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SPCCP	spill prevention, control, and counter-measure plan
SR	State Route
SRCSD	Sacramento Regional County Sanitation District
SSSG	South Sacramento County Streams Group project
SVAB	Sacramento Valley Air Basin
SWPPP	stormwater pollution prevention plan
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	vibration decibels
VOC	volatile organic compound
WDRs	waste discharge requirements
$\mu g/m^3$	micrograms per cubic meter

Chapter 1
Introduction

1.1 Project Purpose

The Sacramento Area Flood Control Agency (SAFCA) is proposing construction of channel upgrades, including channel widening and creek bank lining, in portions of approximately 1.6 miles of Unionhouse Creek in south Sacramento County. The project area runs adjacent to Cosumnes River Boulevard, bounded upstream by Bruceville Road and downstream by Franklin Boulevard, in the southern portion of the city of Sacramento.

The primary purpose of this effort is to increase the creek channel's capacity to handle higher flows during flood events. This project would raise the level of flood protection in the project area to a minimum level of 100-year flood protection, defined as safely containing a flood event with less than a 1% chance of occurrence in any given year, and ensure that the area meets the minimum Federal Emergency Management Agency (FEMA) level of flood protection. This project will provide flood insurance relief and additional flood protection for properties adjacent to Unionhouse Creek between Franklin Boulevard and Bruceville Road.

1.2 Document Purpose and Use

This Initial Study (IS) was prepared in accordance with Article 5, Section 15060 et seq. of the California Environmental Policy Act (CEQA) Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3). This IS describes the existing environmental resources in the project area, evaluates the environmental impacts of the proposed project on these resources, and identifies mitigation measures to avoid or reduce any potentially significant impacts to a less-than-significant level.

The CEQA Lead Agency, SAFCA, will consider the findings of this IS, as well as public input on the content of the IS, in determining whether preparation of an Environmental Impact Report (EIR) is necessary prior to implementation of the proposed project. This IS also will be used by multiple responsible, trustee and cooperating agencies, including the City of Sacramento, California Department of Fish and Game (DFG), California Department of Water Resources (DWR), Central Valley Regional Water Quality Control Board (Regional Water Board), Regional Transit (RT), and California Central Valley Flood Control Board (CVFPB), in taking action under CEQA and other regulatory schemes to authorize implementation of the proposed channel upgrades.

1.3 Project Location and Setting

In the project area, Unionhouse Creek, part of the Morrison Creek stream group, is located in southern Sacramento County on land owned and managed by the City of Sacramento. Unionhouse Creek is located in the Beach/Stone Lakes basin, a system of streams, lakes, and floodplains that drains the area southeast of Laguna and Elk Grove Creeks and the Morrison Creek watershed.

Historically the Beach/Stone Lakes basin was an overflow area of the Sacramento River (Sacramento Regional County Sanitation District 2000). The primary streams in the Beach/Stone Lakes basin are Morrison Creek and its major tributaries: Elder Creek, Florin Creek, Laguna Creek, and Unionhouse Creek. Unionhouse Creek empties into Morrison Creek less than 1 mile downstream of the study area. During non-flood conditions, there is no direct hydrologic connectivity between Unionhouse Creek and the Sacramento River (Sacramento Area Flood Control Agency 2004). During these periods, water is pumped from Morrison Creek into the Sacramento River by the City of Sacramento (Sacramento Area Flood Control Agency 2004).

West of the project area, Unionhouse Creek flows along the northern edge of the Bufferlands. The Bufferlands was established in the 1970s by the Sacramento Regional County Sanitation District (SRCSD) as an undeveloped buffer area between the Sacramento County Regional Wastewater Treatment Plant and surrounding neighborhoods. The Bufferlands encompasses 2,650 acres of managed wetlands, grasslands, and riparian forest habitat.

The proposed project area evaluated for the purpose of this IS is centered along the segment of Unionhouse Creek from immediately downstream (west) of Bruceville Road to immediately upstream (east) of Franklin Boulevard. The total project area encompasses approximately 30 acres, although ground disturbance (e.g., grading, excavation, cut and fill) would occur on approximately 9.5 acres, and only 0.97 acre would be outside the limits of the existing channel. To the north, the project area is closely bounded by residential and commercial development. A buffer area adjacent to the south bank of Unionhouse Creek between the creek and Cosumnes River Boulevard would be used for temporary staging and material disposal and also is evaluated in this IS. The proposed construction activities would be located in the above identified project impact area and would be limited primarily to the drainage channel of Unionhouse Creek.

1.4 Project Background

The South Sacramento County Streams drainage basin has a long history of flooding during heavy rainfall. Local runoff from the Morrison Creek watershed can cause flooding because of limited channel capacities and bridge restrictions. To address various potential flooding hazards, including those in the area of the proposed project, the South Sacramento County Streams Group project (SSSG) was authorized by the Water Resources Development Act of 1999. The SSSG is a federally authorized flood control project that, in relevant part, improves flood protection along four creeks (Morrison, Florin, Elder, and Unionhouse Creeks) in the southern part of the city of Sacramento. The U.S. Army Corps of Engineers (USACE), along with CVFPB and SAFCA, has been implementing improvements identified in the authorization since 2005.

In preparation, USACE, the CVFPB, and SAFCA have conducted numerous studies and prepared environmental documentation related to flood control projects in the Morrison Creek stream group, which includes Unionhouse Creek.

- 1998 EIS/EIR: In 1998 USACE and SAFCA prepared a joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR) addressing improvements on the streams in the Morrison Creek Stream Group in accordance with CEQA and the National Environmental Policy Act (NEPA) (State Clearinghouse No. 1997102056). USACE identified the Locally Preferred Plan and completed the Final EIS/EIR, recognizing that changes to the project may occur during design. SAFCA subsequently certified the completion of the EIR in April 2000.

- 2004 Environmental Assessment: USACE released an Environmental Assessment (EA) in accordance with NEPA, addressing proposed refined design improvement measures in 2004. The EA concluded that the proposed design improvements would be implemented with no significant adverse effect on the environment, supporting a Finding of No Significant Impact (FONSI).
- 2004 Supplemental EIR: In 2004, SAFCA prepared a separate Supplemental EIR on the refined design improvements pursuant to State CEQA Guidelines Section 15163. This Supplemental EIR relied on the 1998 EIS/EIR analysis and complemented it by evaluating the additional environmental effects that would result from changes to the previously studied project features and components. SAFCA adopted a Statement of Overriding Considerations pursuant to State CEQA Guidelines Section 15093 for the 2004 Supplemental EIR at the time of project approval.
- 2008 EA/IS: In 2008, USACE, the CVFPB, and SAFCA finalized a joint NEPA/CEQA EA/IS in support of a proposed effort to make further design refinements to the previously authorized SSSG. The proposed action included channel upgrades to Unionhouse Creek, which were not ultimately carried out. The project area of the 2008 EA/IS included Unionhouse Creek upstream of Franklin Boulevard to Center Parkway, approximately 1 mile of the present proposed project area.

Presently, as USACE continues its efforts under the SSSG, the channel improvements proposed in 2008 to Unionhouse Creek between Franklin Boulevard and Center Parkway have not been initiated because of the project's estimated costs, projected to be over $40 million.

In order to expedite flood insurance relief to area residents and improve flood protection, SAFCA has partnered with the City of Sacramento and RT to design a simplified proposed project that provides a minimum level of 100-year flood protection when complete~~, and the USACE improvements mentioned above no longer would be necessary~~. This project does not preclude implementation of improvements to further increase the level of protection in the future.

1.5 Regulatory Compliance

In carrying out this project, SAFCA will seek all necessary permissions, authorizations, concurrences and permits, if any, to comply with the following regulatory schemes, as relevant:

- Clean Water Act Sections 404 and 401
- California Fish and Game Code Section 1602
- National Historic Preservation Act Section 106
- Federal Endangered Species Act
- California Endangered Species Act
- Porter-Cologne Water Quality Control Act
- Federal Clean Air Act
- California Clean Air Act

1.6 Document Organization

This document is organized as follows:

- Chapter 1, "Introduction," describes the project background, elements, purpose, and regulatory compliance.
- Chapter 2, "Project Description," describes the project area.
- Chapter 3, "Environmental Setting and Impacts," describes the environmental resources present in the project area, and analyzes the potential of the proposed project to impact such resources.
- Chapter 4, "Cumulative Impacts," discusses the potential for the proposed project's incremental effect to be cumulatively considerable when combined with other projects causing related impacts.
- Chapter 5, "References," provides a list of all printed references and personal communications used to prepare the IS.
- Chapter 6, "List of Preparers," presents a list of all personnel who assisted in the preparation of this document.
- Appendix A, "Environmental Checklist," contains the Environmental Checklist Form, CEQA Guidelines Appendix G.
- Appendix B, "Mitigation, Monitoring, and Reporting Plan," details all proposed mitigation measures that would be implemented in conjunction with the proposed project.
- Appendix C, "California Natural Diversity Database (CNDDB) Results," provides the results of the CNDDB search.
- Appendix D, "U.S. Fish and Wildlife (USFWS) Species," provides a list of endangered, threatened, and proposed species that have the potential to occur near the project area.
- Appendix E, "California Native Plant Society's (CNPS) Inventory Search", provides a list of rare and endangered plants with potential to occur near the project area.
- Appendix F, "Study Area Plant Species" provides a list of plant species identified during surveys of the Unionhouse Creek study area.

Chapter 2
Project Description

2.1 Introduction

This chapter describes the elements of the proposed project. The project consists of channel modifications to 1.6 miles of Unionhouse Creek, along Cosumnes River Boulevard from immediately west of its confluence with Strawberry Creek (just west of Bruceville Road) to its crossing with Franklin Boulevard, in the city of Sacramento. The channel modifications would reduce the risk of flooding in SAFCA's planning area.

2.2 Description of Proposed Project

This section includes a discussion of features and construction details, including channel excavation, staging, borrow and disposal sites, construction equipment and personnel, access routes, schedule, restoration and cleanup, and operation and maintenance for the proposed project.

2.2.1 Project Features

The proposed project consists of modifying the channel of Unionhouse Creek for approximately 1.6 miles, from immediately downstream (west) of Bruceville Road to upstream (east) of Franklin Boulevard (Figure 2-1). The primary purpose of this effort is to increase the creek channel's capacity to contain 100-year storm flows within the proposed banks of the channel. Unionhouse Creek is a trapezoidal channel that has a 12-foot-wide concrete bottom, steep unlined side slopes, and a top width of approximately 61 feet. The proposed project includes flood risk-reduction measures in two segments of the creek: lining the side slopes with concrete and re-lining the concrete channel bottom from Bruceville Road to the downstream (west) side of ~~downstream to~~ the crossing of Center Parkway, and widening the channel by an additional 8 feet, to a total bottom width of 20 feet, from immediately west of Center Parkway downstream to Franklin Boulevard. While no new pumps or infrastructure are proposed with this project, an existing sump pump and outlet structure would be relocated approximately 8 feet south of its current position to accommodate the channel widening. (Figure 2-1). In addition, an existing regional site antenna pole located next to the sump pump would be removed and relocated outside the future light rail access road, approximately 5 feet northeast of its current position.

Unionhouse Creek is presently concrete-lined on the bottom; the additional concrete lining would reduce friction in the channel so channel velocity and flow rate are increased, thereby reducing water surface elevation, and the channel widening also would reduce water surface elevations. Where concrete lining is employed, the surface of the existing channel slope and bottom would be removed to a depth adequate to offset the additional concrete, such that no cross-sectional area would be lost. The channel bottom would not be deepened in either segment. The total project area encompasses approximately 30 acres, although ground disturbance would occur on approximately 9.5 acres, and only 0.97 acre would be outside the limits of the existing channel.

2.2.2 Construction Methods and Activities

The primary construction activities would include bypass pumping, infrastructure relocation, excavation, compaction, clearing/grubbing, and concrete placement.

2.2.2.1 Bypass Pumping

At least 15 days prior to beginning any excavation or construction, the contractor would establish a bypass pumping system at the upstream boundary of the project site (just downstream of the confluence with Strawberry Creek), as well as at locations where local storm drains discharge to Unionhouse Creek, for the duration of the project. These systems would consist of a temporary cofferdam, pump, generator or other power source, and piping necessary to convey minor flows to the downstream end of the project.

For each segment of construction, water would be pumped to the downstream limits of the in-channel work (at the Franklin Boulevard and/or Center Parkway bridges). A cofferdam or similar type of instream barrier would be placed at the bridges just above the location of reintroduced flow to prevent water from entering the active work area. Once cofferdams are in place, the channel work area would be passively or actively (i.e., pumped) dry and remain dry for at least 15 consecutive days prior to the start of construction in each segment to protect aquatic species, most notably giant garter snakes. Because of the construction schedule, only minor residential irrigation runoff and rare, minor storm flows during the dry season would contribute flow to the channel. Dewatering of groundwater would not occur on this project.

2.2.2.2 Infrastructure Relocation

An existing storm drain sump pump, gravity bypass outlet, and all ancillary structures (collectively described as Sump 201) would be relocated approximately 8 feet south to accommodate the channel widening between Center Parkway and Franklin Blvd. The contractor would install a bypass pumping system to intercept minor flows discharging to Sump 201 before beginning the relocation work. Once the bypass pumping system is in place, the contractor would demolish a gravity outlet structure in the south bank and remove an existing manhole, a discharge dissipator, and the Sump 201 manhole. Storm drainage lines connecting these structures would be removed and disposed of at an acceptable location. The removed manhole, discharge dissipator, and Sump 201 manhole would be relocated approximately 8 feet south of their previous location; new storm drainage piping would be installed to reconnect these structures to existing storm drains, and the trenches would be backfilled. The gravity outlet structure would be reconstructed once the proposed south bank is constructed.

In addition, an existing approximately 35-foot-tall regional site antenna pole located next to the sump pump would be removed and relocated outside the future light rail access road, approximately 5 feet northeast of its current position. During construction, a 9.5-foot-deep footing for the new pole would be excavated, the new concrete footing poured, and the electrical connection to the existing pole disconnected. The pole would then be relocated to the new foundation, and electrical service reconnected. It is anticipated this pole would be out of service for no more than 24 hours.

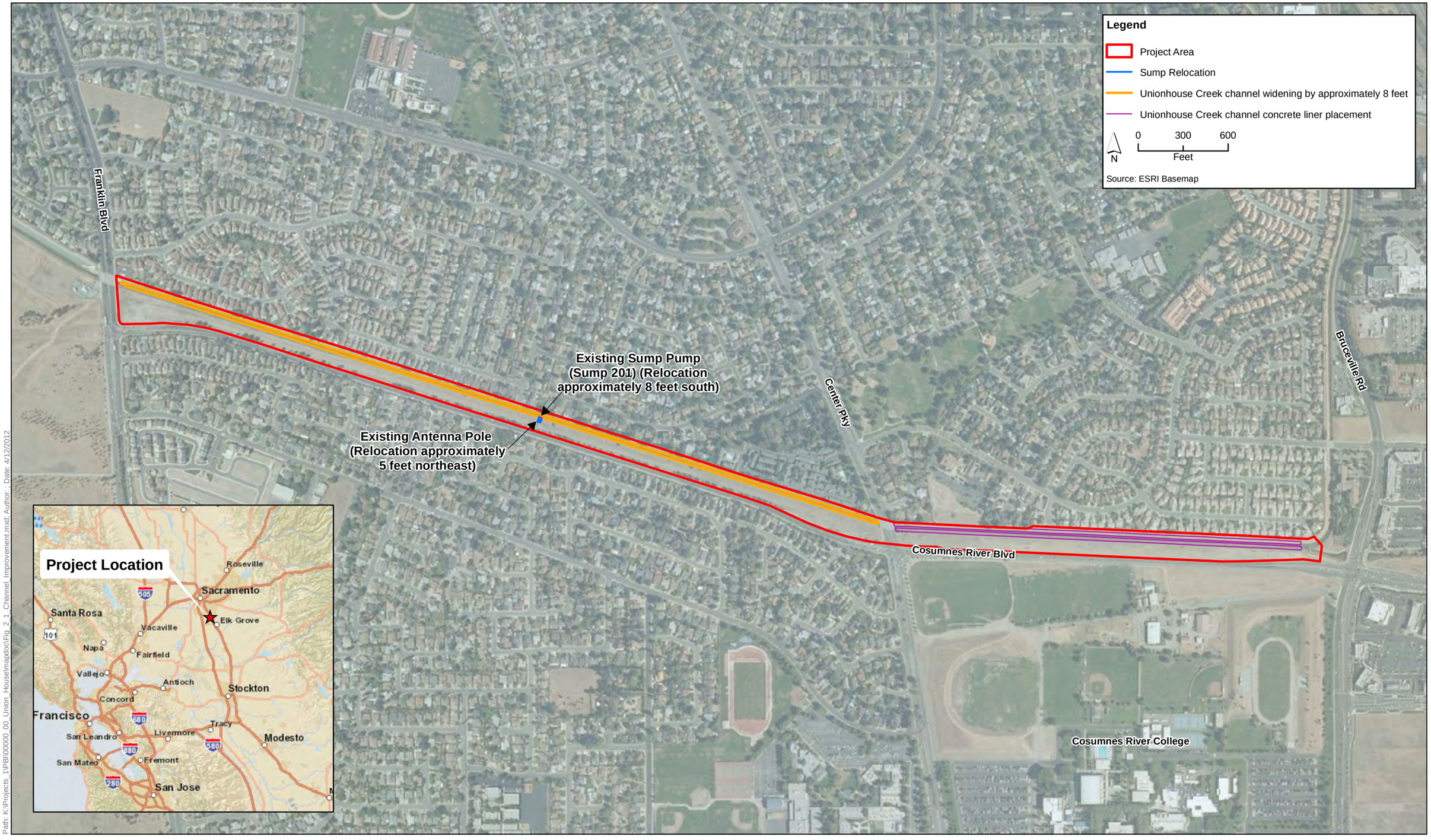

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Figure 2-1
Unionhouse Creek Channel Improvement Project

2.2.2.3 Excavation, Compaction, and Concrete Placement

Bruceville Road to Center Parkway

For the Bruceville Road to Center Parkway segment of the project, the north and south banks would be cleared and grubbed to remove existing vegetation, and the existing 12-foot-wide concrete bottom removed. Any excess dirt removed during this process would be used as fill for the future Regional Transit Light Rail project. Concrete removed would be disposed of at an appropriate waste site authorized to accept concrete waste in Sacramento County. Both banks and the channel bottom would be compacted to a minimum of 90% relative density. Prior to concrete placement, 6-inch welded wire fabric reinforcement would be installed on the sides and bottom of the channel. Weep holes would be installed in each bank 12 inches above the channel bottom at 10-foot intervals. Finally, 4 inches of 3,000 pounds per square inch (psi) concrete would be pneumatically applied over the reinforcing wire to finish the channel sides and bottom. A smooth finish would be applied and expansion joints sawed at 15-foot intervals.

Center Parkway to Franklin Boulevard

For the Center Parkway to Franklin Boulevard segment of the project, channel excavation would involve widening the channel to increase cross-sectional area, while maintaining the south bank at a slope of 1.8H:1V. Excavation of the south bank and removal of the existing 12-foot-wide concrete lining would take place first. Channel excavation would be conducted using both in-channel and channel-adjacent construction methods. Following creek flow diversion, existing concrete would be removed and disposed of at an appropriate waste site authorized to accept concrete waste in Sacramento County. The excavated soil would be stockpiled in the area between Cosumnes River Boulevard and Unionhouse Creek and would be used as fill for the future Regional Transit Light Rail project (an unrelated adjacent project). Soil would be stockpiled with a triangular cross section 20 feet wide and 10 feet tall, and the pile would be approximately 5,300 feet long, occupying approximately 2.43 acres.

Exposed soil along the channel bottom and south bank would be compacted to a minimum of 90% relative density. Prior to concrete placement, 6-inch welded-wire fabric reinforcement would be installed in the bottom of the 20-foot-wide channel. Finally, 4 inches of 3,000 psi concrete would be pneumatically applied over the reinforcing wire to finish the channel bottom. A smooth finish would be applied, contraction joints sawed in at 16-foot intervals, and expansion joints cut at 80-foot intervals.

2.2.2.4 Project Completion

As construction is completed in each channel segment, equipment would be removed from the staging area. The cofferdam then would be removed, and flow diverted back into the channel. Once construction activities are completed, all equipment and excess materials would be transported off site via local streets and regional highways. Any disturbed earthen portions of the project area would be reseeded with a noninvasive grass mix to promote revegetation and minimize soil erosion. The work sites and staging areas would be cleaned of construction debris, and the work area left similar to its pre-project condition.

2.2.3 Site Access, Staging, and Disposal Sites

Equipment and materials would be transported on local roadways to the construction site. Cosumnes River Boulevard would serve as the primary local roadway providing access to the site. State Route (SR) 99 and Interstate 5 (I-5) provide regional access to Cosumnes River Boulevard. Staging areas would be along the Sacramento Regional Transit easement that fronts Unionhouse Creek, within existing channel banks, and within the channel.

Staging areas would be located primarily in the area southeast of the Franklin Boulevard Bridge between Unionhouse Creek and Cosumnes River Boulevard. Access would be from Cosumnes River Boulevard. The location of the staging areas would depend on the channel segment being constructed; there is currently no curb or gutter along Cosumnes River Boulevard to prevent access along the length of the project, so staging and temporary access would move along the project length as the work progresses (Figure 2-1).

As stated above, various disposal sites may be used depending on the type of material to be disposed of. Old concrete from the existing channel lining would be disposed of at an approved waste site authorized to accept concrete waste. Cleared vegetation from the channel would be transported to the nearest transfer station or landfill for disposal. Excavated material from Unionhouse Creek not used for backfill purposes would be temporarily placed on the vacant area adjacent to the creek between Franklin Boulevard and Center Parkway and used on site in construction of Sacramento Regional Transit improvements scheduled for construction in 2013 (a separate project).

2.2.4 Construction Equipment and Personnel

Approximately 10 to 15 persons would be expected to be on site daily during peak construction periods. Private worker vehicles would be parked in the construction staging areas identified above. Typical equipment used at the project site would include excavators, dump trucks, concrete pumps, and cement trucks. See Table 3.3-5 Construction Equipment Assumptions.

2.2.5 Construction Schedule

Construction is expected to occur from 7 a.m. to 6 p.m. Monday through Saturday from early August through the end of October 2012.

2.2.6 Operation and Maintenance Activities

The City of Sacramento is responsible for maintenance of Unionhouse Creek. The channel bottom is kept free of debris, and the sides are mowed periodically. From Bruceville Road to Center Parkway, the City no longer would need to mow the sides of the channel because they would be concrete-lined. From Center Parkway to Franklin Boulevard, the proposed maintenance would not change.

Chapter 3
Environmental Setting and Impacts

3.1 Introduction

This chapter provides an overview of the existing physical environment and regulatory requirements for each of the resources that may be affected by the proposed project. The environmental setting is followed by an evaluation of the environmental impacts for each resource. The chapter is organized by resource topic and corresponds to the Environmental Checklist Form of the State CEQA Guidelines. A complete environmental checklist for each potentially affected resource is provided in Appendix A.

Implementation of the mitigation measures specified in the impact analysis would either avoid adverse impacts completely or reduce the impacts to a less-than-significant level. SAFCA would adopt a mitigation and monitoring program at the time it adopts the mitigated negative declaration. The purpose of the plan is to ensure that the mitigation measures adopted as part of the project approval would be implemented when the project is constructed. Some impacts have been avoided by including certain measures in the project description.

The following terminology is used to describe the level of significance of impacts:

- A finding of no impact is appropriate if the analysis concludes that the project would not affect the particular topic area in any adverse way.
- An impact is considered less than significant if the analysis concludes that it would cause no substantial adverse change to the environment and requires no mitigation.
- An impact is considered less than significant with mitigation incorporated if the analysis concluded that it would cause no substantial adverse change to the environment with the inclusion of mitigation measures that have been agreed to by the applicant.
- An impact is considered potentially significant if the analysis concludes that it could have a substantial adverse effect on the environment, and mitigation is not possible.

3.2 Resources Not Likely to Be Affected

Initial evaluation of the impacts of the proposed project indicated that there likely would be little to no impact on several resources. These resources are discussed below to add to the overall understanding of the project.

3.2.1 Aesthetics

Aesthetics impacts are typically based on viewer response to changes in their surroundings resulting from project construction and operation. Viewer response depends, in part, on the type of viewer exposed to the project, as well as the frequency and duration of their views. Consideration of these factors, combined with the visual characteristics of the area and the proposed activities, determines the likelihood of visual impacts.

Potential sensitive visual receptors depend upon nearby land uses, which in this case include roadways on the west, south, and east; single- and multiple-family residential uses to the north; commercial development to the east; and single-family residential areas and the Cosumnes River College campus to the south. Viewer groups likely to be affected by project activities therefore fall into three general categories: nearby residents, visitors to the Cosumnes River College campus, and travelers on adjacent roadways. Roads with views of the project site are Franklin Boulevard to the west, Cosumnes River Boulevard to the south, and Bruceville Road to the east, and Center Parkway, which crosses the project site.

Although the project site is visible from limited parts of nearby residential neighborhoods and roadways, the nature of the proposed project and its surroundings precludes direct views of the proposed channel improvements. Views consist primarily of foreground elements such as roadways, fences and trees and, from Cosumnes River College, berms surrounding the sports fields. These features effectively shield much of the project area from view, allowing only limited visibility of the existing chain-link fence; disturbed areas of gravel, soil, and grass along the channel banks; and the tops of some nearby buildings, back yard fences, trees, and shrubs. Because the area's topography is flat and the channel is located below grade, the channel itself is not easily seen from nearby roads and homes. Portions of the channel are briefly visible to travelers crossing the Franklin Boulevard, Center Parkway, and Bruceville Road bridges.

Implementation of the proposed project is not expected to result in any impacts on visual resources. The channel improvements will not affect any scenic vista or resources, as neither the existing Unionhouse Creek channel, nor the adjacent disturbed area, nor any nearby feature, is considered a scenic resource. Similarly, the proposed channel modifications consist of below-grade improvements that will not degrade the site's existing visual character or introduce new sources of light and glare. Construction equipment and activities will be temporarily visible to travelers on adjacent roadways for approximately 3 months. Changes within the channel itself will be minimally visible to travelers on the Center Parkway and Franklin Boulevard bridges, which pass near the channel area proposed for widening. Other viewers are unlikely to see modifications to the channel due to the area's flat topography and the channel's below-grade location. Consequently, aesthetic resources are not considered further in this document.

3.2.2 Agriculture and Forestry Resources

The proposed project consists of channel modifications to an existing, channelized creek in the urbanized city of Sacramento. The project site is surrounded by single and multiple family residential uses, and commercial and educational facilities. The Unionhouse Creek site does not encompass or border any agricultural or forest resources, and would therefore have no effect on these resources.

3.2.3 Land Use and Planning

The proposed Unionhouse Creek Channel Improvements Project consists of re-lining the existing Unionhouse Creek channel between Bruceville Road and Center Parkway with concrete, and widening the existing channel by 8 feet from Center Parkway downstream to Franklin Boulevard. Land uses adjacent to the project site include single and multiple family residential uses, and commercial and educational facilities. The northeastern corner of the Sacramento Regional County Sanitation District's Bufferlands area lies across Franklin Boulevard from the project site's western end. The land use proposed under the Unionhouse Creek Channel Improvements Project already exists on the project site. Specifically, modifications to the existing channel would not physically divide an established community or conflict with any applicable land use plan, policy, or regulation, including the *Sacramento 2030 General Plan*, the City of Sacramento Zoning Code, or the Sacramento Regional County Sanitation District's *Bufferlands Master Plan*. Implementation of the project therefore would not result in any changes to existing land uses.

3.2.4 Mineral Resources

Sacramento County's mineral resources consist primarily of sand and gravel construction aggregates, and clay. The proposed project is located in an area classified Mineral Resource Zone–3 (MRZ-3) defined as an area containing mineral deposits, the significance of which cannot be evaluated from available data (City of Sacramento 2009). The proposed project is not located near a mineral extraction site (City of Sacramento 2009). The proposed project would not result in the loss of availability of mineral resources or otherwise prevent the extraction of important mineral resources. The project would have no impact on mineral resources.

3.2.5 Population and Housing

The proposed project would not involve the construction of any new housing, businesses, roads or infrastructure, but would aid in protecting the existing housing, businesses, roads, and infrastructure from future flooding. Implementation of the proposed project would not displace any existing housing units or residents, and therefore would not necessitate the construction of replacement housing units elsewhere. The project would have no impact on population and housing.

3.2.6 Public Services

Public services in the project area consist of law enforcement, fire protection, emergency medical assistance, and utilities. The Sacramento City Police Department provides law enforcement services, and the Sacramento City Fire District provides fire and emergency medical services. Construction of the proposed project would not result in any loss of service ratios, response times, or other performance objectives as there would be no road closures involved, and the proposed project

would not block access to any local areas. No schools or parks are located in or adjacent to the project area. The project would have no impact on public services.

3.2.7 Recreation

The project is in the South Sacramento Planning Area of the City of Sacramento Department of Parks and Recreation. There are no existing recreational facilities located adjacent to or within the project footprint. Construction of the project would not restrict access to or interrupt use of any recreational facilities. Furthermore, construction activities would be short-term and limited in scope. The project would have no impact on recreational facilities.

3.2.8 Growth Inducement

The proposed project would provide flood protection in the project area and adjacent residential areas that would accommodate 100-year flood events. However, the project's goal of providing increased flood risk-reduction to local, adjacent homes and businesses would not remove a barrier to growth. The project area and the floodplain the project would protect are presently densely developed, and are not subject to any state or federal development restrictions due to the present level flood risk. Land use designations, growth rates, employment, and housing values would continue to be determined by local government regulations and economic conditions. Therefore, the proposed project is not considered growth-inducing.

3.3 Air Quality

This section provides an analysis of air quality impacts resulting from the proposed project. It summarizes the overall regulatory framework for air quality management in California and the region, describes existing air quality conditions in the project area, and identifies sensitive land-uses. Environmental impacts related to air quality, and mitigation measures to reduce or eliminate potential impacts, also are discussed.

3.3.1 Physical Setting

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted from those sources. Meteorological and topographical conditions are also important factors. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients, interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. Air quality is indicated by ambient concentrations of criteria pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, and particulate matter (PM), which consists of PM less than or equal to 10 microns in diameter (PM10) and PM less than or equal to 2.5 microns in diameter (PM2.5).

3.3.1.1 Climate and Topography

Hot, dry summers and mild, rainy winters characterize the mediterranean climate of the Sacramento Valley Air Basin (SVAB). During the year, the temperature may range from 20 to 115°F, with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 20 inches, with about 75% of the total falling during the rainy season (generally from November through March). The prevailing winds are moderate in strength and vary from moist, clean breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants under certain meteorological conditions. The highest frequency of air stagnation occurs in autumn and early winter when large high-pressure cells lie over the Sacramento Valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduce the influx of outside air and allow air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke or when temperature inversions trap cool air, fog, and pollutants near the ground.

The ozone season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds with the Delta sea breeze arriving in the afternoon out of the southwest. Usually, the evening breeze transports the airborne pollutants to the north out of the Sacramento Valley. During about half of the days from July to September, however, a phenomenon called the Schultz Eddy prevents this from occurring. Instead of allowing the prevailing wind patterns to move north carrying the pollutants out, the Schultz Eddy causes the wind pattern to circle back south. Essentially, this phenomenon causes the air pollutants to be blown south toward the Sacramento area. This phenomenon exacerbates the pollution levels in the area and increases the likelihood of violating federal or state standards. The eddy normally dissipates around noon, when the Delta sea breeze arrives. (Sacramento Metropolitan Air Quality Management District 2009a.)

3.3.1.2 Existing Air Quality Conditions

Existing air quality conditions in the project area can be characterized in terms of the federal and state air quality standards, and by monitoring data collected in the region. The U.S. Environmental Protection Agency (EPA) and California Air Resources Board (ARB) maintain an extensive network of monitoring stations throughout California. Table 3.3-1 presents pollutant concentrations measured at the Elk Grove–Bruceville Monitoring, El Camino and Watt, and Branch Center Road Stations for the past 3 years for which complete data are available (2007–2009). These stations were selected based on their proximity to the project area. Table 3.3-1 indicates which pollutants are measured at each station because not all stations monitor for the same pollutants. Concentrations typically are measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$).

As shown in Table 3.3-1, Sacramento County has experienced frequent exceedances of the state and federal ozone and PM10 standards. The state and federal ambient air quality standards are described in Table 3.3-2 below.

Table 3.3-1. Pollutant Concentrations Measured at the Elk Grove–Bruceville, El Camino and Watt, and Branch Center Road Monitoring Stations

	Sacramento County		
Pollutant Standards	**2007**	**2008**	**2009**
1-Hour Ozone (Elk Grove–Bruceville)			
Maximum 1-hour concentration (ppm)	0.102	0.111	0.102
1-hour California designation value (ppm)	0.110	0.110	0.100
1-hour expected peak day concentration (ppm)	0.109	0.105	0.099
Number of days standard exceeded[a]			
CAAQS 1-hour (>0.09 ppm)	1	5	2
8-Hour Ozone (Elk Grove–Bruceville)			
National maximum 8-hour concentration (ppm)	0.087	0.093	0.086
National second-highest 8-hour concentration (ppm)	0.082	0.085	0.078
State maximum 8-hour concentration (ppm)	0.088	0.093	0.087
State second-highest 8-hour concentration (ppm)	0.083	0.085	0.079
8-hour national designation value (ppm)	0.083	0.082	0.079
8-hour California designation value (ppm)	0.096	0.093	0.085
8-hour expected peak day concentration (ppm)	0.097	0.095	0.086
Number of days standard exceeded[a]			
NAAQS 8-hour (>0.075 ppm)	5	7	5
CAAQS 8-hour (>0.070 ppm)	13	13	12
Carbon Monoxide (El Camino and Watt)			
National maximum 8-hour concentration (ppm)[b]	3.20	2.84	2.84
National second-highest 8-hour concentration (ppm)[b]	2.96	2.60	2.84
California maximum 8-hour concentration (ppm)[c]	3.20	2.84	2.84
California second-highest 8-hour concentration (ppm)[c]	2.96	2.60	2.84
Maximum 1-hour concentration (ppm)	3.50	3.20	–
Second-highest 1-hour concentration (ppm)	3.10	2.80	–

Pollutant Standards	Sacramento County 2007	2008	2009
Number of days standard exceeded[a]			
NAAQS 8-hour (≥9 ppm)	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	0	0
NAAQS 1-hour (≥35 ppm)	0	0	0
CAAQS 1-hour (≥20 ppm)	0	0	0
PM10[d] (Branch Center Road)			
National[b] maximum 24-hour concentration (μg/m³)[b]	70	71	45
National[b] second-highest 24-hour concentration (μg/m³)[b]	61	53	35
California maximum 24-hour concentration (μg/m³)[c]	75	72	48
California second-highest 24-hour concentration (μg/m³)[c]	66	57	38
California annual average concentration (μg/m³)[e]	20.7	23.2	18.7
Number of days standard exceeded[a]			
NAAQS 24-hour (>150 μg/m³)[f]	0	0	0
CAAQS 24-hour (>50 μg/m³)[f]	30	12	0
PM2.5 (Elk Grove–Bruceville)			
National maximum 24-hour concentration (μg/m³)[b]	–	–	–
National second-highest 24-hour concentration (μg/m³)[b]	–	–	–
California maximum 24-hour concentration (μg/m³)[c]	57.7	83.3	41.0
California second-highest 24-hour concentration (μg/m³)[c]	48.2	79.2	39.3
National annual designation value (μg/m³)	–	–	–
National annual average concentration (μg/m³)	–	–	–
California annual designation value (μg/m³)	–	16.0	16.0
California annual average concentration (μg/m³)[e]	–	16.1	14.7
Number of days standard exceeded[a]			
NAAQS 24-hour (>35 μg/m³)[f]	–	–	–

Sources: California Air Resources Board 2010a; U.S. Environmental Protection Agency 2010b.

Notes: CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
ppm = parts per million.
μg/m³ = micrograms per cubic meter.
– = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[c] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.

[d] Usually, measurements are collected every 6 days.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been truncated.

3.3.2 Regulatory Setting

3.3.2.1 Air Quality Management

The air quality management agencies of direct importance in Sacramento ~~San Joaquin County~~ include the EPA, ARB, and the Sacramento Metropolitan Air Quality Management District (SMAQMD). EPA has established federal ambient air quality standards for which ARB and the SMAQMD have primary implementation responsibility. ARB and the SMAQMD are responsible for ensuring that state ambient air quality standards are met. The SMAQMD is also responsible for implementing strategies for air quality improvement and recommending mitigation measures for new growth and development.

Air quality is determined primarily by the type and amount of contaminants emitted into the atmosphere, the size and topography of the basin, and its meteorological conditions. State and federal criteria pollutant emission standards have been established for six pollutants: CO, O_3, PM (which consists of both PM10 and PM2.5), NO_2, SO_2, and lead. In the SVAB, the SMAQMD is responsible for ensuring that these emission standards are not violated.

The proposed project may be subject to the following District rules. This list of rules may not be all encompassing, as additional District rules may apply to the project as specific developments are identified. These are rules that have been adopted by the SMAQMD to reduce emissions throughout the Sacramento County, and are required. Failure to comply with any applicable District rule would be a violation of said rule, and is subject to District enforcement action.

- **Rule 201: General Permit Requirements.** Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact the SMAQMD early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc.) with an internal combustion engine over 50 horsepower are required to have a SMAQMD permit or a California Air Resources Board portable equipment registration. Other general types of uses that require a permit include, but are not limited to dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions.
- **Rule 403: Fugitive Dust.** The developer or contractor is required to control dust emissions from earth moving activities, storage or any other construction activity to prevent airborne dust from leaving the project site.
- **Rule 460: Adhesives and Sealants.** The developer or contractor is required to use adhesives and sealants that comply with the volatile organic compound content limits specified in the rule.
- **Rule 902: Asbestos.** The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of asbestos containing material.
- **Naturally Occurring Asbestos:** The developer or contractor is required to notify SMAQMD of earth moving projects, greater than 1 acre in size in areas "Moderately Likely to Contain Asbestos" within eastern Sacramento County. Asbestos Airborne Toxic Control Measures, Section 93105 & 93106 contain specific requirements for surveying, notification, and handling soil that contains naturally occurring asbestos.

Table 3.3-2. National and California Ambient Air Quality Standards

			Standard (ppm)		Standard (µg/m^3)		Violation Criteria	
Pollutant	Symbol	Average Time	California	National	California	National	California	National
Ozone*	O_3	1 hour	0.09	–	180	–	If exceeded	–
		8 hours	0.070	0.075	137	147	If exceeded	If fourth-highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor in an area
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 hours	6	–	7,000	–	If equaled or exceeded	–
Nitrogen dioxide	NO_2	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.18	0.100	339	188	If exceeded	–
Sulfur dioxide	SO_2	24 hours	0.04	0.14	105	–	If exceeded	–
		1 hour	0.25	0.075	655	196	If exceeded	If exceeded on more than 1 day per year
		3 hours	–	0.50*	-	1,300*	–	–
		Annual arithmetic mean	–	0.030	–	–	–	If exceeded on more than 1 day per year
Hydrogen sulfide	H_2S	1 hour	0.03	–	42	–	If equaled or exceeded	–
Vinyl chloride	C_2H_3Cl	24 hours	0.01	–	26	–	If equaled or exceeded	–
Inhalable particulate matter	PM10	Annual arithmetic mean	–	–	20	–	–	–
		24 hours	–	–	50	150	If exceeded	If exceeded on more than 1 day per year
	PM2.5	Annual arithmetic mean	–	–	12	15	–	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	–	–	–	35	–	If 3-year average of 98th percentile at each population-oriented monitor in an area is exceeded
Sulfate particles	SO_4	24 hours	–	–	25	–	If equaled or exceeded	–
Lead particles	Pb	Calendar quarter	–	–	–	1.5	–	If exceeded no more than 1 day per year
		30-day average	–	–	1.5	–	If equaled or exceeded	–
		Rolling 3-month average	–	–	–	0.15	If equaled or exceeded	Averaged over a rolling 3-month period

Source: California Air Resources Board 2012.
* = secondary standard; ppm = parts per million; µg/m^3= micrograms per cubic meter.

3.3.2.2 Federal and State Ambient Air Quality Standards

Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that the federal government and California have established for several different pollutants. For some pollutants, separate standards have been set for different measurement periods. Most standards have been set to protect public health and welfare with an adequate margin of safety. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, and avoidance of nuisance conditions). The national ambient air quality standards (NAAQS), which describe acceptable conditions, were authorized by the federal Clean Air Act of 1970. Air quality is considered in "attainment" if pollutant levels are below or equal to the NAAQS continuously and exceed them no more than once each year. The California Ambient Air Quality Standards (CAAQS), which describe adverse conditions, were authorized by the State legislature in 1967. Pollution levels must be below the CAAQS before a basin can attain the standard. California standards are generally more stringent than the national standards. The pollutants of greatest concern in the proposed project area are CO; O_3; and PM10 and PM2.5, which are inhalable. NAAQS and CAAQS are presented in Table 3.3-2.

3.3.2.3 Attainment Status

Areas are classified as either attainment or nonattainment with respect to state and federal air quality standards. These classifications are made by comparing actual monitored air pollutant concentrations to state and federal standards. If a pollutant concentration is lower than the state or federal standard, the area is classified as being in *attainment* of the standard for that pollutant. If a pollutant violates the standard, the area is considered a *nonattainment* area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated *unclassified*. Areas that previously were designated as nonattainment areas but have recently met the standard are called *maintenance* areas.

Table 3.3-3 summarizes the attainment status of Sacramento County with regard to the NAAQS and CAAQS.

Table 3.3-3. Federal and State Attainment Status of Sacramento County

	Sacramento County	
Pollutant	**NAAQS**	**CAAQS**
1-hour ozone	–	Serious nonattainment
8-hour ozone	Serious nonattainment	Nonattainment
CO	Moderate maintenance[a]	Attainment
PM2.5	Nonattainment	Nonattainment
PM10	Moderate nonattainment	Nonattainment

Sources: California Air Resources Board 2010b; U.S. Environmental Protection Agency 2010a.
– = no applicable standard.
CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
CO = carbon monoxide.
PM2.5 = particulate matter less than or equal to 2.5 microns.
PM10 = particulate matter less than or equal to 10 microns.
[a] Designation applies to a portion of the county.

3.3.2.4 Sensitive Receptors

The SMAQMD identifies sensitive receptors as "facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants." Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors (Sacramento Metropolitan Air Quality Management District 2009). The nearest sensitive receptors are residential subdivisions located immediately adjacent to the northern and southern boundaries of the project area along most of the project alignment. In addition, Cosumnes River College is located south of the project impact area between Center Parkway and Bruceville Road, and the Sunny Creek Infant Care is located immediately adjacent to the northern boundary of the project impact area across from the college. These sensitive receptors are generally 50 to 100 feet from the project area. However, in some cases, residences are as close as 25 feet from the creek and potential project construction activities.

3.3.3 Environmental Effects

3.3.3.1 Significance Criteria

Sacramento Metropolitan Air Quality Management Thresholds of Significance

Appendix G in the State CEQA Guidelines states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to determine the project's level of impact. The SMAQMD has established quantitative thresholds, which are summarized in Table 3.3-4, for the evaluation of air quality impacts.

Table 3.3-4. Sacramento Metropolitan Air Quality Management Thresholds of Significance

Pollutant	Construction	Operational
ROG	–	65
NO_X	85	65
CO	Exceedance of CAAQS	Exceedance of CAAQS
PM10 and PM2.5	Exceedance of CAAQS	Exceedance of CAAQS

Source: Sacramento Metropolitan Air Quality Management District 2009.
– = no applicable threshold.
ROG = reactive organic gas.
NOx = oxides of nitrogen.
CO = carbon monoxide.
CAAQS = California ambient air quality standards.
PM10 = particulate matter less than or equal to 10 microns.
PM2.5 = particulate matter less than or equal to 2.5 microns.

In addition to the thresholds listed in Table 3.3-4, the SMAQMD has established screening criteria for the evaluation of PM10 and PM2.5 impacts from construction activities. Projects that implement all Basic Construction Emission Control Practices recommended by the SMAQMD and do not exceed a maximum daily disturbed area (grading, excavation, cut and fill) of 15 acres are presumed not to have the potential to exceed or contribute to the SMAQMD's concentration-based threshold of

significance for PM10 and PM2.5 at an off-site location (Sacramento Metropolitan Air Quality Management District 2009).

a. Conflict with or obstruct implementation of the applicable air quality plan?

A project is deemed inconsistent with air quality plans if it would result in either population or employment growth that exceeds growth estimates included in the applicable air quality plan. Such growth would generate emissions not accounted for in the applicable air quality plan emissions budget. Therefore, proposed projects need to be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rates included in the relevant air plans.

The proposed project entails only construction activities, and emissions associated with project construction would cease once construction activities have ended. In addition, the proposed project would not induce population or employment growth and would not conflict with or obstruct implementation of the applicable air quality plan. Consequently, the project would not conflict with or obstruct implementation of the applicable air quality plan, and no mitigation is required.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Implementation of the proposed project would result in construction activities that would result in short-term air pollutant emissions. Temporary construction emissions of reactive organic gas (ROG), oxides of nitrogen (NO_X), CO, PM10, and PM2.5 would result from site clearing and grubbing, excavation, concrete removal and placement, compaction activities, and utility replacement. Construction-related emissions include direct exhaust emissions from off-road equipment (such as excavators), on-road equipment (such as cement trucks and worker trucks), and fugitive dust emissions associated with earthmoving and other soil-disturbing activities. Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather.

Construction and mobile-source operational emissions were estimated using the URBEMIS2007, Version 9.2.4 emissions model. Information regarding project construction phasing, equipment number and types, worker numbers, and site disturbance, were obtained from the project engineers. Construction would consist of seven separate project elements, with multiple construction phases for each element. Construction information used in URBEMIS emissions modeling is summarized in Table 3.3-5.

Table 3.3-6 summarizes modeled maximum daily construction emissions, without implementation of mitigation measures, for each phase of construction activities. In addition, Table 3.3-6 presents total emissions anticipated to occur over the entire construction period. As indicated in Table 3.3-6, criteria pollutant emissions would remain below the SMAQMD NO_X and the CAAQS CO significance thresholds for all phases analyzed, including total construction emissions. Consequently, construction-related NO_X and CO impacts are considered less than significant.

As discussed above, the SMAQMD considers construction-related PM10 and PM2.5 emissions to be less than significant if the total maximum daily disturbed area (i.e., grading, excavation, cut and fill) is less than 15 acres in size and the project implements Basic Construction Emission Control Practices recommended by the SMAQMD. As indicated in the project description and Table 3.3-5, the total project area associated with ground disturbing activities is approximately 10 acres. For the purposes of Table 3.3-6, the theoretical maximum daily disturbed area is assumed to be 10 acres,

although the ground disturbance would actually occur over several weeks and the amount disturbed at any one time would be less than this maximum.

Activities associated with ground disturbance are clearing and grubbing of the creek banks and excavation. To ensure that construction-related PM10 and PM2.5 impacts are less than significant, Mitigation Measure AQ-MM-1 is required, which will require the project applicant to implement the SMAQMD's Basic Construction Emission Control Practices. Consequently, the project would not violate any particulate matter air quality standard or contribute substantially to an existing or projected air quality violation. Construction-related PM10 and PM2.5 emissions are considered less than significant because the project's maximum daily disturbed area is less than 15 acres in size and the project will implement the SMAQMD's Basic Construction Emission Control Practices as part of Mitigation Measure AQ-MM-1.

Mitigation Measure AQ-MM-1: Implement Basic Construction Emission Control Practices Recommended by the SMAQMD.

The project applicant will require, as a standard or specification of the contract, the construction contractor(s) to implement Basic Construction Emission Control Practices recommended by the SMAQMD to reduce construction-related fugitive dust. The project applicant will ensure through contract provisions and specifications that the contractor adheres to the emission control practices listed in this mitigation measure before and during construction and documents compliance with the measures.

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least 2 feet of freeboard space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- Complete the paving of all roadways, driveways, sidewalks, parking lots to be paved as soon as possible. In addition, lay building pads as soon as possible after grading unless seeding or soil binders are used.

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

As indicated above in b, the proposed project would not generate NO_X emissions in excess of SMAQMD thresholds. In addition, Mitigation Measure AQ-MM-1 will ensure construction-related PM10 and PM2.5 impacts are reduced to a less-than-significant level.

d. Expose sensitive receptors to substantial pollutant concentrations?

Construction activities are anticipated to involve the operation of diesel-powered equipment. In 1998, the ARB identified diesel exhaust as a toxic air contaminant. Cancer health risks associated with exposures to diesel exhaust typically are associated with chronic exposure, in which a 70-year

Table 3.3-5. Construction Equipment Assumptions

Phase[1]	Start Date	End Date	Truck Trips Per Day	Equipment Used	Hours per Day for each piece of equipment/Round trip mileage
Clearing and grubbing[2]	August 1, 2012	August 8, 2012	–	1 Chipper 1 Loader	Chipper—4 hours/day Loader—8 hours/day
Excavation[3]	August 8, 2012	September 19, 2012	–	1 Excavator	8 hours/day
Concrete removal	August 8, 2012	September 1, 2012	11	1 Excavator 1 Dump truck	Excavator—8 hours/day Dump truck—30 miles
Compaction	September 1, 2012	October 1, 2012	–	1 Roller	8 hours/day
Concrete placement	October 1, 2012	October 31, 2012	34	1 Cement Truck	10 miles
Utility relocation	September 1, 2012	September 19, 2012	–	1 Backhoe loader 1 Crane	Loader—8 hours/day Crane—8 hours/day
Bypass pumping	August 8, 2012	October 31, 2012	–	1 20 hp Diesel generator	Generator—12 hours/day
Crushed rock	2 trips during project (during concrete placement)		2 total	1 Dump truck	10 miles
Mowing	1–2 times/year		–	1 Tractor w/boom-type mower	8 hours/day

[1] Assumes 15 workers per day.

[2] Assumes maximum of 4.5 acres disturbed per day.

[3] Assumes maximum of 5.5 acres disturbed per day.

Table 3.3-6. Summary of Unmitigated Project Emissions (pounds per day)

			Pounds/Day								
Phase	Start Date	End Date	ROG	NO_X	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Clearing/Grubbing	August 1, 2012	August 8, 2012	1.57	11.60	7.70	45.00	0.76	45.76	9.40	0.70	10.10
Excavation	August 8, 2012	September 19, 2012	0.63	4.70	3.48	55.00	0.27	55.27	11.48	0.25	11.73
Concrete Removal	August 8, 2012	September 1, 2012	1.11	11.42	5.90	0.05	0.54	0.59	0.02	0.49	0.51
Compaction	September 1, 2012	October 1, 2012	0.54	3.36	2.30	0.00	0.29	0.29	0.00	0.27	0.27
Concrete Placement	October 1, 2012	October 31, 2012	0.50	6.92	2.49	0.05	0.27	0.32	0.02	0.25	0.27
Utility Relocation	September 1, 2012	September 19, 2012	1.16	9.42	5.03	0.00	0.52	0.52	0.00	0.47	0.47
Bypass Pumping	August 8, 2012	October 31, 2012	0.26	1.53	1.11	0.00	0.09	0.09	0.00	0.08	0.08
Crushed Rock	2 trips during project (during concrete placement)		0.09	1.22	0.44	0.01	0.05	0.06	0.00	0.04	0.04
Employee Commutes	15 workers/day		1.11	7.99	7.29	0.01	0.49	0.50	0.01	0.45	0.46
Construction Total			6.97	58.16	35.74	100.12	3.28	103.40	20.93	3.00	23.93
SMAQMD Thresholds of Significance			NA	85	NA	NA	NA	NA	NA	NA	NA
Mowing1	1-2 times/year		-0.49	-3.12	-2.48	-0.00	-0.27	-0.27	-0.00	-0.25	-0.25

Mowing activities will cease with project implementation, as vegetated creek banks will be replaced with concrete creek banks. Consequently, these emissions represent a net benefit, as they will no longer be emitted once the project is implemented.

ROG = reactive organic gas.

NO_X = oxides of nitrogen.

CO = carbon monoxide.

PM10 = particulate matter less than or equal to 10 microns in diameter.

PM2.5 = particulate matter less than or equal to 2.5 microns in diameter.

exposure period often is assumed. Although elevated cancer rates can result from exposure periods of less than 70 years, acute exposure (i.e., exposure periods of 2 to 3 years) to diesel exhaust typically are not anticipated to result in an increased health risk because acute exposure typically does not result in the exposure concentrations necessary to result in a health risk. Construction activities would take place over a 3-month period, with limited overlap of construction phasing and diesel equipment operation. As a result, construction activities would be staggered and would not occur in any one place longer than 90 working days. Health impacts associated with exposure to diesel exhaust from project construction are not anticipated to be significant because construction activities are expected to last well below the 70-year exposure period used in health risk assessments. Table 3.3-6 indicates that PM10 emissions from construction-related diesel exhaust are relatively low. Therefore, construction of the project is not anticipated to result in an elevated cancer risk to exposed persons.

e. Create objectionable odors affecting a substantial number of people?

Diesel exhaust from construction activities may generate temporary odors while construction of project improvements is underway. Once construction activities have been completed, these odors will cease.

3.4 Biological Resources

3.4.1 Methods

3.4.1.1 Prefield Investigation

ICF biologists reviewed the following resource information to evaluate whether special-status species or other sensitive biological resources could occur in the study area.

- The California Natural Diversity Database (CNDDB) of the U.S. Geological Survey (USGS) 7.5-minute Florin, Clarksburg, Sacramento West, Sacramento East, Carmichael, Elk Grove, Galt, Bruceville, and Courtland quadrangles (California Natural Diversity Database 2012) (Appendix C).
- The U.S. Fish and Wildlife Service (USFWS) list of endangered, threatened, and proposed species for the 7.5-minute Florin quadrangles obtained from the USFWS web site (U.S. Fish and Wildlife Service 2012) (Appendix D).
- The California Native Plant Society's (CNPS's) online Inventory of Rare and Endangered Plants of California for the USGS 7.5-minute Florin, Clarksburg, Sacramento West, Sacramento East, Carmichael, Elk Grove, Galt, Bruceville, and Courtland quadrangles (California Native Plant Society 2012) (Appendix E).
- ICF file information.

This information was used to develop lists of special-status species and other sensitive biological resources that could be present in the study area.

3.4.1.2 Field Surveys

Field surveys were performed on March 1 and 7, 2012. The general purposes of the field surveys were to:

- Characterize and map biological communities and their associated wildlife habitat values.
- Determine whether suitable habitat is present for special-status plant and wildlife species that have the potential to occur in the project vicinity.
- Identify potential waters of the United States, including wetlands.

During the field surveys, ICF botanist/wetland ecologists and a wildlife biologist conducted a reconnaissance-level, habitat-based assessment of the study area. In addition, the botanists/wetland ecologists conducted a delineation of waters of the United States using the routine on-site determination method described in the 1987 *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the supplemental procedures and wetland indicators provided in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008).

3.4.2 Existing Conditions

The approximately 30.24-acre project study area (study area) includes the proposed construction corridor along Unionhouse Creek (shown as "Beacon Creek" on the USGS 7.5-minute quadrangle), a staging area corridor on the south side of the creek, and the remaining uplands between the creek and Cosumnes River Boulevard. The study area is bounded by the fence-line on the north side of Unionhouse Creek, the edge of Cosumnes River Boulevard to the south, Franklin Boulevard to the west, and the confluence of Unionhouse Creek and Strawberry Creek to the east.

The study area is located in the Sacramento Valley subdivision of the California Floristic Province (Baldwin et al. 2012) and ranges in elevation from approximately 15 feet to 25 feet above mean sea level. Unionhouse Creek drains into Morrison Creek to the west, which drains into the Sacramento River.

3.4.2.1 Land Cover Types

Four land cover types were observed in the project area: ruderal annual grassland, seasonal swale, perennial drainage, and developed. Each of these land cover types is described below and their locations are shown on Figure 3.4-1. The acreages of each land cover type in the project area are shown in Table 3.4-1.

Table 3.4-1. Acreages of Land Cover Types in the Project Area

Land Cover Type	Acreage in Project Area
Ruderal Annual Grassland	24.41
Seasonal Swale	0.037
Perennial Drainage	5.29
Total Acreage*	29.74

* Does not include the area of the developed land cover type.

Ruderal Annual Grassland

Ruderal annual grassland occurs on the banks of Unionhouse Creek and occupies most of the area between the top of the creek bank and Cosumnes River Boulevard. Ruderal annual grassland includes disturbed areas that support a high proportion of ruderal species (weedy species that typically colonize disturbed areas) in addition to annual grasses and forbs. Most of the ruderal annual grassland in the study area has been mowed. Trees in the study area were planted for landscaping and include flowering plum (*Pyrus calleryana*) and olive (*Olea europaea*) along the edge of Cosumnes River Boulevard and a coast live oak (*Quercus agrifolia*) near the southeast corner of the bridge at Center Parkway. Vegetation along the banks of Unionhouse Creek is herbaceous, and dominant species include field mustard (*Brassica rapa*), slender wild oat (*Avena barbata*), long-beaked filaree (*Erodium botrys*), bindweed (*Convolvulus arvensis*), and nonnative grasses and forbs.

The ruderal annual grassland provides marginal habitat for wildlife. This area appears to be disked annually to control vegetation, which was evidenced from discing patterns observed during the reconnaissance-level surveys and from a review of aerial photographs. Common bird species may forage in these areas but because of the periodic disturbance, nesting would be limited to opportunistic ground-nesting that occurred prior to the annual discing. It is believed that this area

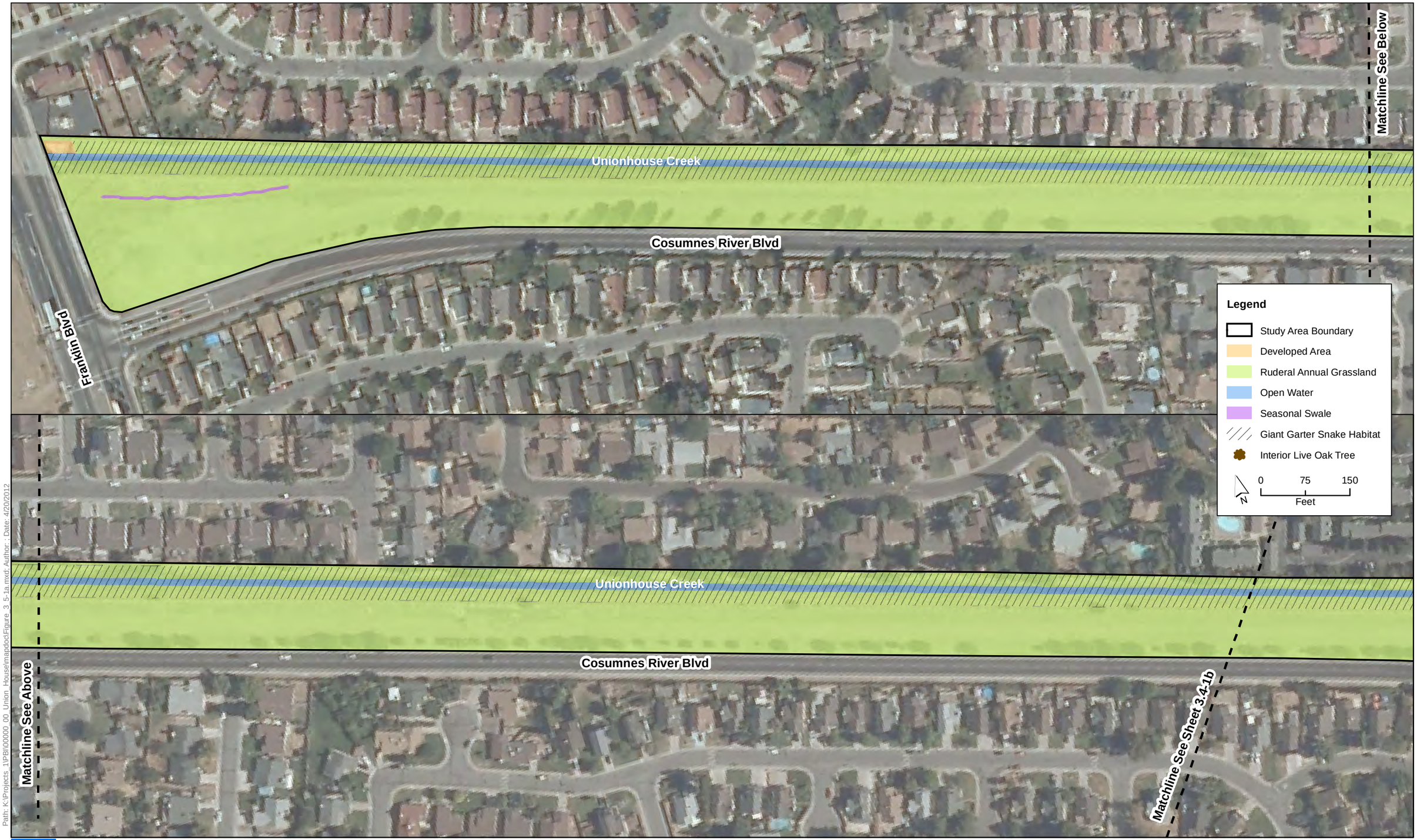

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Figure 3.4-1a
Biological Resources in the Study Area

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Figure 3.4-1b
Biological Resources in the Study Area

would not be suitable for ground-nesting after the vegetative cover is removed. Common bird species may nest in the trees planted along Cosumnes River Boulevard. Wildlife species observed in the ruderal annual grasslands during the March 7, 2012, reconnaissance surveys include killdeer (*Charadrius vociferous*), mourning dove (*Zenaida macroura*), black phoebe (*Sayornis saya*), western scrub jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), red-winged blackbird (*Agelaius phoeniceus*), and house finch (*Carpodacus mexicanus*). No nests were observed in the project area. No mammals or mammal sign (e.g., burrows, trails) was observed in the ruderal annual grassland. Additional species observed in flight in the vicinity of the project area include red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*B. jamaicensis*), and Swainson's hawk (*B. swainsoni*).

Seasonal Swale

A seasonal swale encompassing an area of approximately 0.037 acre is located in a depression at the western end of the study area on the south side of Unionhouse Creek near Franklin Boulevard. The dominant species observed in the seasonal swale were Italian ryegrass (*Festuca perennis [Lolium perenne]*), bindweed (*Convolvulus arvensis*), and curly dock (*Rumex crispus*). The sources of hydrologic input are surface runoff from the surrounding uplands and direct precipitation. Water movement within the seasonal swale is primarily vertical (i.e., seasonal fluctuations in depth). There is no outlet channel or other water connection to a permanent surface water, and the swale likely is subject to only very shallow ponding, if any, and soil saturation during the rainy season, becoming dry during the summer. Based on a review of recent aerial photographs, this swale appears to have been created by discing or scraping activities at some point between 2007 and 2009.

The seasonal swale does not provide particular habitat for common or special-status wildlife because it lacks suitable topography to inundate to a depth to provide habitat for aquatic species (e.g., vernal pool invertebrates) and does not provide foraging habitat for birds known to forage in wetlands.

Perennial Drainage

The two perennial drainages in the study area, Unionhouse Creek and Strawberry Creek, encompass a total area of approximately 5.37 acres and are both trapezoidal channels with steep banks. Unionhouse Creek drains east to west and is approximately 30 feet wide with a low-flow channel approximately 8 feet wide. Unionhouse Creek narrows under the Center Parkway Bridge to a width of approximately 27 feet to the western end of the study area at Franklin Boulevard. Unionhouse Creek eventually drains into Morrison Creek northwest of the study area. Strawberry Creek is at the east end of the study area and is approximately 15 feet wide. Strawberry Creek flows into Unionhouse Creek at the eastern end of the study area near Bruceville Road.

At the east end of the study area, an approximately 70-foot-long section of Unionhouse Creek upstream of the confluence with Strawberry Creek is unlined and supports some tufts of nutsedge (*Cyperus eragrostis*) and Italian ryegrass in the streambed. The rest of the creek segment in the study area has a concrete-lined low-flow channel, and the creek bed is unvegetated and maintained free of debris. The creek banks support ruderal annual grassland throughout most of the study area, except at the western end of the study area and under the Franklin Boulevard bridge, where the bed and banks of Unionhouse Creek are concrete-lined. Three outfalls drain into Unionhouse Creek in the study area, one on the north bank by Center Parkway, one at Sump 201, and one on the north bank near Franklin Boulevard.

The bed and banks of the segment of Strawberry Creek in the study area are concrete-lined, and a 7-foot box culvert conveys flows into the creek on the left bank just upstream of the confluence with Unionhouse Creek.

Unionhouse Creek provides poor habitat for aquatic species because of the lack of emergent and riparian vegetation (i.e., lack of cover), the straight and uniform channel, and the lack of instream habitat (e.g., gravel, cobbles, boulders, woody debris, undercut banks). No fish, amphibians, or reptiles were observed in the channel during the March 7, 2012, reconnaissance-level surveys. A pair of mallards (*Anas platyrhynchos*) and American coots (*Fulica americana*) were observed in the channel during the reconnaissance-level surveys. Old swallow nests were observed beneath the Franklin Boulevard bridge.

Developed

The developed land cover type includes Sump Station 201 and an existing regional site antenna pole located next to the sump pump where Center Parkway crosses the study area. This area is paved and does not support any vegetation or wildlife habitat.

3.4.2.2 Sensitive Biological Resources

Special-Status Species

Special-status species include plants and animals that are legally protected under the California Endangered Species Act (CESA), the federal Endangered Species Act (ESA), or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. For the purpose of this IS/MND, special-status species include

- species listed or proposed for listing as threatened or endangered under the ESA (50 Code of Federal Regulations [CFR] 17.12 [listed plants], 50 CFR 17.11 [listed animals], and various notices in the *Federal Register* [FR] [proposed species]).
- Species that are candidates for possible future listing as threatened or endangered under the ESA (75 FR 69222, November 10, 2010).
- Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 CCR 670.5).
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380).
- Plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.).
- Plants considered by CNPS to be “rare, threatened, or endangered in California” (Lists 1B and 2, California Native Plant Society 2007).
- Animal species of special concern to DFG (list obtained from <http://www.dfg.ca.gov/bdb/pdfs/spanimals.pdf>).
- Animals fully protected in California (California Fish and Game Code Sections 3511 [birds], 4700 [mammals], and 5050 [amphibians and reptiles]).

Special-Status Plant Species

The search of the CNDDB (2012) and CNPS Inventory (2012) conducted as part of the prefield investigation identified 22 special-status plants as having the potential to occur in the study area (Table 3.4-2). Of these 22 species, marginally suitable habitat is present in the study area for 12 species. No special-status plants were observed during the March 2012 surveys; however, the blooming period for most of these species occurs later in spring or in summer, and suitably timed surveys for these later-blooming species have not been conducted.

One species, Sanford's arrowhead (*Sagittaria sanfordii*), is known to occur approximately 1 mile upstream of the study area in Strawberry Creek (CNDDB 2012), but there is only moderate potential for this species to be present because of the disturbed conditions of habitat. This species does not begin blooming until May, but no vegetative plant parts similar to Sanford's arrowhead were observed during the March surveys of the study area. Sanford's arrowhead was not observed during surveys of Unionhouse Creek between Franklin Boulevard and Center Parkway conducted in April and May 2008 (U.S. Army Corps of Engineers et al. 2008). In the study area, nearly all of the creek beds are cement-lined and regularly maintained to remove debris and vegetation, with the exception of approximately 70 feet of Unionhouse Creek upstream of the confluence with Strawberry Creek where Sanford's arrowhead could grow.

The creek banks and the area between Cosumnes River Boulevard are mowed and disked regularly; therefore, the grassland habitat is likely too disturbed to support special-status plants.

Protected Trees

One interior live oak tree (*Quercus wislizenii*) was observed in the study area at the southeast corner of the Center Parkway bridge over Unionhouse Creek. This tree has one 14-inch-diameter trunk and one 9-inch-diameter trunk, for a cumulative diameter of 23 inches, which equals a cumulative circumference of 144 inches. This meets the size criterion to be covered by the City of Sacramento heritage tree ordinance, which is 36 inches or more in circumference. No other native tree species occur in the study area.

A row of trees, consisting of flowering plum and olive trees, grows along Cosumnes River Boulevard. The circumferences of these trees are less than 100 inches, the criterion for heritage trees of any species under the tree ordinance. Therefore, these trees would not be regulated under the City's heritage tree ordinance.,

Special-Status Wildlife Species

Based on a review of existing information, including CNDDB records, USFWS species list, and knowledge of the proposed project area, biologists identified 41 special-status wildlife species as a having potential to occur in the region (Table 3.4-3). Of these 41 species, 13 were identified as having some potential to occur in the project area; however, most of these were identified as having low potential to occur in the project area because of the poor-quality habitat in the project area.

3.4.3 Regulatory Setting

3.4.3.1 Federal

Federal Endangered Species Act

The ESA protects fish and wildlife species and their habitats that have been identified by USFWS or the National Marine Fisheries Service (NMFS) as threatened or endangered. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range. *Threatened* refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future.

The ESA is administered by USFWS and NMFS. In general, NMFS is responsible for protection of ESA-listed marine species and anadromous fish, and USFWS is responsible for other listed species. Provisions of Sections 7 and 9 of the ESA are relevant to this project and are summarized below.

ESA Authorization Process for Federal Actions (Section 7)

Section 7 of the ESA provides a means for authorizing take of threatened and endangered species by federal agencies. Under Section 7, the federal agency conducting, funding, or permitting an action (the lead federal agency, such as the USACE) must consult with USFWS or NMFS, as appropriate, to ensure that the proposed action will not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed project "may affect" a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment (BA) evaluating the nature and severity of the expected effect. In response, USFWS or NMFS issues a biological opinion (BO), with a determination that the proposed action either:

- may jeopardize the continued existence of one or more listed species (*jeopardy finding*) or result in the destruction or adverse modification of critical habitat (*adverse modification finding*), or
- will not jeopardize the continued existence of any listed species (*no jeopardy finding*) or result in adverse modification of critical habitat (*no adverse modification finding*).

The BO issued by USFWS or NMFS may stipulate discretionary "reasonable and prudent" conservation measures. If the project would not jeopardize a listed species, USFWS or NMFS issues an incidental take statement to authorize the proposed activity.

ESA Prohibitions (Section 9)

Section 9 of the ESA prohibits the take of any fish or wildlife species listed under the ESA as endangered. Take of threatened species also is prohibited under Section 9, unless otherwise authorized by federal regulations.[1] *Take*, as defined by the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Harm* is defined as "any act that kills or injures the species, including significant habitat modification." In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction.

[1] In some cases, exceptions may be made for threatened species under ESA Section 4[d]; in such cases, USFWS or NMFS issues a "4[d] rule" describing protections for the threatened species and specifying the circumstances under which take is allowed.

Table 3.4-2. Special-Status Plants Identified during the Prefield Investigation as Having the Potential to Occur in the Study Area

Common Name and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Potential for Occurrence in the Study Area
Watershield *Brasenia schreberi*	–/–/2.3	Scattered occurrences in north and central California; widespread across U.S.	Freshwater marshes; 30–2,200 meters	Jun–Sep	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.
Bristly sedge *Carex comosa*	–/–/2.1	Scattered occurrences throughout California; Oregon, Washington, and elsewhere	Coastal prairie, marshes and swamps at lake margins, valley and foothill grassland; below 625 meters	May–Sep	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat. Ruderal annual grassland is mowed and disced.
Bolander's water hemlock *Cicuta maculata* var. *bolanderi*	–/–/2.1	Contra Costa, Los Angeles*, Marin, Sacramento, Santa Barbara*, San Luis Obispo*, Solano Counties; also Arizona, New Mexico, Washington	Marshes and swamps, coastal, fresh or brackish water; 0–200 meters	Jul–Sep	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.
Peruvian dodder *Cuscuta macula* var. *bolanderi*	–/–/2.1	Not seen since 1948; occurrences in Butte, Los Angeles, Merced, Sacramento?, San Bernardino*, and Sonoma Counties; Baja California and elsewhere	Freshwater marshes and swamps; 15–280 meters	Jul–Oct	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.
Dwarf downingia *Downingia pusilla*	–/–/2.2	Inner North Coast Ranges, southern Sacramento Valley, northern and central San Joaquin Valley	Wet areas in valley and foothill grassland, vernal pools; below 445 meters	Mar–May	No suitable habitat in the study area, ruderal annual grassland is mowed and disced.
Boggs Lake hedge hyssop *Gratiola heterosepala*	–/E/1B.2	Inner North Coast Ranges, central Sierra Nevada foothills, Sacramento Valley, Modoc Plateau	Marshes and swamps along lake margins, vernal pools on clay soils; 10–2,375 meters	Apr–Aug	No suitable habitat in the study area.
Woolly rose-mallow *Hibiscus lasiocarpus* var. *occidentalis*	–/–1B.2	Central and southern Sacramento Valley, deltaic Central Valley, and elsewhere in the U.S.	Freshwater marsh along rivers and sloughs; below 120 meters	Jun–Sep	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.

Common Name and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Potential for Occurrence in the Study Area
Northern California black walnut *Juglans hindsii*	–/–/1B.1	Last two native stands in Napa and Contra Costa Counties; historically widespread through southern Inner North Coast Ranges, southern Sacramento Valley, northern San Joaquin Valley, San Francisco Bay	Riparian scrub and riparian woodland; below 440 meters	Apr–May	No suitable habitat in the study area.
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	–/–/1B.2	Eastern Sacramento Valley, northeastern San Joaquin Valley with occurrences in Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba Counties	Wet areas in valley and foothill grassland, vernal pool margins; 30–229 meters	Mar–May	No suitable habitat in the study area, ruderal annual grassland is mowed and disced.
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*	–/–1B.2	San Francisco Bay region, also part of Central Valley in Alameda, Contra Costa, Napa, Santa Clara*, San Joaquin, Solano, and Sonoma Counties	Coastal and estuarine marshes (freshwater and brackish); below 4 meters	May–Jul (Sep)	No suitable habitat in the study area.
Legenere *Legenere limosa*	–/–/1B.1	Sacramento Valley, North Coast Ranges, northern San Joaquin Valley and Santa Cruz mountains.	Vernal pools; below 880 meters	May–Jun	No suitable habitat in the study area.
Heckard's pepper-grass *Lepidium latipes* var. *heckardii*	–/–/1B.2	Southern Sacramento Valley	Alkaline flats in valley and foothill grassland; 10–200 meters	Mar–May	No suitable habitat in the study area.
Mason's lilaeopsis *Lilaeopsis masonii*	–/R/1B.1	Southern Sacramento Valley, Sacramento - San Joaquin River Delta, northeast San Francisco Bay area in Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Yolo Counties	Freshwater or brackish marsh, riparian scrub, in tidal zone	Apr–Nov	No suitable habitat in the study area
Delta mudwort *Limosella subulata*	–/–/2.1	Deltaic Central Valley: Contra Costa, Sacramento, San Joaquin, and Solano Counties; Oregon	Muddy or sandy intertidal flats and marshes, streambanks in riparian scrub generally at sea level	May–Aug	No suitable habitat in the study area

Common Name and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Potential for Occurrence in the Study Area
Slender Orcutt grass *Orcuttia tenuis*	T/E/1B.1	Sierra Nevada and Cascade Range foothills from Siskiyou to Sacramento Counties	Vernal pools; 35–1,760 meters	May–Sep (Oct)	No suitable habitat in the study area
Sacramento Orcutt grass *Orcuttia viscida*	E/E/1B.1	Endemic to Sacramento County	Vernal pools; 30–100 meters	Apr–Jul	No suitable habitat in the study area
Bearded popcorn-flower *Placgiobothrys hystriculus*	–/–/1B.1	Endemic to Solano County	Mesic grassland, vernal pools; 10–274 meters	Apr–May	No suitable habitat in the study area, ruderal annual grassland is mowed and disced. Study area is outside known species range.
Sanford's arrowhead *Sagittaria sanfordii*	–/–/1B.2	Scattered locations in Central Valley and Coast Ranges	Freshwater marshes, sloughs, canals, and other slow-moving water habitats; below 610 meters	May–Oct	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat. Known occurrence (#18) in Strawberry Creek approximately 1 mile upstream of the study area (CNDDB 2012).
Marsh skullcap *Scutellaria galericulata*	–/–/2.2	Northern high Sierra Nevada and Modoc plateau: El Dorado, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, San Joaquin, and Siskiyou Counties; Oregon and elsewhere	Marshes, mesic meadows, seeps, lower montane coniferous forest; below 2,100 meters	Jun–Sep	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.
Side-flowering skullcap *Scutellaria lateriflora*	–/–/2.2	Known in California from only three occurrences in northern San Joaquin Valley and east of the Sierra Nevada in Inyo, Sacramento, and San Joaquin Counties; New Mexico, Oregon, and elsewhere	Mesic meadows, marshes and swamps; below 500 meters	Jul–Sep	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.
Suisun Marsh aster *Symphyotrichum lentum*	–/–/1B.2	Sacramento–San Joaquin River Delta, Suisun Marsh, Suisun Bay: Contra Costa, Napa, Sacramento, San Joaquin, and Solano Counties	Brackish and freshwater marshes and swamps; below 3 meters	May–Nov	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.

Common Name and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Potential for Occurrence in the Study Area
Saline clover *Trifolium hydrophilum*	–/–/1B.2	Sacramento Valley, central western California	Salt marsh, mesic alkaline areas in valley and foothill grasslands, vernal pools, marshes and swamps; below 300 meters	Apr–Jun	No suitable habitat in the study area.

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
– = no listing.

State

E = listed as endangered under the California Endangered Species Act.
R = listed as rare under the California Native Plant Protection Act.
– = no listing.

California Native Plant Society (CNPS) California Rare Plant Rank

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.
0.1= seriously endangered in California.
0.2= fairly endangered in California.

* Known populations believed extirpated from that county.
? Geographic Distribution uncertain in that county.

Table 3.4-3. Special-Status Wildlife Identified during the Prefield Investigation as Having the Potential to Occur in the Project Area

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Invertebrates			
Vernal pool fairy shrimp *Branchinecta lynchi*	T/–	Occurs in the Central Valley from Shasta County to Tulare County and the central and southern Coast Ranges from northern Solano County to Ventura County.	**None**—No suitable habitat occurs in the study area. The seasonal swale identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species.
Midvalley fairy shrimp *Branchinecta mesovallensis*	–/–	Vernal pools. Occurs in Central Valley from Sacramento and Solano Counties south to Fresno County.	**None**—No suitable habitat occurs in the study area. The seasonal swale identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/–	Elderberry shrubs, typically in riparian habitats. Central Valley, below approximately 3,000 feet elevation.	**None**—No elderberry shrubs were identified within 100 feet of the project area.
Hairy water flea *Dumontia oregonensis*	–/–	Described in 2003 from a specimen taken from a vernal pool in southern Oregon; little is known about its natural history; subsequently detected in vernal pools located in Mather Field and Travis Air Force Base in California.	**None**—No suitable habitat occurs in the study area. The seasonal wetland identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species.
Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	–/–	Aquatic, known to occur in vernal pools. Recorded in central coastal California and southern Sacramento Valley, known to occur in Solano County near Jepson Prairie.	**None**—No suitable habitat occurs in the study area. The seasonal wetland identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species.
Vernal pool tadpole shrimp *Lepidurus packardi*	E/–	Occupies a variety of vernal pool habitats, but typically occurs in pools that inundate for extended periods of time. Central Valley of California and San Francisco Bay Area.	**None**—No suitable habitat occurs in the study area. The seasonal swale identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species.
California linderiella *Linderiella occidentalis*	–/–	Vernal pools, swales, and other ephemeral wetlands. Central Valley and central coastal California.	**None**—No suitable habitat occurs in the study area. The seasonal swale identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Fish			
Green sturgeon *Acipenser medirostris*	T/SSC	Adult green sturgeon immigrate from the ocean into the Delta to begin their spawning migrations into the Sacramento River. The only known spawning population for the Southern DPS is in the Sacramento River. Immigration begins in late February.	**None**—The instream habitat in Unionhouse Creek is very poor in that it lacks natural bed materials (i.e., sand, gravel, and cobble) to support a prey base and lacks a meandering channel and natural bank to provide refugia. Also, there is no fish passage from the Sacramento River to Unionhouse Creek, except during flood conditions when floodwaters from the Mokelumne River back up into Beach and Stone Lakes. Despite this occasional connection, Unionhouse Creek does not support habitat for migratory fish.
Sacramento tule perch *Archoplites interruptus*	–/SSC	Sacramento tule perch are native to most lowland rivers and creeks in the Central Valley, larger tributaries to the San Francisco estuary, Petaluma River, Coyote Creek, the San Joaquin River drainage, the Delta, and Suisun Marsh.	**None**—Unionhouse Creek provides poor quality habitat and has no connections, except during flood events, to areas known to be occupied by this species.
Delta smelt *Hypomesus transpacificus*	T/E	Delta smelt live primarily in low-salinity habitats of the northern estuary prior to migrating into freshwater habitats to spawn. Spawning occurs in sloughs and shallow edge areas in the Delta and Sacramento River above Rio Vista in the Cache Slough/Sacramento River Deep Water Ship Channel complex. Spawning has been recorded historically in Suisun Marsh.	**None**—Unionhouse Creek does not provide suitable habitat for this species.
Central Valley steelhead *Oncorhynchus mykiss*	T/–	Central Valley steelhead immigrate from the ocean into the Delta and into the Sacramento and San Joaquin River watersheds. Spawning occurs in every major tributary downstream of dams in the Sacramento and San Joaquin River systems. Steelhead may remain in the ocean from 1 to 4 years before immigrating in the months ranging August through April.	**None—**The instream habitat in Unionhouse Creek is very poor in that it lacks natural bed materials (i.e., sand, gravel, and cobble) to support a prey base and lacks a meandering channel and natural bank to provide refugia. Also, there is no fish passage from the Sacramento River to Unionhouse Creek, except during flood conditions when floodwaters from the Mokelumne River back up into Beach and Stone Lakes. Despite this occasional connection, Unionhouse Creek does not support habitat for migratory fish.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Chinook—Central Valley spring-run ESU *O. tshawytscha*	T/T	Spawning occurs in mainstem Sacramento River, Mill, Deer, Clear, Cow, Battle, Antelope, Thomes, and Big Chico Creeks, Feather River, and Yuba River. San Joaquin River spawning tributaries include Stanislaus River, Mokelumne River, and Calaveras River. Spring-run Chinook salmon begin upstream migration from the ocean in late January and early February, entering the Sacramento River between March and September. Adult spring-run Chinook salmon may hold in natal tributaries for up to several months before spawning.	**None**—The instream habitat in Unionhouse Creek is very poor in that it lacks natural bed materials (i.e., sand, gravel, and cobble) to support a prey base and lacks a meandering channel and natural bank to provide refugia. Also, there is no fish passage from the Sacramento River to Unionhouse Creek, except during flood conditions when floodwaters from the Mokelumne River back up into Beach and Stone Lakes. Despite this occasional connection, Unionhouse Creek does not support habitat for migratory fish.
Chinook salmon—Sacramento River winter-run *O. tshawytscha*	E/E	Spawn in the mainstem of the Sacramento River and Battle Creek. Upstream migration of adult winter-run Chinook salmon reportedly occurs from December to July with a peak during the period between January and April.	**None—**The instream habitat in Unionhouse Creek is very poor in that it lacks natural bed materials (i.e., sand, gravel, and cobble) to support a prey base and lacks a meandering channel and natural bank to provide refugia. Also, there is no fish passage from the Sacramento River to Unionhouse Creek, except during flood conditions when floodwaters from the Mokelumne River back up into Beach and Stone Lakes. Despite this occasional connection, Unionhouse Creek does not support habitat for migratory fish.
Sacramento splittail *Pogonichthys macrolepidotus*	–/SSC	Splittail spend most of their life in the San Francisco Estuary throughout the Delta, Suisun Bay, and Suisun Marsh. Distributed throughout the Sacramento River watershed as far north as the lower Feather River, the lower American River, and throughout the San Joaquin River watershed. They also are found throughout the Sutter and Yolo Bypasses.	**None**—Unionhouse Creek provides poor quality habitat and has no connections, except during flood events, to areas known to be occupied by this species.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Amphibians			
California tiger salamander *Ambystoma californiense*	T/T	In winter, breeds in vernal pools and seasonal wetlands with a minimum 10-week inundation period; in summer, aestivates in grassland habitat, primarily in rodent burrows. Occurs from Yolo County to Kern County in the Central Valley and up to 2,000 feet elevation in the Sierra Nevada foothills, and from Sonoma County to Santa Barbara County on the coast.	**None**—No suitable habitat occurs in the study area. The seasonal swale identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species. In addition, California tiger salamander has not been documented between the Cosumnes River and the American River (CNDDB 2012).
California red-legged frog *Rana draytonii*	T/–	Foothill ponds and streams with none to dense shrubby or emergent riparian vegetation, minimum 11–20 weeks of water for larval development, and upland refugia for aestivation. Occurs primarily in the foothills of the central Coast Ranges, with isolated populations in the Sierra Nevada.	**None**—The project area is outside the known range of this species, and Unionhouse Creek does not provide suitable breeding habitat for this species.
Western spadefoot *Spea hammondii*	–/SSC	In winter, breeds in vernal pools and seasonal wetlands with a minimum 3-week inundation period; in summer, aestivates in grassland habitat, in soil crevices and rodent burrows. Range includes the Central Valley and southern Coast Ranges and foothills.	**None**—No suitable habitat occurs in the study area. The seasonal wetland identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species. Unionhouse Creek does not provide suitable habitat for this species.
Reptiles			
Western pond turtle *Emys marmorata*	–/SSC	Forages in ponds, marshes, slow-moving streams, sloughs, and irrigation/drainage ditches; nests in nearby uplands with low, sparse vegetation. Range spans across California west of the Sierra-Cascade crest, below 5,000 feet in elevation.	**Low**—Unionhouse Creek does not provide sufficient foraging, escape-cover, or basking habitat for this species; however, because suitable habitat occurs to the west at the Bufferlands, western pond turtles occasionally may enter Unionhouse Creek. Species has been documented in Laguna Creek and in the small lakes at the Bufferlands (CNDDB 2012).

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Giant garter snake *Thamnophis gigas*	T/T	Forages in slow-moving streams, sloughs, ponds, marshes, inundated floodplains, rice fields, and irrigation/drainage ditches; also requires upland refugia not subject to flooding during the snake's inactive season. Range spans the southern Sacramento and northern San Joaquin Valleys.	**Low**—Unionhouse Creek represents marginal habitat for giant garter snake. Giant garter snakes may move into Unionhouse Creek from more suitable habitat to the west at the Bufferlands during flooding or during dispersal; however, Unionhouse Creek in the project area does not provide sufficient foraging (no amphibians or fish were observed) or suitable cover for this species. Giant garter snake has been documented at Beach Lake and in Laguna Creek within the Bufferlands. The nearest record is approximately 1 mile southwest of the project area. (CNDDB 2012)
Birds			
Cooper's hawk *Accipiter cooperii*	–/WL	Nests and forages primarily in riparian woodlands and other wooded habitats. Year-round range spans most of the wooded portions of California.	**None**—No suitable habitat in the project area.
Tricolored blackbird *Agelaius tricolor*	–/SSC	Nests colonially in large, dense stands of freshwater marsh, riparian scrub, and other shrubs and herbs; forages in grasslands and agricultural fields. Year-round resident throughout the Central Valley and the central and southern coasts, with additional scattered locations throughout California.	**Low**—No suitable nesting habitat in the project area. Low-quality foraging habitat in the project area.
Golden eagle *Aquila chrysaetos*	BCC/FP	Nests and forages in a variety of open habitats, including grassland, shrubland, and cropland; most common in foothill habitats; rare foothill breeder; nests in cliffs, rock outcrops, and large trees. Winter range spans most of California; breeding range excludes the Central Valley floor.	**None**—No suitable habitat in the project area.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Great egret *Ardea alba*	–/–	Nests colonially in tall trees; forages in freshwater and saline marshes, shallow open water, and occasionally cropland or low, open upland habitats, such as pastures. Year-round range spans the Central Valley, central coast, and portions of southern California; winter range expands to include the remainder of the coast.	**Moderate**—No suitable nesting habitat in the project area, but species could forage in Unionhouse Creek and adjacent uplands.
Great blue heron *Ardea herodias*	–/–	Nests colonially in tall trees; forages in freshwater and saline marshes, shallow open water, and occasionally cropland or low, open upland habitats, such as pastures. Year-round range spans most of California except the eastern portion of the state and the highest elevations; winter range expands to include eastern California.	**Moderate**—No suitable nesting habitat in the project area, but species could forage in Unionhouse Creek and adjacent uplands.
Burrowing owl *Athene cunicularia*	BCC/SSC	Nests and forages in grasslands, agricultural fields, and low scrub habitats, especially where ground squirrel burrows are present; occasionally inhabits artificial structures and small patches of disturbed habitat. Year-round range includes the Central Valley and Delta and portions of the central coast, eastern California, and southern California.	**Low/Moderate**—A few burrows were observed along the upper banks of Unionhouse Creek that could serve as potential habitat for the species. No burrowing owls or burrowing owl sign (e.g., pellets, whitewash, feathers) was observed during reconnaissance-level surveys. There are records of burrowing owl from the Cosumnes River College campus at Cosumnes River Boulevard and Bruceville Road; however, habitat there appears to have been removed (CNDDB 2012). There are also records at the Bufferlands with the nearest approximately 0.5 mile west of the project area.
Ferruginous hawk *Buteo regalis*	BCC/WL	Forages most commonly in grasslands and shrublands; also forages in agricultural fields. Winter range spans most of California except the higher elevations of the Sierra Nevada and northern Coast Ranges; does not nest in California.	**None**—No suitable foraging habitat in the project area.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Swainson's hawk *Buteo swainsoni*	BCC/T	Nests in isolated trees, open woodlands, and woodland margins; forages in grasslands and agricultural fields. Breeding range spans the Central Valley and Delta west of Suisun Marsh, northeastern California, and a few additional scattered sites; most of the population migrates south of California in fall/winter, although a small number winters in the Delta.	**Low**—No suitable nesting habitat occurs in the project area. Project area represents very poor foraging habitat for the species. Species has been documented nesting at the Bufferlands west of the project area (CNDDB 2012). Species was observed in flight to the south of the project area during the 3/12/2012 site visit.
Northern harrier *Circus cyaneus*	–/SSC	Nests on the ground among herbaceous vegetation, such as grasses or cattails; forages in grasslands, agricultural fields, and marshes. Breeding range encompasses much of lowland California; winter range expands to include the remaining lowland areas.	**Low**—No suitable nesting habitat (area is subject to annual disking) and very poor foraging habitat (no mammals observed in project area).
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	C/E	Nests in valley, foothill, and desert riparian forest with densely foliaged deciduous trees and shrubs, especially willows; other associated vegetation includes cottonwood trees, blackberry, nettle, and wild grape. Historically common but now a rare summer resident at isolated sites in Sacramento Valley in northern California and along Kern and Colorado River systems in southern California; occasionally documented in Colusa, Glenn, Butte, Sutter, and Yolo Counties within the last 20 years.	**None**—No suitable habitat occurs or near the project area.
White-tailed kite *Elanus leucurus*	–/FP	Forages in ponds, marshes, slow-moving streams, sloughs, and irrigation/drainage ditches; nests in nearby uplands with low, sparse vegetation. Year-round range spans the Central Valley, Coast Ranges and coast, Sierra Nevada foothills, and Colorado River.	**Low**—No suitable nesting habitat occurs in the project area. Foraging habitat is very poor because of a lack of small mammals.
Merlin *Falco columbarius*	–/WL	Forages in a wide variety of habitats, but in the Central Valley is most common around agricultural fields and grasslands. Winter range encompasses most of California except the highest elevations; does not breed in California.	**Low**—Project area provides marginal winter foraging habitat for the species.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Black-crowned night-heron *Nycticorax nycticorax*	–/–	Nests colonially in dense marshes, groves of low trees, and dense shrubs; forages in freshwater and saline marshes and in shallow open water at the edge of marsh vegetation. Year-round range includes much of lowland California.	**None**—No suitable habitat occurs in the project area.
Double-crested cormorant *Phalacrocorax auritus*	–/WL	Forages in open water; breeds colonially in rock ledges and trees. Breeding range spans the coast and offshore islands, Clear Lake, the Salton Sea, the Colorado River, and portions of northeastern California; winter range expands to include the Central Valley and additional portions of southern California.	**None**—No suitable habitat occurs in the project area.
Purple martin *Progne subis*	–/SSC	Nests in tree cavities, bridges, utility poles, lava tubes, and buildings; forages in foothill and low montane oak and riparian woodlands, and less frequently in coniferous forests and open or developed habitats. Breeding range includes the Sierra Nevada, Cascade Range, portions of the Coast Ranges and coast, and parts of southern California; extirpated from the Delta, and nesting in the Central Valley has been reduced to transportation structures in and around the city of Sacramento.	**None**—No suitable habitat occurs in the project area. There are no large trees with cavities, and the bridges lack weep holes or other crevices that may be used for nesting.
Bank swallow *Riparia riparia*	–/T	Nests in vertical banks or bluffs, typically adjacent to water, devoid of vegetation, and with friable, eroding soils; forages in a wide variety of habitats. Breeds in much of lowland and riparian California, with 75% nesting in colonies along the Sacramento and Feather Rivers and their tributaries; additional breeding locations are scattered throughout the northern and central portions of the state; migrates south of California in fall/winter.	**None**—No suitable habitat occurs in the project area.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Least Bell's vireo *Vireo bellii pusillus*	E/E	Nests and roosts in low riparian thickets of willows and shrubs, usually near water but sometimes along dry, intermittent streams; other associated vegetation includes cottonwood trees, blackberry, mulefat, and mesquite (in desert). Formerly a common and widespread summer resident throughout Sacramento and San Joaquin Valleys, and in the coastal valleys and foothills from Santa Clara County south, but its numbers have declined drastically, and the species has vanished from much of its California range.	**None**—No suitable habitat occurs in the project area.
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	–/SSC	Nests in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds. Breeding range includes primarily the Central Valley, northeastern California, and portions of southern California; most individuals migrate south of California in winter.	**None—**No suitable habitat occurs in the project area.
Mammals			
Pallid bat[b] *Antrozous pallidus*	–/SSC	Deserts, grasslands, shrublands, woodlands, and forests; most common in open, dry habitats; typically roosts in rock crevices, also in tree hollows, bridges, and buildings, in colonies ranging from one to more than 200 individuals. Year-round range spans nearly all of California.	**Low—**Species may forage in the project area, but the bridges lack crevices for roosting.
Townsend's big-eared bat[b] *Corynorhinus townsendii*	–/SSC	This species may use several alternate roost sites (Woodruff and Ferguson 2005). Typically roosts in colonies of fewer than 100 individuals in caves or mines; occasionally roosts in buildings or bridges, and rarely, hollow trees; forages in all habitats except alpine and subalpine, although most commonly in mesic forests and woodlands. Year-round range spans most of California except the highest elevations of the Sierra Nevada south of Lake Tahoe.	**Low—**Species may forage in the project area, but the bridges lack crevices and there are no hollow trees or trees with cavities for roosting.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Hoary bat *Lasiurus cinereus*	–/–	Ranges widely, but populations in the Central Valley are most likely non-reproductive or migratory. Typically roosts alone in a variety of broadleaf tree species such as cottonwood and sycamore; also found roosting in conifers. May be found in a range of vegetation and roost substrates during migration.	**Low**—Species may forage in the project area, but there is no suitable roosting habitat in the project area.
American badger *Taxidea taxus*	–/SSC	Drier open shrub, forest, and herbaceous habitats with friable soils. Year-round range spans all of California except the Humboldt and Del Norte coasts.	**None**—Project area lacks a prey base (small mammals) for the species.

DPS = distinct population segment.

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
C = candidate for listing under the federal Endangered Species Act.
BCC = birds of conservation concern.
– = no listing.

State

E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
FP = fully protected under the California Fish and Game Code.
SSC = species of special concern in California.
WL = watch list.
– = no listing.

[b] This bat is considered a high priority species in California by the Western Bat Working Group. Available: <http://www.wbwg.org/spp_matrix.html>.

Clean Water Act

The Clean Water Act (CWA) was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers EPA to set national water quality standards and effluent limitations and includes programs addressing both point-source and nonpoint-source pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. The following sections provide additional details on pertinent sections of the CWA.

Section 404 of the Clean Water Act

The USACE and EPA regulate the discharge of dredged and fill material into "waters of the United States" under Section 404 of the CWA. USACE jurisdiction over nontidal waters of the United States extends to the ordinary high-water mark (OHWM), provided the jurisdiction is not extended by the presence of wetlands (33 CFR Part 328 Section 328.4). The OHWM is defined in the federal regulations to mean

> [T]hat line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. (33 CFR Part 328 Section 328.3[e].)

The USACE typically will exert jurisdiction over that portion of the study area that contains waters of the United States and adjacent or isolated wetlands. This jurisdiction equals approximately the bank-to-bank portion of a creek along its entire length up to the OHWM and adjacent wetlands areas that will be either directly or indirectly adversely affected by a proposed project.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union (now Russia) and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703, 50 CFR 21, 50 CFR 10). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. Examples of permitted actions that do not violate the MBTA are the possession of a hunting license to pursue specific gamebirds, legitimate research activities, display in zoological gardens, bird-banding, and other similar activities. USFWS is responsible for overseeing compliance with the MBTA, and the U.S. Department of Agriculture's Animal Damage Control Officer makes recommendations on related animal protection issues.

3.4.3.2 State

California Environmental Quality Act

CEQA is the regulatory framework by which California public agencies identify and mitigate significant environmental impacts. A project normally has a significant environmental impact on biological resources if it substantially affects a rare or endangered species or the habitat of that species; substantially interferes with the movement of resident or migratory fish or wildlife; or substantially diminishes habitat for fish, wildlife, or plants. The State CEQA Guidelines define rare, threatened, and endangered species as those listed under the CESA and ESA, as well as any other species that meet the criteria of the resource agencies or local agencies—for example, the DFG-designated "species of special concern" and CNPS-listed species. The State CEQA Guidelines state that the lead agency preparing an EIR must consult with and receive written findings from DFG concerning project impacts on species listed as endangered or threatened. The effects of a proposed project on these resources are important in determining whether the project has significant environmental impacts under CEQA.

California Fish and Game Code Section 1600: Streambed Alteration Agreements

DFG has jurisdictional authority over wetland resources associated with rivers, streams, and lakes under Sections 1600–1607. DFG has the authority to regulate all work under the jurisdiction of the State of California that would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed.

In practice, DFG marks its jurisdictional limit at the top of the stream or lake bank or the outer edge of the riparian vegetation, where present, and sometimes extends its jurisdiction to the edge of the 100-year floodplain. Because riparian habitats do not always support wetland hydrology or hydric soils, wetland boundaries as defined by CWA Section 404 sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Therefore, jurisdictional boundaries under Section 1600 may encompass a greater area than those regulated under CWA Section 404.

DFG enters into a streambed alteration agreement with an applicant and can impose conditions on the agreement to ensure that no net loss of wetland values or acreage will be incurred. The streambed or lakebed alteration agreement is not a permit but a mutual agreement between DFG and the applicant.

3.4.3.3 Local

City of Sacramento Heritage Tree Ordinance

The City Heritage Tree Ordinance (City of Sacramento Municipal Code, Title 12, Chapter 12.64) defines a *heritage tree* as:

- Any tree or any species with a truck circumference of one hundred (100) inches or more, which is of good quality in terms of health, vigor of growth and conformity to generally accepted horticultural standards of shape and location for its species.
- Any native *Quercus* species, *Aesculus californica* or *Platanus racemosa*, having a circumference of thirty-six (36) inches or greater when a single trunk, or a cumulative circumference of thirty-six (36) inches or greater when a multi-trunk.

- Any tree thirty-six (36) inches in circumference or greater in a riparian zone. The riparian zone is measured from the center line of the watercourse to thirty (30) feet beyond the high water line.
- Any tree, grove of trees or woodland trees designated by resolution of the city council to be of special historical or environmental value or of significant community benefit.

The ordinance states that, during construction activity on any property on which a heritage tree is located, unless the express written permission of the director is first obtained, no person shall:

- Change the amount of irrigation provided to any heritage tree from that provided prior to the commencement of construction activity.
- Trench, grade, or pave into the dripline area of a heritage tree, or trim roots.
- Change, by more than 2 feet, grade elevations within thirty (30) feet of the dripline area of a heritage tree.
- Park or operate any motor vehicle within the dripline area of any heritage tree.
- Place or store any equipment or construction materials within the dripline area of any heritage tree.
- Attach any signs, ropes, cables or any other items to any heritage tree.
- Cut or trim any branch of a heritage tree for temporary construction purposes.
- Place or allow to flow into or over the dripline area of any heritage tree any oil, fuel, concrete mix, or other deleterious substance.

In addition, the ordinance states that none of the following activities shall be performed without a tree permit:

- Removal of any heritage tree.
- Pruning or spraying of any heritage tree greater than 12 inches in circumference.
- Disturbing the soil or placing any chemical on the soil within the dripline of any heritage tree.

3.4.4 Environmental Effects

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

The proposed project would have potentially adverse effects on special-status plant and wildlife species. Specific impacts are discussed below.

Impact BIO-1: Adversely Affect or Modify Habitat of Special-Status Plants

In the unlined portion of the Unionhouse Creek channel upstream of the confluence with Strawberry Creek, there is potential for special-status plants that occur in freshwater marsh habitat, including Sanford's arrowhead and other species (Table 3.4-2). This area has not been recently surveyed during the blooming period of these species; therefore, the absence of special-status plant species cannot be confirmed. The proposed project would not include construction activities in this

upstream part of Unionhouse Creek, and the temporary cofferdam for bypass pumping will be placed downstream of the potential special status plant–species habitat. Therefore, no effects on special-status plants are expected to occur during project construction, and no habitat for these plants would be modified as part of the project. Measures to exclude construction equipment from Unionhouse Creek upstream of the project area are described below in Mitigation Measure BIO-MM-3 for giant garter snake, and implementation of these measures would further ensure avoidance of potential special-status plant habitat.

Impact BIO-2: Adversely Affect or Modify Habitat of Western Pond Turtle

The proposed project could affect western pond turtle during work in Unionhouse Creek. Though Unionhouse Creek represents poor quality habitat for western pond turtle because it lacks suitable foraging opportunities and escape cover, they may disperse through the project area from occupied aquatic habitat to the west in Morrison Creek and Beach Lake and could be affected by project construction. However, to avoid impacts on giant garter snake, Unionhouse Creek will be dewatered 15 days prior to construction activities in the channel, and it is likely that if pond turtles are present they will move downstream as flows diminish. Because the avoidance measures for giant garter snake (discussed below) will include creating in-channel barriers to prevent their movement into the project area, it is unlikely that western pond turtles will be in the channel during construction. Any stranded pond turtles potentially could be affected by project construction if they are unable to move out of the project area, which would be a potentially significant impact. Implementation of Mitigation Measure BIO-MM-1 would reduce this impact to less than significant.

Mitigation Measure BIO-MM-1: Conduct Preconstruction Surveys and Relocate Individual Western Pond Turtles If Necessary

Twenty-four hours prior to construction, a biologist with experience with western pond turtles will conduct a survey for western pond turtle in the Unionhouse Creek channel . The survey likely will coincide with the preconstruction surveys for giant garter snake (discussed below). If pond turtles are encountered in the project area, the surveying biologist will relocate the turtle(s) 500 feet downstream of the project area, or as far downstream as accessible. The surveying biologist will hold a scientific collecting permit and/or memorandum of understanding from CDFG authorizing capture and release of western pond turtles.

Impact BIO-3: Adverse Effects on Giant Garter Snake as a Result of Disturbing Aquatic and Upland/Bank Habitat

Activities associated with the proposed project that have the potential to result in effects on giant garter snake are listed below.

- Permanent conversion of ruderal grassland (potential upland habitat) to concrete along the banks of Unionhouse Creek from Bruceville Road to Center Parkway.
- Temporary disturbance of and giant garter snake exclusion from ruderal grassland (potential upland habitat) along the banks of Unionhouse Creek from Center Parkway to Franklin Boulevard during channel widening and bank reconfiguration.
- Temporary dewatering of Unionhouse Creek (potential aquatic habitat) from Bruceville Road to Franklin Boulevard.

Unionhouse Creek was initially evaluated for giant garter snake suitability as part of the South Sacramento County Streams Project EIR/EIS (U.S. Army Corps of Engineers 1998) in 1997 by giant garter snake expert George Hansen. Mr. Hansen conducted protocol-level giant garter snake surveys within the entire South Sacramento County Streams project area (encompassing the proposed project area) in April, May, and June 1997. No giant garter snakes were observed during the surveys; however, Mr. Hansen theorized that flooding during the previous winter may have displaced giant garter snakes from areas they had previously occupied. Mr. Hansen concluded that giant garter snake may venture into Unionhouse Creek from more suitable habitats during downstream flooding or other dispersal activities, but that Unionhouse Creek lacked suitable cover for the species and did not provide a sufficient prey base to support the long-term survival of giant garter snakes (Appendix E of the Sacramento Streams Project EIR/EIS, U.S. Army Corps of Engineers 1998). Based on habitat descriptions and representative photographs of Unionhouse Creek contained in the Sacramento Streams Project EIR/EIS, existing habitat conditions within and adjacent to the creek have not changed considerably since Mr. Hansen's evaluation.

Overall, giant garter snake is unlikely to occur in Unionhouse Creek for extended periods of time. However, there is a potential for incidental habitat use during dispersal and during flood events. Giant garter snake could venture into Unionhouse Creek within the project area from known occupied habitat to the west in the adjacent Bufferlands (California Natural Diversity Database 2012). Potential upland habitat within the project area is limited to the banks of Unionhouse Creek, which are currently vegetated with ruderal annual grasses. This habitat is considered marginal because it is routinely mowed and supports very few small mammal burrows, which limits the availability of refuge/resting habitat for giant garter snake. The portion of the ruderal annual grassland between the top of bank of Unionhouse Creek and Cosumnes River Boulevard to the south is not considered suitable upland habitat for giant garter snake because of the lack of mammal burrows and soil crevices and the periodic discing that occurs throughout the year.

Table 3.4-4 provides a summary of permanent and temporary impacts on giant garter snake habitat from project activities, identifies the type and amount of habitat to be affected, and identifies recommended compensation for project impacts. Figure 3.4-2 shows the location of affected habitat in the project footprint.

Table 3.4-4. Potential Permanent and Temporary Impacts on Suitable Habitat for Giant Garter Snake

Impact Type	Permanent or Temporary	Impact Area (acres)	Habitat Type	Habitat Function	Compensation Y/N? (ratio)
Dewatering of Unionhouse Creek from Bruceville Road to Franklin Boulevard	Temporary	2.25	Perennial drainage	Aquatic	N*
Exclusion of GGS from Unionhouse Creek banks from Center Parkway to Franklin Boulevard	Temporary	7.03	Ruderal grassland	Upland	N*
Placement of concrete along banks of Unionhouse Creek from Bruceville Road to Center Parkway	Permanent	3.51	Ruderal grassland	Upland	Y (1:1)

* Because all temporary construction disturbances will occur during one construction season and because temporarily affected habitats will be recontoured and revegetated to pre-project conditions, no compensation for temporary effects is proposed.

The temporary impacts on aquatic and upland/bank habitat and the permanent impacts on upland/bank habitat are potentially significant. Implementation of Mitigation Measures BIO-MM-2 and BIO-MM-3 would reduce this impact to less than significant.

Mitigation Measure BIO-MM-2: Compensate for the Loss of Giant Garter Snake Habitat

To compensate for the permanent loss of 3.51 acres of giant garter snake upland/bank habitat along the banks of Unionhouse Creek, SAFCA shall purchase mitigation credits at a CDFG- and USFWS-approved mitigation bank or conservation area at a ratio of 1:1 (one acre preserved for every acre affected). The 1:1 ratio is based on the marginal quality of the upland habitat present within the project area and the low likelihood of giant garter snake utilizing this habitat because of the lack of an adequate prey base, suitable cover, and burrows for hibernation.

Compensation for temporary impacts is not proposed because construction activities within any particular area will occur within one construction season and temporarily disturbed areas will be returned to pre-project conditions.

Mitigation Measure BIO-MM-3: Follow USFWS Avoidance and Minimization Measures for Giant Garter Snake during Construction

The project proponent will implement the following measures to avoid and minimize impacts on giant garter snake during construction. These measures are generally consistent with the USFWS's *Standard Avoidance and Minimization Measures during Construction Activities in Giant Garter Snake (*Thamnophis gigas) *Habitat* (U.S. Fish and Wildlife Service 1997).

- Dewatered areas within the project area shall remain dry for at least 15 consecutive days prior to the start of clearing/grubbing and excavation activities within the creek channel.
- During dewatering activities, pumps shall be screened with a mesh of the appropriate size to keep snakes from being pulled into the pump.
- Following the installation of the cofferdams and prior to the start of ground disturbance within the project area, silt fencing (or other suitable snake exclusion devices) will be installed as needed to exclude snakes from the work area. The exclusion zone will be established using a combination of fencing, cofferdams, and existing barriers (i.e., road and bridge structures). A qualified biologist will monitor the installation of exclusion devices to ensure proper placement to prevent giant garter snakes from entering the work area.
- All active work areas will be dewatered and fenced no later than October 1 to prevent giant garter snakes from seeking upland hibernation sites within the work area. Construction may proceed until October 31 within established exclusion zones.
- Immediately prior to installation of sediment fencing and within 24 hours prior to initial clearing/grubbing and excavation activities within any section of the project area, the work zone shall be surveyed for giant garter snakes by a qualified biologist. Surveys of the designated work area shall be repeated if a lapse in construction activity of 2 weeks or longer has occurred within any particular segment of the project area.
- Before the start of construction activities, including equipment staging, within the project area, all construction personnel shall receive environmental awareness training regarding special-status species (i.e., giant garter snake) and potential habitat present in the project area. The training program should consist of a brief presentation by persons knowledgeable

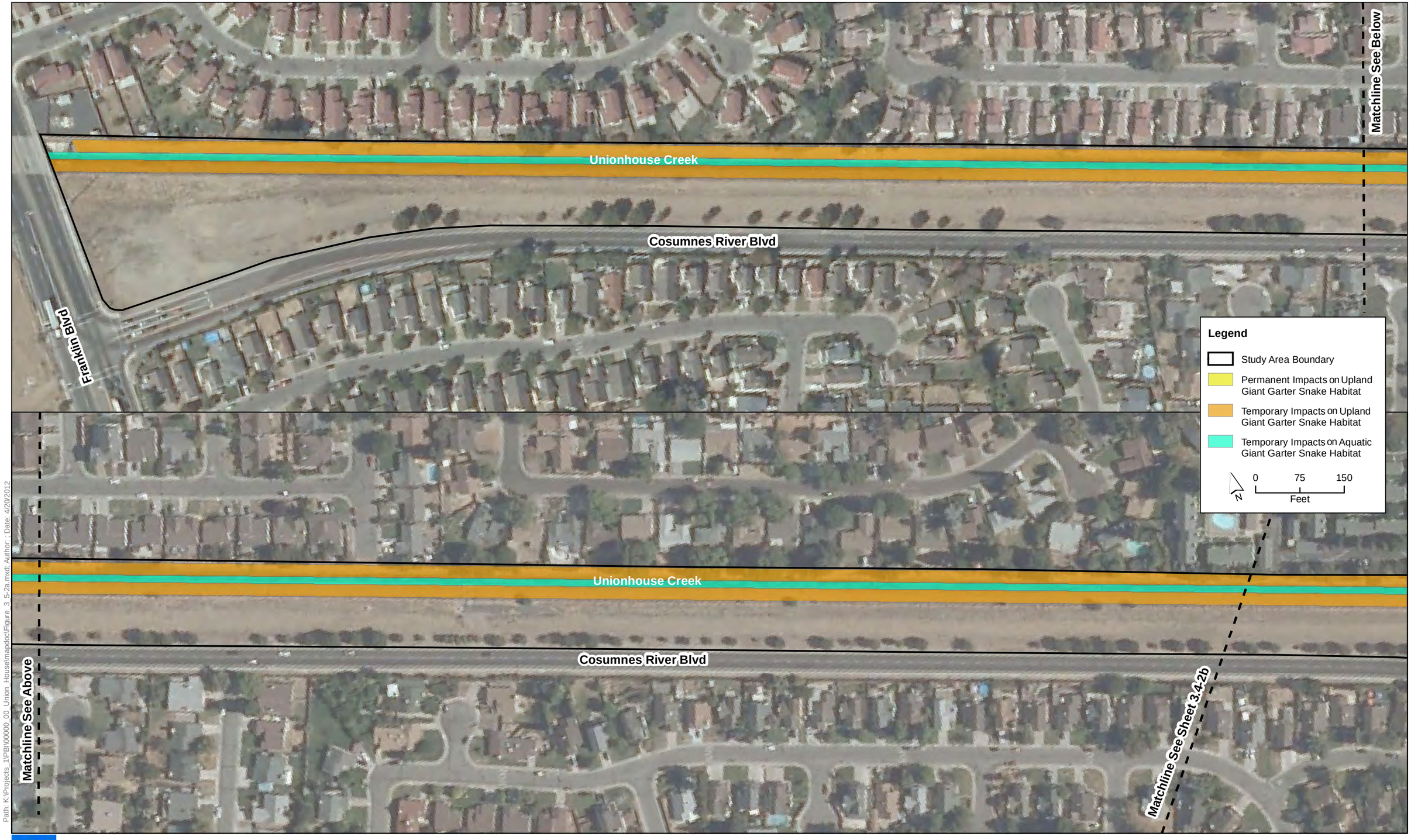

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Figure 3.4-2a
Impacts on Giant Garter Snake Habitat within the Study Area

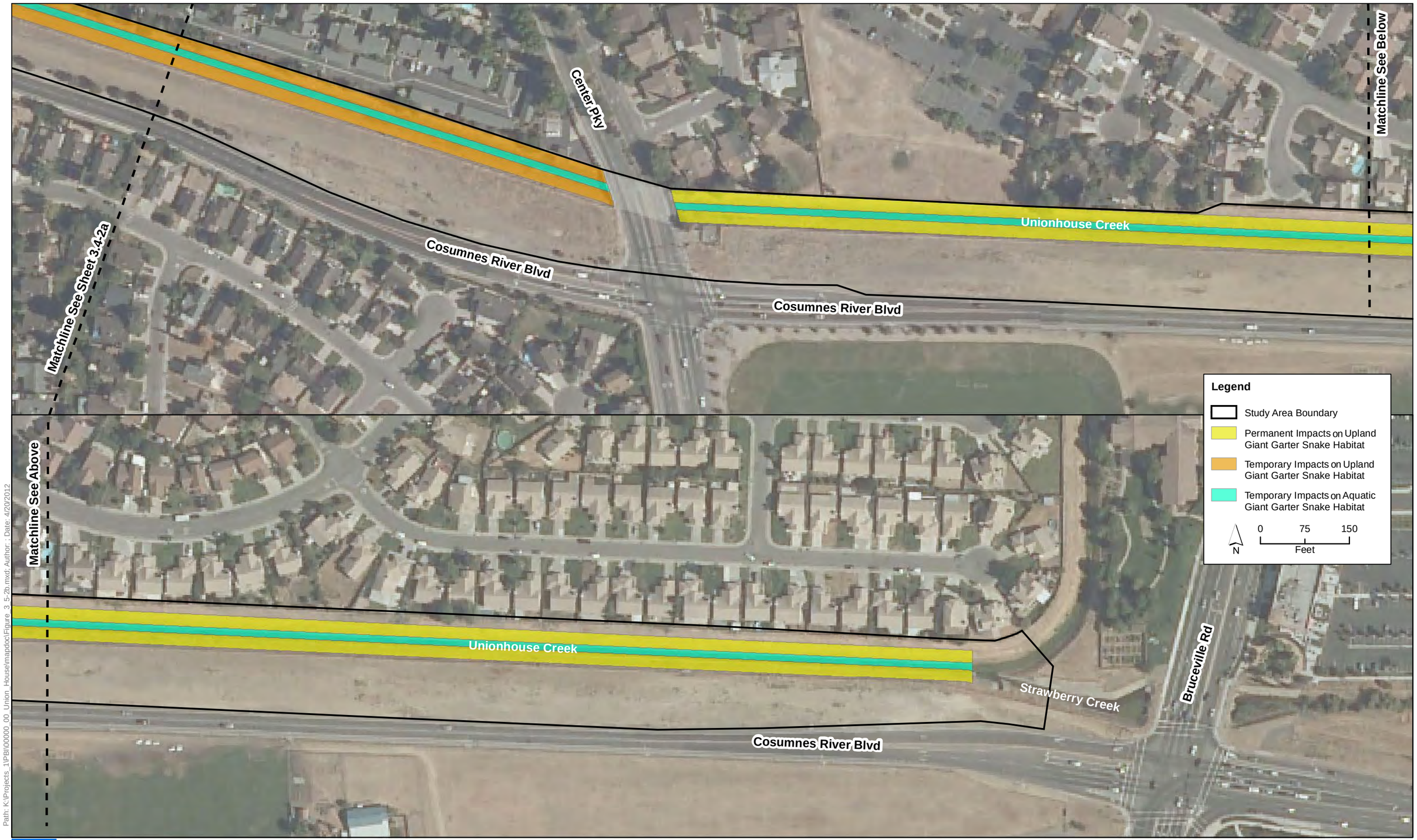

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Figure 3.4-2b
Impacts on Giant Garter Snake Habitat within the Study Area

in giant garter snake biology and legislative protection to explain endangered species concerns to contractors and their employees involved in the project. The program should include the following: a description of the giant garter snake and its habitat needs, an explanation of the status of the species and its protection under ESA and CESA, and a list of measures being taken to reduce impacts on the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the training program attendees and anyone else who may enter the project site.

- Weekly site visits will be conducted by a qualified biologist throughout construction to inspect sediment fencing/exclusion fencing and ensure compliance with project permits and protection measures.
- If a snake is encountered during construction, the animal will be allowed to move out of the work area unharmed. If it is determined that the snake is a giant garter snake, USFWS and CDFG will be contacted immediately to determine if additional measures are needed to avoid direct effects on the species.
- The movement of heavy equipment will be confined to the designated work area within the established giant garter snake exclusion zone.
- The upstream and downstream limits of the project area will be clearly designated as avoided giant garter snake habitat through signage and construction fencing/flagging.

Impact BIO-4: Adversely Affect Burrowing Owl during Construction

The proposed project has the potential to affect burrowing owl. Although no burrowing owls or burrowing owl sign was observed in the project area, they are known to have occurred historically to the south at Cosumnes River College and currently occur to the west in the Bufferlands. A few burrows were observed in the project area on the banks of Unionhouse Creek. If these areas are or become occupied by burrowing owls, project construction could directly affect burrowing owls. Impacts on burrowing owl would be potentially significant. Implementation of Mitigation Measure BIO-MM-4 would reduce this impact to less than significant.

Mitigation Measure BIO-MM-4: Conduct Preconstruction Surveys for Burrowing Owl and Implement CDFG Avoidance and Minimization Measures

To avoid and minimize impacts on burrowing owl, preconstruction surveys for burrowing owl should be initiated no less than 14 days prior to ground disturbing activities with a final survey conducted within 24 hours before ground disturbance. Surveys will be conducted according to the survey guidelines described in CDFG's *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 2012).

If burrowing owls are detected in or adjacent to the project area, avoidance and minimization measures outlined in the 2012 CDFG Staff Report would be implemented.

Impact BIO-5: Adversely Affect Nesting Swainson's Hawk during Construction

The proposed project has the potential to affect Swainson's hawks that could be nesting in the vicinity of the project. Swainson's hawks have been documented nesting to the west of the project area in the Bufferlands, and Swainson's hawks are known to nest in urban areas of this portion of Sacramento County where suitable foraging habitat occurs in the vicinity. If Swainson's hawks are nesting in the vicinity of the project area during construction, they may be affected by project

construction activities. Though streets and adjacent residential areas have high levels of vehicle and pedestrian traffic, the presence of and noise generated by large construction vehicles could disrupt nesting behavior. Impacts on nesting Swainson's hawks would be potentially significant. Implementation of Mitigation Measure BIO-MM-5 would reduce this impact to less than significant.

There is no suitable nesting or foraging habitat in the project area. The trees in the project area are small and lack the structure necessary for raptor nests. The upland portions of the project area do not provide suitable foraging habitat because of a lack of small mammals and the level of disturbance from vehicle and pedestrian traffic along Cosumnes River Boulevard. The only observed burrows were on the channel banks; however, no ground squirrels or ground squirrel sign was observed. No mitigation is recommended for the loss of ruderal annual grassland.

Mitigation Measure BIO-MM-5: Conduct Preconstruction Surveys for Nesting Swainson's Hawks and Follow CDFG Guidance If They Are Detected

Preconstruction surveys for nesting Swainson's hawks will be conducted according to the guidelines outlined in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (California Department of Fish and Game 2000). If the time between project approval and the start of construction does not allow for adherence to these guidelines, a minimum of two surveys will be conducted prior to construction, with one occurring between June 10 and July 30 (post-fledging) and a second within 5 days of the start of construction. If construction activities do not begin until after August 31, these surveys will not be necessary.

If Swainson's hawk nests are detected, CDFG will be contacted for further guidance.

Impact BIO-6: Disturb Nesting Birds and Raptors during Construction

The proposed project has a potential to affect nesting birds and raptors protected by the MBTA. The ruderal annual grassland, including the channel banks and landscape trees, provides potential nesting habitat for birds. In addition, the bridges at Center Parkway and Franklin Boulevard represent potential nesting habitat for swallows (old swallows nests were observed beneath Franklin Boulevard). Disturbances in these areas may affect nesting birds there and in areas adjacent to the project area. Because project construction is slated to start in early August, the chance of affecting nesting birds is relatively low, yet birds can have active nests into late August. Impacts on nesting birds would be potentially significant. Implementation of Mitigation Measure BIO-MM-6 would reduce this impact to less-than-significant.

Mitigation Measure BIO-MM-6: Conduct Preconstruction Surveys for Nesting Birds and Raptors and Establish No-Disturbance Buffers If They Are Detected

To avoid and minimize impacts on nesting birds and raptors, preconstruction surveys for nesting birds will be conducted. A minimum of two separate surveys will be conducted for both migratory birds and raptors. Surveys for nesting migratory birds will be conducted within 15 days prior to the initiation of construction activities (including tree removal) that are scheduled to begin during the breeding season, with the last survey occurring in the 5 days prior to the start of construction. These surveys will occur in the project area and the trees and shrubs immediately adjacent to the project area. Surveys for nesting raptors will occur in the project area and a 500-foot area around the project site. If time allows, surveys will occur during the height of the breeding season (March 1 to June 1), with one survey occurring in each of two

consecutive months in this peak period and the final survey occurring within 5 days of the start of construction.

If no active nests are detected during these surveys, no additional mitigation is required.

If active nests are found in the survey area, a no-disturbance buffer will be established around the site to avoid disturbance or destruction of the nest site until the end of the breeding season (August 31) or until after a qualified wildlife biologist determines that the young have fledged and moved out of the project area (this date varies by species). The extent of these buffers will be determined by the biologist in coordination with CDFG and will depend on the level of noise or construction disturbance, line-of-sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors will be analyzed to make an appropriate decision on buffer distances. Suitable buffer distances may vary between species.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No riparian or other sensitive natural communities, other than seasonal wetland discussed below, occur in the project area. Therefore, there would be no adverse effect.

c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

Impact BIO-6: Eliminate Topography and Vegetation of Seasonal Swale

The proposed project would have permanent impacts on the 0.037-acre seasonal swale located south of Unionhouse Creek near Franklin Boulevard. The final acreage of this wetland is pending verification of the delineation of waters of the United States by the USACE. Project construction activities would directly affect the seasonal swale for access to the creek channel during channel widening and placement of the concrete lining. The swale topography and vegetation would be eliminated by movement of construction vehicles through this area. This swale has limited wetland functions and likely was created by previous construction activity in the area, The wetland would not be restored after construction is complete, because the wetland has negligible habitat value, and the future Light Rail project sites the path of the new tracks directly on the wetland. However, because the wetland is federally protected under Section 404 of the CWA, the loss of a federally protected wetland would be considered a significant impact. Implementation of Mitigation Measure MM-BIO-7 would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-MM-7: Compensate for Loss of Seasonal Swale

SAFCA will obtain a CWA Section 404 permit for placement of fill in the seasonal swale and will implement all conditions of the permit.

The loss of approximately 0.037 acre of seasonal wetland habitat will be compensated by a 0.97 acre increase in surface area to Unionhouse Creek resulting from the project. This out-of-kind mitigation is suitable because of the low wetland function of the existing seasonal wetland and the higher value of the increased perennial drainage habitat in Unionhouse Creek.

Impact BIO-7: Temporarily Affect Water Quality in or Result in Loss of a Perennial Drainage

The proposed project would have temporary and permanent direct effects on Unionhouse Creek between the confluence with Strawberry Creek and Franklin Boulevard. Construction activities would have temporary effects on water quality through diversion of the creek flow and removal of the creek bed and bank surface. Permanent effects would occur from excavation and widening of the channel and placement of concrete in the widened creek bed and on the banks.

Water from dewatering activities would be treated and discharged pursuant to state regulations and permit conditions. Potential temporary impacts on water quality during construction could result from the release of hazardous construction-related materials (e.g., gasoline, oils, grease, lubricants, other petroleum-based products) onto the lined creek bed and bank before flow is restored to the channel. In addition, soil would be excavated from the channel bottom and south bank in order to widen the channel, resulting in a temporary disturbance that would be necessary to construct these improvements. These temporary effects would be considered significant. However, SAFCA will prepare and implement a SWPPP to address erosion, stormwater runoff, sedimentation, and other construction-related pollutants during project construction until all areas disturbed during construction have been permanently stabilized. BMPs that likely would be included are described in Section 3.6, Geology and Soils. Additionally, a spill prevention response plan will be implemented to control any spills that would occur during construction, and is described in Section 3.8, Hazards and Hazardous Materials.

The concrete lining in the eastern segment would be applied after the channel bottom and earthen sides are scraped and compacted, so that the resulting surface area would be virtually equal in size to the existing conditions, and as such would continue to hold an equal volume of water. Widening the western segment of the channel would result in an increase of 0.97 acres to water surface area. The USACE would consider installation of the concrete lining within the OHWM of Unionhouse Creek placement of fill.

Placement of fill in water of the United States would be considered a significant impact. However, because the channel is being widened within the OHWM, the project would not ultimately result in a loss of waters of the United States. No compensatory mitigation for impacts to waters of the U.S. would be implemented, because the increase in waters to Unionhouse Creek would offset the permanent fill and the temporary impacts incurred during project construction. In addition, all conditions of the CWA Section 404 permit and Section 401 water quality certification and the CDFG Section 1600 streambed alteration agreement would be addressed and implemented. With implementation of these permit conditions, the potential project loss of waters of the United States would be avoided and the impact would be less than significant.

The loss of habitat on the banks of Unionhouse Creek is addressed above in Impact BIO-MM-3 for giant garter snake habitat.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The proposed project would temporarily obstruct the movement of any wildlife that may use the Unionhouse Creek channel as a dispersal corridor. Because Unionhouse Creek provides poor instream habitat and no riparian vegetation, it represents very poor dispersal habitat for both aquatic and terrestrial species that use stream corridors for dispersal.

The proposed project is not expected to impede the use of native wildlife nursery sites because of the poor quality of habitat in Unionhouse Creek and dominance of urban land uses surrounding the project area.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Impact BIO-8: Loss of a Native Oak Tree

One native oak tree in the study area meets the size criterion for the City of Sacramento Heritate Tree Ordinance. Removal of this tree, if necessary for widening Unionhouse Creek, would require a tree permit from the City. Loss of this tree would be a significant impact. Implementation of Mitigation Measure BIO-MM-8 would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-MM-8: Obtain Tree Permit and Compensate for Loss of Oak Tree

The project proponent will provide the City with a tree survey for the oak tree, including the location, species, diameter of all trunks, approximate height and canopy diameter, and approximate age, in support of a tree permit application to the City for removal of the native oak tree, if necessary. All conditions of the tree permit will be implemented.

Compensatory mitigation for loss of the tree will include planting of one 15-gallon interior live oak tree for each inch of diameter of the removed tree, based on the measured size in the permit application. If tree removal occurs more than 2 years after the application is prepared, the tree will be remeasured and mitigation will be based on the current diameter. The planted trees will be irrigated for up to 3 years and monitored annually for survival and size. Remedial plantings will be planted and monitored in the same manner if there is less than 80% survival, or as required by the tree permit.

f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

There is no adopted habitat conservation plan that covers the project area. The South Sacramento Habitat Conservation Plan covers the project area, but this plan is still in draft phase.

3.5 Cultural Resources

Two broad types of historical resources can be expected in the project vicinity: historic built environment (historic buildings and structures) and archaeological sites (including Native American sites and non-Indian historic sites). For the purposes of cultural resources management in California, a resource is considered historic in age if it is 45 years or older at the time of identification (Office of Historic Preservation 1995), although not all historic structures constitute significant historic resources, as age is only one factor considered in evaluation of significance.

3.5.1 Existing Conditions

3.5.1.1 Environmental and Cultural Setting

Native American Archaeological and Ethnographic Summary

Native Americans may have inhabited the Sacramento Valley as early as 10,000 years ago or more, although the evidence for early human occupation likely is buried by deep alluvial sediments that accumulated rapidly during the late Holocene Epoch (ca. 13,500 years ago to present). Archaeological remains of this early period allegedly have been identified in and around the Central Valley, but the antiquity of some of the finds is disputed (Johnson 1967:283–284; Rosenthal et al. 2007:151).

Recent excavations at Sacramento City Hall (Sacramento City Hall overlies the Indian village of Sacum'ne, CA-SAC-38[1]) reveal the earliest confirmed habitation of the immediate Sacramento vicinity. Obsidian hydration age estimates on artifacts suggest use of the site during 3000–8000 before present[2] (B.P.) Three radiocarbon assays yielded conventional dates of 5870, 6690, and 6700 B.P. The radiocarbon assays were taken between 9.8 feet (ft) and 11.5 ft below ground surface. (Tremaine 2008:99–101)

Later periods of prehistory are better understood because of their more abundant representation in the archaeological record. Fredrickson (1973) identified three general patterns of cultural manifestations for the period between 4500 and 100 B.P.: the Windmiller, Berkeley, and Augustine Patterns.

The Windmiller Pattern (4500–2800 B.P.) shows evidence of a mixed economy consisting of the generalized hunting of game, fishing, and use of wild plant foods. Settlement strategies during the Windmiller period reflect seasonal occupation of valleys during the winter and of foothills during the summer (Moratto 1984:201, 206).

Cultural changes are manifested in the Berkeley Pattern (3500–2500 B.P.). Technological changes in groundstone from handstones and milling slabs to the mortar and pestle indicate a greater dependence on acorns, and the presence of a wide variety of projectile points and atlatls indicates hunting was still an important activity (Fredrickson 1973).

[1] CA-SAC-38 is a number referred to as a trinomial, assigned by the California Historical Resources Information System. CA-SAC-38 is the 38th archaeological site recorded with the California Historical Resources Information System in Sacramento County, California.

[2] By convention, "present" is A.D. 1950. A date of 100 B.P. corresponds to a calendar date of A.D. 1850.

The Berkeley Pattern was superseded by the Augustine Pattern around 1450 B.P., reflecting a change in subsistence and land use patterns similar to those of the ethnographically known people of the proto-historic era (such as the Plains Miwok). This pattern exhibits a great elaboration of ceremonial and social organization, including the development of social stratification. Complex exchange systems, further reliance on acorns, and a wide variety of artifacts (flanged tubular smoking pipes, harpoons, clamshell disc beads, and an especially elaborate baked clay industry, which included figurines and pottery vessels called *Cosumnes Brownware*) are associated with the Augustine Pattern. Increased village sedentism, population growth, and an incipient monetary economy are also hallmarks of this pattern (Moratto 1984:211, 213).

The Plains Miwok are part of the larger Eastern Miwok group that forms one of the two major divisions of the Miwokan subgroup of the Utian speakers and possessed a material culture similar to the Berkeley Pattern described in the previous paragraph. The Plains Miwok lived along the Sacramento, Cosumnes, and Mokelumne Rivers. Like their Nisenan neighbors to the north, the Plains Miwok built their homes on high ground above the flood zone, with major villages concentrated along the larger waterways. Conical homes were constructed with poles and thatching of brush, grass, or tule, and semisubterranean earth-covered homes were built as well. Major villages contained an assembly house, which was a semisubterranean structure with a diameter of 40 to 50 ft, as well as a sweathouse, which was a scaled-down version of the assembly house. (Levy 1978:408–409, Figure 1.)

The Plains Miwok gathered food resources as the seasons varied. As with most California tribes, the Plains Miwok relied heavily on the acorn for subsistence. Other gathered foods included nuts, seeds, roots, greens, berries, and mushrooms. Animal foods included tule elk, pronghorn antelope, jackrabbits, squirrels, beaver, quail, and waterfowl. Salmon was the dominant animal food resource, ranking above other river resources, such as sturgeon. Salt, nuts, basketry, and obsidian were obtained through trade with the Sierra Miwok to the east, for shells, basketry, and bows obtained in turn through trade from the west. (Levy 1978:402–405, 411–412.)

Technological items of the Plains Miwok are similar to those of the Valley Nisenan (see below). Wooden digging sticks, poles, and baskets were used for gathering vegetal resources, and stone mortars, pestles, and cooking stones were used for processing. Items used for obtaining animal resources included nets, snares, seines, bows, and arrows. Arrow points were made primarily of basalt and obsidian. (Levy 1978:405–406)

Based on this review of Native American archaeology and ethnography, four types of prehistoric archaeological resource have the potential to occur in the project area: midden sites, isolated burials and features, lithic scatters, and isolated artifacts. Midden sites usually are distinguished by a high organic content resulting from human occupation and food discard that causes soil to be noticeably darker, and they can vary greatly in size. They are often the most complex site type in the project vicinity. Lithic scatters are collections of flaked- and/or ground-stone debris, including tools and debitage that relate to post-quarry reduction and tool-manufacturing efforts. Burial sites and isolated artifacts require no explanation, although it should be pointed out that Native American burial sites frequently are not marked as a result of age and past vandalism. Any of these resource types might be observable on the ground surface or buried by recent flood deposits or fill dirt.

Historical Setting

The dominant historical context pertaining to this impact analysis is flood control, as the only cultural resource identified in the project area is a flood control feature (Unionhouse Creek).

Historically, much of the Sacramento Valley was marsh and swampland, and there was seasonal flooding and periodic inundation of usually dry areas. Starting in the nineteenth century, flood control and land reclamation projects were undertaken to make the area habitable for larger populations and to expand acreage for agriculture.

In 1861, the legislature created the State Board of Reclamation Commissioners and authorized the formation of reclamation districts to protect the American and Yolo basins, and lower Sacramento County from flooding. Improvements began in 1863 and by 1865 resulting in the construction of 41 kilometers (km) of levees and 32 km of drainage canals. These efforts, however, were never completed and flooding in the area continued (Thompson 1958). Additionally, early flood control efforts often conflicted with one another, as in the case of the 1862 east-bank Sacramento River Levee, which removed the natural outlet for Unionhouse and Morrison Creeks. The result was exacerbation of local flooding in southern Sacramento County. (JRP Historical Consulting Services 2003:8.)

In 1911, the California established the State Reclamation Board that had jurisdiction over reclamation districts and levee plans. That same year, with approval from the state, the Sacramento Flood Control Plan was implemented. which proposed the construction of levees, weirs, and bypasses along the river. Under this plan, the state created new reclamation districts and placed existing districts under the jurisdiction of the State Reclamation Board. Currently, the greater Sacramento area flood control measures are made up of a series of levees and dams with drainage facilitated by a system of canals and laterals that carry water to various pumping plants and ultimately the Sacramento River. (Jones & Stokes 2006:30.)

Unionhouse Creek and other creeks in the South Sacramento River Streams Group were channelized between 1937 and 1953 and were further modified from the 1950s onward as the expansion of residential subdivisions into south Sacramento gave additional urgency to local flood control (JRP Historical Consulting Services 2003:8).

3.5.1.2 Methods

The methods employed in this impact analysis consisted solely of a records search and literature review because the entire project area has been surveyed for cultural resources within the last 10 years, obviating the need for additional survey (see discussion below).

ICF International (ICF) conducted a records search at the North Central Information Center (NCIC) of the California Historical Resources Information System (CHRIS) on March 7, 2012. The NCIC maintains the CHRIS's official records of previous cultural resource studies and known cultural resources in a six-county area that includes Sacramento County. ICF staff reviewed the NCIC's base maps of previous studies and known cultural resources for the area of potential effects (APE) and a 0.75-mile (mi) buffer surrounding the project area. ICF also consulted the following sources at the NCIC and ICF's cultural resources library.

- *California Inventory of Historic Resources* (Department of Parks and Recreation 1976 and updates).
- *California Points of Historical Interest* (Department of Parks and Recreation 1992 and updates).
- *California Historical Landmarks* (Department of Parks and Recreation 1996 and updates).
- *Historic Spots in California* (Hoover et al. 1966; Hoover et al. 1990, 2002).

- *California Place Names* (Gudde 1998).
- *History Happened Here* (Pinkerton 2002).
- Ethnographic sources (Kroeber 1976; Levy 1978; Wilson and Towne 1978).
- *A Geoarchaeological Overview and Assessment of Caltrans District 3* (Meyer and Rosenthal 2008).
- Directory of Properties in the Historic Property Data File for Sacramento County.
- Archeological Determinations of Eligibility for Sacramento County.
- The National Register of Historic Places (listings on file at the NCIC).
- California Register of Historical Resources (CRHR) (listings on file at the NCIC).
- California Department of Transportation (Caltrans) Local Agency Bridges and State Bridges Inventories (1987 and 2000)
- Historic maps (United States Department of the Interior Geological Survey 1947, 1980).

The records search and literature review indicate that 10 cultural resource studies have been conducted in the APE, resulting in complete survey coverage of the APE within the last 10 years (Derr 1997; Jones & Stokes 2006; JRP Historical Consulting Services 2003; Syda et al. 1995; U.S. Army Corps of Engineers 1998, 2004a, 2004b; U.S. Army Corps of Engineers et al. 2008; Waechter 2003, 2005).

One cultural resource has been identified in the APE: P-34-1363[3] (Channelized Beacon/Union House and Morrison Creeks) (Jones & Stokes 2006:50; JRP Historical Consulting Services 2003:18). It is described below. Within 0.75 mi of the APE, other previously recorded cultural resources consist of historic (modified) roadways, the Western Pacific Railroad, three middle–twentieth century residences, and seven historic residential and ranching sites comprising structural remnants (Derr 1997; EDAW 2003; Jones & Stokes 2006; JRP Historical Consulting Services 2003; Syda et al. 1995; Waechter 2003, 2005).

To assess the potential for buried archaeological properties to exist within the APE, ICF also examined a regional geoarchaeological overview, geotechnical documents, geologic maps, and soil surveys (Cole et al. 1954; Kleinfelder 2007; Meyer and Rosenthal 2008; Strand and Koenig 1966; Tugel 1993).

P-34-1363 (Channelized Beacon/Union House and Morrison Creeks)

P-34-1363, which includes Unionhouse Creek, was a natural waterway channelized between 1937 and 1953. Unionhouse Creek is tributary to Morrison Creek and winds southwestward to Beach and Stone Lakes. The stream's access to the Sacramento River has been hindered since construction of the Sacramento River east levee in 1862. Subsequent to channelization, further modifications to the creek, such as the addition of levees and concrete surfaces, were done. Regarding the historical significance of P-34-1363, Webb (2002) writes:

> This segment of levees along Morrison and Union House creeks do not appear to be eligible for inclusion in the National Register of Historic Places. Under Criterion A, these resources do not appear

[3] P-34-1363 is a Primary Number that the CHRIS assigned to this resource. Sacramento is alphabetically the 34th county in California and 1363 represents the 1,363rd cultural resource to be assigned a primary number in this county.

> to have important associates with significant events, especially within the context of 20th century flood control in the Sacramento Valley. The structures do not appear to have important associations with historically significant individuals (Criterion B), nor do the channels and levees appear to be significant for their design or construction (Criterion C). The engineering technology used in the construction of the levees with in [sic] the study area is otherwise well documented, and therefore, would not qualify for listing under Criterion D.

Webb (2002), Jones & Stokes (2006:50), and the State Historic Preservation Officer (SHPO) (Donaldson 2006) all concluded that P-34-1363 is not eligible for listing in the National Register of Historic Places (NRHP) and does not qualify as a historical resource for the purposes of CEQA.

3.5.2 Regulatory Setting

3.5.2.1 California Environmental Quality Act

CEQA requires public agencies that finance or approve public or private projects to assess the effects of the proposed project on cultural resources. Cultural resources are defined as buildings, sites, structures, or objects that might have historical, architectural, archaeological, cultural, or scientific importance. CEQA requires that, if a project results in significant effects on important cultural resources, alternative plans or mitigation measures be considered; however, only significant cultural resources need to be addressed. Therefore, prior to the development of mitigation measures, the importance of cultural resources must be determined. The steps that normally are taken in a cultural resources investigation for CEQA compliance are as follows.

1. Identify cultural resources.
2. Evaluate the significance of resources.
3. Evaluate the effects of a project on all significant (historical and unique archaeological) resources.
4. Develop and implement measures to mitigate the effects of the project only on historical and unique archaeological resources.

CEQA defines three ways that a cultural resource may qualify as a historical resource for the purposes of CEQA review.

- The resource is listed in or determined eligible for listing in the CRHR.
- The resource is included in a local register of historical resources, as defined in Public Resources Code (PRC) 5020.1 [k].
- The resource is identified as significant in a historical resource survey meeting the requirements of PRC 5024.1 (g) unless the preponderance of evidence demonstrates that it is not historically or culturally significant. The lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record (14 California Code of Regulations [CCR] 15064.5[a]).

The CEQA statutes define a historical resource as “a resource listed or eligible for listing on the California Register of Historical Resources (CRHR)” (PRC 5024.1). A historical resource may be eligible for inclusion in the CRHR if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.

2. Is associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, CEQA distinguishes between two classes of archaeological resources: archaeological sites that meet the definition of a historical resource as defined above, and "unique archaeological resources." An archaeological resource is considered unique if it:

- Is directly associated with an event or person of recognized significance in California or American history or recognized scientific importance in prehistory.
- Can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions.
- Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind. (PRC 21083.2)

3.5.2.2 Section 106 of the National Historic Preservation Act

SAFCA is seeking authorization from the U.S. Army Corps of Engineers (USACE) for the proposed project under Section 404 of the Clean Water Act. As such, the USACE is responsible for considering the effects that the proposed project might engender on significant cultural resources (termed *historic properties*) under Section 106 of the National Historic Preservation Act and its implementing regulation, 36 CFR 800. Section 106 requires that, before beginning any undertaking, a federal agency must take into account the effects of the undertaking on historic properties and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on these actions. The Section 106 process has five steps.

- Initiate the Section 106 process.
- Identify and evaluate historic properties.
- Assess effects of the proposed project on historic properties within the APE.
- If historic properties are subject to adverse effects, the federal agency, SHPO, and any other consulting parties (including Indian tribes) continue consultation to seek ways to avoid, minimize, or mitigate the adverse effect. A memorandum of agreement (MOA) is usually developed to document the measures agreed upon to resolve the adverse effects.
- Proceed in accordance with the terms of the MOA.

Specific regulations regarding compliance with Section 106 state that, although the tasks necessary to comply with Section 106 may be delegated to others, the federal agency (in this case, USACE) is ultimately responsible for ensuring that the Section 106 process is completed according to statute.

Properties eligible for inclusion in the NRHP must meet one of the registration criteria defined below:

- **Criterion A:** Properties associated with events that have made a significant contribution to the broad patterns of history.
- **Criterion B:** Properties associated with persons significant in our past.

- **Criterion C:** Properties that embody distinctive characteristics of a type, period, or method of construction, or are the work of a master a master, or possess high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction.
- **Criterion D:** Properties that yield or may yield information important to history.

In addition to meeting one of the above criteria, a property must retain integrity. The NRHP evaluates integrity based on seven aspects:

- **Location:** The place where the historic property was constructed or the place where the historic event occurred.
- **Design:** The combination of elements that crate the form, plan, space, structure, and style of a property.
- **Materials:** The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
- **Workmanship:** The physical evidence of the crafts of a particular culture of people during any given period in history or prehistory.
- **Setting:** The physical environment of a historic property.
- **Feeling:** A property's expression of the aesthetic or historic sense of a particular period of time.
- **Association:** The direct link between an important historic event or person and a historic property.

3.5.3 Environmental Effects

As stated above, the entire project area has been surveyed for cultural resources in the last 10 years. One cultural resource has been identified in the APE: P-34-1363 (Channelized Beacon/Union House and Morrison Creeks) (Jones & Stokes 2006:50; JRP Historical Consulting Services 2003:18). P-34-1363 was evaluated for eligibility to the NRHP and for significance under CEQA. It was determined ineligible for listing on the NRHP and is not considered a historical resource for the purposes of CEQA (Donaldson 2006:3; Jones & Stokes 2006:50).

Assessments for buried archaeological site potential in the project area have varied. Syda et al. (1995) did not recommend monitoring or archaeological prospection in the project area. Waechter (2003:29, Figure 3, 2005:5, Figure 3) recommended that professional archaeologists monitor excavation between Center Parkway and Bruceville Road because about 60% of this area contains well-drained San Joaquin silt loam covered by pavement and therefore could not be surveyed. USACE archaeologists have not regarded the project area as being sensitive for the presence of cultural resources (U.S. Army Corps of Engineers 1998, 2004a, 2004b; U.S. Army Corps of Engineers et al. 2008). Meyer and Rosenthal (2008:Figure 54) map the project vicinity as overlying latest Holocene (2000–150 years) and late Holocene (4000–150 years) buried soils. However, no archaeological discoveries or buried soils were reported along the Freeport Regional Water Project during construction of that project, which parallels the present project area on the same land formation 80 ft to the south (Chotkowski 2010:2; ICF International 2011:3; ICF Jones & Stokes 2008:3, 2009:3; Leigh 2011). On the whole, given the number of pedestrian surveys in the project area and nearby construction observations, the archaeological sensitivity of the project area is low.

a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

The proposed project would not result in a substantial adverse change in the significance of a historical resource. No historical resources have been identified in the project area and the preceding analysis shows that the likelihood of encountering buried archaeological resources in the project area is low. Nonetheless, there is a very small chance that construction of the proposed project would encounter buried cultural resources that qualify as historical resources. See Impact CUL-1 below.

Impact CUL-1: Inadvertent Damage of Buried Cultural Resources during Ground Disturbance

Ground-disturbing activities such as excavation to widen the Unionhouse Creek channel or preparing the ground surface for staging and access may result in inadvertent damage to buried cultural resources, which may qualify as historical or unique archaeological resources as defined in Section 15064.5. Although the potential for this impact to occur is slight, such an occurrence likely would result in the removal of archaeological features and artifacts from their context and damage individual objects as well. This loss of scientific information would constitute a substantial adverse change in resource significance because most archaeological resources derive their significance mainly from their capacity to yield information bearing on important research questions. Implementation of Mitigation Measure CUL-MM-1 below would reduce this impact to a less-than-significant level.

Mitigation Measure CUL-MM-1: Stop Work, Assess Resource Significance, and Mitigate If Needed

In the event of an inadvertent cultural resources discovery, construction is to halt near the find. Excavation work or any other earth-moving activities within 100 ft, or greater, if deemed necessary by a qualified archaeologist to protect the resource, will be halted or redirected. Because the proposed project requires permitting from the USACE, SAFCA must ensure that treatment of inadvertently discovered cultural resources complies with 36 CFR 800.13. To do so, the contractor or construction manager will immediately notify the USACE permit manager of the discovery by telephone. SAFCA also will retain a qualified cultural resource specialist to examine the discovery.

If the USACE does not delegate authority for treating the discovery to SAFCA, the agency's cultural resource specialist will prepare a memorandum documenting the discovery and the circumstances leading to its identification, as well as significance recommendations (if possible to make on the basis of field observations). SAFCA will forward the memorandum to USACE within 24 hours of the discovery. If the resource appears to meet the appropriate eligibility criteria, the resource may be assumed to be eligible, and efforts can subsequently focus on the resolution of adverse effects (mitigation) pursuant to 36 CFR 800.13(c).

USACE has 48 hours from the time of the discovery in which to review the memorandum, make any necessary clarifications and revisions, and provide the memorandum to the SHPO and SAFCA. In the event the discovery appears to meet the NRHP criteria, USACE also will transmit the memorandum to the ACHP.

The SHPO, SAFCA, and ACHP have 48 hours from the receipt of the memorandum to present comments to USACE; USACE may regard lack of comment within 48 hours as concurrence with

its recommendation (36 CFR 800.13[b][3]). Once these consultations have occurred and if USACE makes a determination of non-significance, construction may resume in the discovery area upon the receipt of USACE's express authorization to proceed and under the direction of a qualified cultural resources specialist. If the discovery was determined to be NRHP- and CRHR-eligible, the aforementioned parties will agree on measures to test excavate and mitigate construction impacts on the resource. Construction work will not be permitted within 100 ft of the discovery until the USACE confirms that the measures agreed upon have been completed satisfactorily.

In the event that the USACE declines to comment on the discovery or authorizes SAFCA to handle the discovery, a qualified cultural resources specialist will be retained to provide SAFCA with a recommendation on the eligibility of the find for the CRHR. SAFCA makes the final determination.

If the find is not eligible for the CRHR, the cultural resource specialist will complete document the find and, upon SAFCA's approval of the documentation, approve the resumption of construction in the area of the find.

If the find is eligible, SAFCA and the cultural resources specialist will devise and implement an avoidance plan or an appropriate mitigation plan. If the find includes human remains, those remains are to be treated under the protocol for treatment of human remains (see Impact CUL-2). SAFCA will continue to treat the portion of the find not subject to Health and Safety Code and (HSC) 7050.5 and PRC 5097.98 under this mitigation measure.

b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?

No unique archaeological resources have been identified in the project area, and the cultural resources sensitivity analysis provided in the introduction to this environmental effects section indicates low potential for inadvertent discoveries of unique archaeological discoveries during construction. See Impact CUL-1 and Mitigation Measure CUL-MM-1 above.

c. Disturb any human remains, including those interred outside of formal cemeteries?

As discussed in this environmental effects section, the likelihood of unearthing human remains in the project area is low. Nevertheless, there is some potential, however remote, that ground disturbance in the project area would disturb human remains. See Impact CUL-2 below.

Impact CUL-2: Inadvertent Damage of Human Remains during Construction

The willful damage or other disturbance of human remains is prohibited under the California Health and Safety Code and PRC. Human remains often are found in the midst of other archaeological remains, so such discoveries have the potential to compromise scientific values as well as cultural ones held by descendant communities. This impact would be significant under CEQA. Implementation of Mitigation Measure CUL-MM-2 below would reduce this impact to a less-than-significant level.

Mitigation Measure CUL-MM-2: Stop Work and Treat Remains in Accordance with State Laws

If the human remains are discovered during construction activities, SAFCA and its contractors must comply with HSC 7050.5 and PRC 5097.98. All excavation activities within 100 feet immediately will stop, and the area will be protected with flagging or by posting a monitor or construction worker to ensure that no additional disturbance occurs. If the discovery occurs at the end of the work day, the area must be secured by posting a guard, covering with heavy metal plates (if the human remains are found below grade), covering with other impervious material, or making other provisions to prevent damage to the remains.

SAFCA or its authorized representative will contact the Sacramento County Coroner at (916) 874-9320. The coroner will notify the Native American Heritage Commission (NAHC), while SAFCA notifies the USACE.

The coroner will have 2 working days to examine the remains after being notified in accordance with HSC 7050.5. If the coroner determines that the remains are Native American and are not subject to the coroner's authority, the coroner has 24 hours to notify the NAHC of the discovery.

The NAHC immediately will assign and notify a most likely descendant (MLD) of the remains, who will have 48 hours after inspecting the remains to make recommendations for treatment of them. Work will be suspended in the area of the find until the USACE (if participating) and SAFCA approves the proposed treatment of the human remains.

3.6 Geology and Soils

3.6.1 Existing Conditions

The project area is located in the southern portion of the Sacramento Valley in the northern portion of California's Great Valley Geomorphic Province. The Great Valley is a narrow, elongated topographic depression that is approximately 450 miles long and 40 to 70 miles wide. The basin is bordered by the Sierra Nevada plutonic complex to the east and the California Coast Ranges to the west, and the Klamath and Cascade Mountains to the north. The Sacramento Valley contains thousands of feet of accumulated fluvial, overbank, and fan deposits resulting from erosion of these surrounding ranges (Hackel 1966).

The project area is situated on vast alluvial deposits that have slowly accumulated over the last 100 million years. The materials have been derived from igneous, metamorphic, and sedimentary parent rock materials from the Sierra Nevada to the east, transported by major streams and deposited in successive clay, silt, sand, and gravel layers on the valley floor. The geologic formations underlying the southern portion of the Sacramento Valley range in age from pre-cretaceous to recent.

Dominant soils in the project area are the Clear Lake Clay and Galt Clay soils, formed in alluvium derived from mixed rock sources. Slopes in this series range from 0 to 2%. These soils are moderately deep and consist of a silt loam at the surface with a subsoil of claypan underlain by cement hardpan.

The closest known active seismic fault is the Dunnigan Hills fault located approximately 20 miles northwest of the city of Sacramento. Inactive faults in the vicinity include the Midland fault located approximately 20 miles west of the city of Sacramento and the Bear Mountain fault zone located east of Sacramento County.

3.6.2 Regulatory Setting

3.6.2.1 Federal

The following federal regulations related to geology, seismicity, and soils may apply to implementation of the project.

Section 402 of the Federal Clean Water Act

Section 402 of the Clean Water Act (CWA) mandates that certain types of construction activity comply with the requirements of the EPA's National Pollutant Discharge Elimination System (NPDES)program. The EPA has delegated to the State Water Board the authority for the NPDES program in California, where it is implemented by the state's nine Regional Water Quality Control Boards (Regional Water Boards). Construction activity disturbing 1 acre or more must obtain coverage under the state's General Permit for control of stormwater both during and after project implementation.

The Central Valley Regional Water Board administers the NPDES stormwater permit program in Sacramento County. Obtaining coverage under the General Permit requires that the project applicant:

- File a notice of intent (NOI) to obtain coverage under the General Permit before construction begins.
- Prepare and implement a stormwater pollution prevention plan (SWPPP).
- File a notice of termination with the State Water Board when construction is complete and the construction area has been permanently stabilized.

The SWPPP describes proposed construction activities, receiving waters, stormwater discharge locations, and BMPs that will be used to reduce project construction effects on receiving water quality. The components of the SWPPP most relevant to geology and soils are erosion and sediment control measures. More information on the NPDES and SWPPP is provided in Section 3.9, Hydrology and Water Quality.

3.6.2.2 State

The following state regulations related to geology, seismicity, soils, and mineral resources may apply to implementation of the project.

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (Public Resources Code [PRC] Section 2621 *et seq.*), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as *active*, and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

Under the Alquist-Priolo Act, faults are zoned, and construction along or across faults is strictly regulated if they are sufficiently active and well defined. A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during the Holocene Epoch (considered present time and defined for purposes of the act as approximately the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface using standard professional techniques, criteria, and judgment. (Hart and Bryant 1997.)

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped seismic hazard zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within seismic hazard zones until appropriate site-specific geologic and geotechnical investigations have been carried out and measures to reduce potential damage incorporated into the development plans.

3.6.2.3 Local

The following local regulation related to geology, seismicity, and soils may apply to implementation of the project.

City of Sacramento Grading, Erosion, and Sediment Control Ordinance

The City of Sacramento Grading Ordinance sets forth rules and regulations to control land disturbances, landfill, soil storage, pollution, and erosion and sedimentation resulting from construction activities. The ordinance requires that the proponents of projects that involve land grading prepare and implement an erosion and sediment control plan to control accelerated erosion and sedimentation during preconstruction- and construction-related grading, and a post-construction erosion and sediment control plan to address similar issues once grading is complete.

3.6.3 Environmental Effects

a(i). Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving the 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?

There are no known faults located in the immediate vicinity of the project area. Therefore, there would be no impact.

a(ii). Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

The seismic ground shaking hazard in the project area is low to moderate, and the only permanent structures that would be constructed as part of the proposed project would be the concrete-lined channel itself, replacement sump pump and outlet structure and relocation of an antenna tower. The proposed project would not involve the construction of habitable structures and would not change the susceptibility of the channel to seismic shaking. Therefore, there would be no impact.

a(iii). Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

The soils and sediments at the project area are potentially susceptible to liquefaction because of their composition of silts and sands and the potential presence of groundwater within 50 feet of the surface. However, as described above, the project would not result in construction of any structures and would not change the susceptibility of the channel to liquefaction. Therefore, there would be no impact.

a(iv). Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

There are no landslide hazards associated with the project area. The proposed project would not result in any substantial alterations to the existing topography or landslide hazard. There would be no impact.

b. Result in substantial soil erosion or the loss of topsoil?

Impact GEO-1: Accelerated Erosion and Sedimentation

Ground disturbance caused by project construction activities and stockpiling of soil material has the potential to increase erosion and sedimentation rates above preconstruction levels. However, SAFCA would prepare and implement a SWPPP to address erosion, stormwater runoff, sedimentation, and other construction-related pollutants during project construction until all areas disturbed during construction have been permanently stabilized. The preparation and implementation of the SWPPP is necessary to comply with the requirements of the county's erosion control ordinance and the state's NPDES general construction activity stormwater permit. The specific BMPs that would be incorporated into the SWPPP would be determined during the final design phase and would be prepared in accordance with the Regional Water Board field manual. However, the plan likely would include, but not be limited to, one or more of the following standard erosion and sediment control BMPs:

- ***Timing of construction.*** The construction contractor would conduct all construction activities prior to October 31 to avoid ground disturbance during the rainy season.
- ***Staging of construction equipment and materials.*** To the extent possible, equipment and materials would be staged in areas that have already been disturbed.
- ***Minimize soil and vegetation disturbance.*** The construction contractor would minimize ground disturbance and the disturbance/destruction of existing vegetation. This would be accomplished in part through the establishment of designated equipment staging areas, ingress and egress corridors, and equipment exclusion zones prior to the commencement of any grading operations.
- ***Stabilize spoils.*** Spoils generated during construction would be stockpiled in staging areas located away from Unionhouse Creek. Silt fences, fiber rolls, or similar devices would be installed around the base of the temporary stockpiles to intercept runoff and sediment during storm events. If necessary, temporary stockpiles may be covered with an appropriate geotextile to increase protection from wind and water erosion.
- ***Install sediment barriers.*** The project proponent may install silt fences, fiber rolls, or similar devices to prevent sediment-laden runoff from leaving the construction area.
- ***Stormwater drain inlet protection.*** The project proponent may install silt fences, drop inlet sediment traps, sandbag barriers, and/or other similar devices.
- ***Permanent site stabilization***. The construction contractor will install structural and vegetative methods to permanently stabilize all graded or otherwise disturbed areas once construction is complete, excluding the soil stockpiles, which would have their own erosion control measures that would be specified in the SWPPP. Structural methods may include the installation of biodegradable fiber rolls and erosion control blankets. Vegetative methods may involve the application of organic mulch and tackifier and/or the application of an erosion control seed mix.

Implementation of a SWPPP would substantially minimize the potential for project-related erosion and sedimentation and associated adverse effects on water quality. Because all project-related soil disturbance would occur in the channel or in the open space between the creek and Cosumnes River Boulevard, the project would not result in the loss of topsoil resources. Therefore, this impact is considered less than significant.

c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

The proposed project would not result in the instability of soil or geologic units and would maintain the same slope ratios that currently exist in the channel. Weep holes in the concrete lining would avoid the buildup of excessive soil water pore pressure behind the concrete. Therefore, there would be no impact.

d. 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?

The proposed project would not involve the construction or placement of structures on expansive soils, as there are no expansive soils in the project area. There would be no impact.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

The proposed project would not generate wastewater. There would be no impact.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No unique geologic features that could be adversely affected by project construction are known to exist near the project. There would be no impact.

3.7 Greenhouse Gas Emissions

This section provides an analysis of climate change impacts resulting from the proposed project. It describes greenhouse gas (GHG) emissions commonly generated, discusses recent GHG inventories, and summarizes the current regulatory framework related to GHG emissions and climate change. Environmental impacts related to climate change, as well as mitigation measures to reduce or eliminate potential impacts, also are discussed.

3.7.1 Existing Conditions

The principal GHGs contributing to global warming are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluoridated compounds. Because construction equipment and heavy duty trucks generate primarily GHG emissions consisting of CO_2 CH_4, and N_2O, the following discussion focuses on these pollutants.

CO_2 is the most important anthropogenic GHG, followed by CH_4 and N_2O. It is estimated that CO_2 accounts for more than 75% of all anthropogenic GHG emissions. Three quarters of anthropogenic CO_2 emissions are the result of fossil fuel burning (and to a very small extent, cement production), and approximately one quarter of emissions is the result of land-use change (Intergovernmental Panel on Climate Change 2007). CH_4 is the second largest contributor of anthropogenic GHG emissions and is the result of growing rice, raising cattle, fuel combustion, and mining coal (National Oceanic and Atmospheric Administration 2005). N_2O, while not as abundant as CO_2 or CH_4, is a powerful GHG. Sources of N_2O include agricultural processes, nylon production, fuel-fired power plants, nitric acid production, and fuel combustion.

In order to simplify reporting and analysis, methods have been set forth to describe emissions of GHGs in terms of a single gas. The most commonly accepted method to compare GHG emissions is the global warming potential (GWP) method defined in the Intergovernmental Panel on Climate Change (IPCC) reference documents (Intergovernmental Panel on Climate Change 1996, 2001). The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2 equivalents (CO_2e), which compares the gas in question to that of the same mass of CO_2 (CO_2 has a GWP of 1 by definition). Table 3.7-1 lists the GWP of CO_2, CH_4, and N_2O; their lifetimes; and abundances in the atmosphere in parts per million (ppm) and parts per trillion (ppt).

Table 3.7-1. Lifetimes and Global Warming Potentials of Principal Greenhouse Gases

Greenhouse Gas	Global Warming Potential (100 years)	Lifetime (years)	2005 Atmospheric Abundance
Carbon dioxide (ppm)	1	50–200	379
Methane (ppt)	21	9–15	1.7
Nitrous oxide (ppt)	310	120	0.32
Sources: Intergovernmental Panel on Climate Change 1996, 2001, 2007.			

3.7.2 Regulatory Setting

Climate change only recently has been widely recognized as an imminent threat to the global climate, economy, and population. Thus, the climate change regulatory setting—nationally, statewide, and locally—is complex and evolving. The following section identifies key legislation, executive orders, and seminal court cases relevant to the environmental assessment of project GHG emissions.

3.7.2.1 Federal

Endangerment Finding

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act (CAA).

1. **Endangerment Finding:** that the current and projected concentrations of the greenhouse gases in the atmosphere threaten the public health and welfare of current and future generations.
2. **Cause or Contribute Finding:** that the combined emissions of greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

Although the Endangerment Finding in itself does not place requirements on industry, it is an important step in the EPA's process to develop regulation of GHGs. This action is a prerequisite to finalizing the EPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009.

President's Council on Environmental Quality Draft Guidance

On February 18, 2010, Nancy Sutley, chair of the President's Council on Environmental Quality (CEQ), issued a memorandum (Draft Guidance) providing guidance on consideration of the effects of climate change and GHG emissions under NEPA (Council on Environmental Quality 2010). The Draft Guidance suggests that the effects of projects directly emitting GHGs in excess of 25,000 tons annually be considered in a qualitative and quantitative manner. The CEQ does not propose this reference as a threshold for determining significance but as "a minimum standard for reporting emissions under the CAA." The Draft Guidance also recommends that the cumulative effects of climate change on the proposed project be evaluated. The Draft Guidance is undergoing public comments and is not effective until issued in final form (Council on Environmental Quality 2010).

National Tailpipe Standards

On April 1, 2010, the EPA and the National Highway Traffic Safety Administration announced the first national tailpipe standards for new cars and trucks sold in the United States. The program applies to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016, and requires these vehicles to meet combined average fuel economy of 35.5 miles per gallon. It is estimated that these standards will cut GHG emissions by 960 million metric tons over the lifetime of the vehicles (U.S. Environmental Protection Agency 2010).

3.7.2.2 State

The State of California has adopted legislation, and regulatory agencies have enacted policies, addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation and policy activity is not directed at citizens or jurisdictions but rather establishes a broad framework for the state's long-term GHG mitigation and climate change adaptation program. The following key legislation is applicable to the proposed project.

Executive Order S-3-05

Under this Executive Order S-3-05, state agencies ordered to reduce California's GHG emissions to: (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80% below the 1990 levels by 2050.

Assembly Bill 32: Global Warming Solutions Act of 2006

Assembly Bill (AB) 32 sets the same overall year 2020 GHG emissions reduction goals as Executive Order S-3-05, while further mandating that the ARB create a plan that includes market mechanisms) and implement rules to achieve "real, quantifiable, cost-effective reductions" of GHGs. AB 32 further directs state agencies and the newly created state Climate Action Team to identify discrete early-action GHG reduction measures. These actions were adopted in early 2010 and relate to truck efficiency, port electrification, tire inflation, and reduction of perfluorocarbons, propellants, and sulfur hexafluoride.

Climate Change Scoping Plan

The ARB's Climate Change Scoping Plan prepared pursuant to AB 32 contains the main strategies California will use to reduce GHGs from business-as-usual emissions projected for 2020 back to 1990 levels (California Air Resources Board 2008). As part of the scoping plan, the ARB and other agencies are undertaking regulatory rule making, culminating in rule adoption by January 1, 2011, for reducing GHG emissions to achieve the emissions cap by 2020, although official adoption has not yet occurred at the time of this writing.

In March 2011, a San Francisco Superior Court enjoined the implementation of ARB's Scoping Plan, finding the alternatives analysis and public review process violated both CEQA and the ARB's certified regulatory program (*Association of Irritated Residents, et al. v. California Air Resources Board*. Case No. CPF-09-509562, March 18, 2011). In response to this litigation, the ARB is revising and updating the Scoping Plan alternatives, including the preparation of a new CEQA document.

Executive Order S-01-07: Low Carbon Fuel Standard

Executive Order S-01-07 requires a 10% or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by the ARB.

Assembly Bill 1493 (Pavely): Greenhouse Gases, Chapter 200, Statutes of 2002

AB 1493 requires the ARB to adopt regulations to reduce GHG emissions from noncommercial passenger vehicles and light-duty trucks of model years 2009 and later. The regulations were adopted September 24, 2009.

Senate Bill 375 (Steinberg): Statutes of 2008

Senate Bill (SB) 375 requires regional transportation plans developed by metropolitan planning organizations (MPOs) to incorporate a "sustainable communities strategy" that will achieve GHG emission reduction targets set by the ARB.

Senate Bills 1078/107 and Executive Order S-14-08—Renewable Portfolio Standard (2008)

SBs 1078 and 107, California's Renewable Portfolio Standard (RPS), obligate investor-owned utilities (IOUs), energy service providers (ESPs), and Community Choice Aggregations (CCAs) to procure an additional 1% of retail sales per year from eligible renewable sources until 20% is reached, no later than 2010. The CPUC and CEC are jointly responsible for implementing the program. EO S-14-08 set forth a longer-range target of procuring 33% of retail sales by 2020.

State CEQA Guidelines, As Amended in 2010

The State CEQA Guidelines require lead agencies to describe, calculate, or estimate the amount of GHG emissions resulting from a project. Moreover, the guidelines emphasize the necessity to determine potential climate change effects of the project and propose mitigation as necessary. The guidelines confirm the discretion of lead agencies to determine appropriate significance thresholds but require the preparation of an EIR if "there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with adopted regulations or requirements" (Section 15064.4).

California Cap-and-Trade (2011)

On December 16, 2010, ARB approved measures to enact a GHG Cap-and-Trade program for the state of California. The California Cap-and-Trade program will create a market-based system with an overall emissions limit for affected sectors. The program is currently proposed to regulate more than 85% of California's emissions and will stagger compliance requirements according to the following schedule: (1) electricity generation and large industrial sources (2012); (2) fuel combustion and transportation (2015). The ARB adopted Cap-and-Trade on October 20, 2011. The first compliance year when covered sources will have to turn in allowances is 2013 (California Air Resources Board 2011b).

3.7.2.3 Local

Appendix G of the CEQA Guidelines states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to determine the project's level of impact in terms of GHG emissions. The SMAQMD's Guide to Air Quality Assessment in Sacramento County establishes analysis expectations with regard to GHG emissions in CEQA documents such as EIRs (Sacramento Metropolitan Air Quality Management District 2009). The district recommends that an analysis of potential impacts of project-generated GHG emissions should include a description of GHGs, summary of existing regulations, and discussion of GHG emissions sources in the project area. The guidelines further state that the analysis quantifies the mass emissions associated with project construction and operation. Although the guidelines recommend that GHG emissions be quantified, they do not identify thresholds at which emissions are considered significant. Rather, they state that the lead agency should determine a threshold appropriate to the project using either thresholds adopted by other agencies or their own. Finally, the SMAQMD requires that CEQA documents make a conclusion about the significance of project-related GHG emissions and identify feasible mitigation measures to reduce those emissions.

3.7.3 Significance Criteria

Based on the State CEQA Guidelines Appendix G, an impact pertaining to climate change is considered significant if it would:

- Generate a significant amount of GHG emissions, either directly or indirectly.
- Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHGs.

As discussed above, the SMAQMD has not established thresholds to define a "significant amount" of GHGs. Within the state, the Bay Area Air Quality Management District (BAAQMD), South Coast Air Quality Management District (SCAQMD), Mojave Desert Air Quality Management District (MDAQMD), and San Joaquin Valley Air Pollution Control District (SJVAPCD) are among the agencies that have adopted GHG thresholds. Although unadopted, a per capita threshold for transportation projects has been proposed by Sacramento County (Table 3.7-2).

To evaluate significance, this analysis draws on the adopted GHG thresholds in Table 3.7-2 to evaluate GHG emissions, as well as the project's consistency with applicable climate action plans and regulations. In accordance with the SMAQMD CEQA guidelines and scientific consensus regarding the cumulative nature of GHGs[1], the analysis presented herein represents a cumulative, rather than project-level, evaluation of climate change impacts.

[1] Climate change is a global problem, and GHGs are global pollutants, unlike criteria air pollutants (such as ozone precursors), which are primarily pollutants of regional and local concern. Given their long atmospheric lifetimes (see Table 3.7-1), GHGs emitted by countless sources worldwide accumulate in the atmosphere. No single emitter of GHGs is large enough to trigger global climate change on its own. Rather, climate change is the result of the individual contributions of countless sources past, present, and future. Therefore, GHG impacts are inherently cumulative.

Table 3.7-2. Example Greenhouse Gas Thresholds in California

Agency	Threshold	Application
BAAQMD	1,100 (metric tons/year)	Development projects (operational emissions)
	Compliance with GHG reduction strategy	
	4.6 metric tons/service population/year	
	25,000 (metric tons/year)	Stationary source projects (operational emissions)
SCAQMD	10,000 (metric tons/year)	Stationary source projects (operational emissions)
SJVAPCD	Compliance with GHG reduction strategy	Development and stationary source projects (operational emissions)
	Implementation of best performance standards	
	29% reduction in GHG emissions relative to business-as-usual conditions[a]	
MDAQMD	100,000 (short tons/year) 548,000 (pounds/day)	Stationary source projects (operational emissions)
Sacramento County (Draft)	1.30 metric tons per capita	Residential Energy
	8.08 metric tons per capita	Commercial & Industrial Energy
	4.56 metric tons per capita	Transportation projects

Sources: Bay Area Air Quality Management District 2010; South Coast Air Quality Management District 2008; San Joaquin Valley Air Pollution Control District 2009; Mojave Desert Air Quality Management District 2011; Sacramento County 2010.

[a] Defined as emissions that would occur if no GHG mitigation measures were implemented.

BAAQMD = Bay Area Air Quality Management District.
SCAQMD = South Coast Air Quality Management District.
SJVAPCD = San Joaquin Valley Air Pollution Control District.
MDAQMD = Mojave Desert Air Quality Management District.

3.7.4 Environmental Effects

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact GHG-1: GHG Emissions during Construction and Operation of the Proposed Project

Implementation of the proposed project would involve construction activities that would result in short-term GHG emissions. Temporary construction-related GHG emissions would result from site clearing and grubbing, excavation, concrete removal and placement, compaction activities, and utility replacement. Construction-related emissions include direct exhaust emissions from off-road equipment (such as excavators) and on-road equipment (such as cement trucks and worker trucks). Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather. It should be noted that current operations and maintenance (O&M) activities that will cease upon project completion include mowing activities along the creekbed from Center Parkway to Bruceville Road, as the vegetated creek banks along this alignment will be replaced with concrete creek banks that no longer require mowing. Consequently, these emissions represent a net benefit, as they will no longer be emitted once the project is implemented.

Construction and mobile-source operational emissions were estimated using the URBEMIS2007, Version 9.2.4 emissions model. Information regarding project construction phasing, equipment number and types, worker numbers, and site disturbance, were obtained from the project engineers. Construction would consist of seven separate project elements, with multiple construction phases for each element. Construction information used in URBEMIS emissions modeling is summarized in Table 3.3-5 in Section 3.3, Air Quality.

Construction-related GHG emissions were estimated using the following methods: (1) the URBEMIS 2007 software was used to calculate CO_2 emissions, and (2) formulas provided in the Climate Registry's most recent emission factor update (The Climate Registry 2011) were used to calculate CH_4 and N_2O emissions. These emissions then were converted to CO_2e using the GWPs of each gas. Information regarding project construction phasing, equipment number and types, worker numbers, site disturbance, and acres paved were obtained from the project applicant. Construction would consist of seven separate project elements, with multiple construction phases for each element.

Table 3.7-3 summarizes GHG emissions associated with construction activities, as well as the existing emissions associated with O&M activities that will cease to occur upon project implementation.

Table 3.7-3. Summary of Unmitigated Project Greenhouse Gas Emissions

Phase	Tons/Year	Metric Tons/Year				
	CO_2	CO_2	CH_4	N_2O	Other	CO_2e
Clearing/Grubbing	3.75	3.40	0.0001933	0.0000866	–	3.43
Excavation	8.91	8.08	0.0004592	0.0002058	–	8.23
Concrete Removal	17.13	15.54	0.0008828	0.0003957	–	15.54
Compaction	3.43	3.11	0.0001768	0.0000792	–	3.11
Concrete Placement	15.74	14.28	0.0008112	0.0003636	–	14.28
Utility Relocation	7.30	6.62	0.0003762	0.0001686	–	6.62
Bypass Pumping	5.87	5.33	0.0003025	0.0001356	–	5.33
Crushed Rock	0.12	0.11	0.0000062	0.0000028	–	0.11
Employee Commutes	**0.61**	**0.55**	–	–	**0.03**	**0.58**
Construction Total	62.86	57.03	0.0032080	0.0014381	0.03	57.23
Mowing	-0.36	-0.33	-0.0000186	-0.0000083	–	-0.33

[1] Mowing activities will cease with project implementation, as vegetated creek banks will be replaced with concrete creek banks. Consequently, these emissions represent a net benefit, as they will no longer be emitted once the project is implemented.

As indicated in Table 3.7-3, project implementation is anticipated to result in 57.23 metric tons of CO_2e/year, which is the equivalent of 11 passenger vehicles (U.S. Environmental Protection Agency 2011). However, as further indicated in Table 3.7-3, the removal of O&M activities is anticipated to result in a net benefit, as these emissions will no longer be emitted throughout the anticipated lifespan of the proposed project. Consequently, this impact is considered less than significant. In addition, implementation of the following mitigation measures, while not mandatory, will further reduce construction-related GHG emissions.

Mitigation Measure GHG-MM-1 (Optional): Implement SMAQMD Best Management Practices for Reducing Construction-Related Greenhouse Gas Emissions

The project applicant will implement—through construction contract terms and specifications requiring the contractor to adheres to the mitigation —all applicable SMAQMD BMPs for reducing construction-related GHG emissions. Documentation will be provided to the project applicant on a weekly basis. The contract provisions and specifications will authorize the project applicant to sanction contractors for noncompliance. The project applicant will consult with SMAQMD prior to construction about the most current recommended construction BMPs and will adopt those practices. Practices include:

- Improve fuel efficiency from construction equipment:
  - Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (a 5-minute limit is required by the state airborne toxics control measure—13 CCR 2449[d][3], 2485). Provide clear signage that posts this requirement for workers at the entrances to the site.
  - Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.
  - Train equipment operators in proper use of equipment, including limiting idling time, minimizing warm-up time, performing routine maintenance, and optimizing equipment use.
  - Avoid using equipment that is larger than the job requires.
  - Use equipment with new technologies (e.g., repowered engines, electric drivetrains).
- Perform on-site material hauling with trucks equipped with on-road engines (if the air districts or ARB determine them to emit less than the off-road engines).
- Use alternative fuels for generators at construction sites, rather than gasoline or diesel (e.g., propane, solar), or use electrical power.
- Use an ARB-approved low-carbon fuel for construction equipment. (NO_x emissions from the use of low-carbon fuel must be reviewed and increases mitigated.)
- Encourage and provide carpools, shuttle vans, and transit passes for construction worker commutes.
- Reduce electricity use in the construction office by using compact fluorescent bulbs, powering off computers every day, and using the most efficient heating and cooling units available.
- Recycle or salvage non-hazardous construction and demolition debris (goal of at least 75% by weight) to avoid landfill disposal.

b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The State has adopted several polices and regulations for the purpose of reducing GHG emissions (discussed above). The most stringent of these is AB 32, which is designated to reduce statewide GHG emissions to 1990 levels by 2020. As discussed above, implementation of the project would

generate a less-than-significant level of GHG emissions, and implementation of Mitigation Measure GHG-MM-1 will further reduce construction-related GHG emissions. Thus, project-generated GHG emissions would not conflict with the State goals listed in AB 32 or in any preceding state policies adopted to reduce GHG emissions.

3.8 Hazards and Hazardous Materials

3.8.1 Introduction

This section analyzes the potential effects related to hazardous, toxic, and radiological wastes. Hazardous materials and wastes are those substances that, because of their physical, chemical, or other characteristics, may pose a risk of endangering human health or safety or of endangering the environment (California Health and Safety Code Section 25260). Types of hazardous materials include petroleum hydrocarbons, pesticides, and volatile organic compounds (VOCs). Hazardous materials that would be used during construction activities for the project include diesel fuel and other liquids in construction equipment.

3.8.2 Existing Conditions

The USACE completed two environmental site assessments for the South Sacramento County Streams Project Environmental Impact Statement/Environmental Impact Report (EIS/EIR) in 1998 and 2004 (U.S. Army Corps of Engineers 1998, 2004). The purpose of the site assessments was to identify the presence of past and existing releases, or significant threat of a future release, of any hazardous substances or petroleum products in or near the project area. The site assessments were developed by reviewing federal, state, and local databases containing records of hazardous material spills, use, storage, and disposal sites within a 1-mile corridor on each side of the Unionhouse Creek channel. None of the facilities or sources of potential contamination identified in the site assessments are in the vicinity of project construction. Additionally, there are no known hazardous materials sites listed on the California Department of Toxic Substances Control's (CDTSC's) Envirostor database or the State Water Resources Control Board's (State Water Board's) GeoTracker database (California Department of Toxic Substances Control 2007) (State Water Resources Control Board 2012).

Regulations governing the project area originate at both the federal and state levels, but many are implemented and enforced at the local or regional level. Most hazardous materials regulation and enforcement in Sacramento County are managed by its Environmental Management Department (SCEMD), which refers large cases of hazardous materials contamination or violations to the Regional Water Board and the CDTSC.

3.8.3 Regulatory Setting

3.8.3.1 Federal

The principal federal regulatory agency responsible for the safe use and handling of hazardous materials is the EPA. Two key federal regulations pertaining to hazardous wastes are described below. Other applicable federal regulations are contained primarily in CFR Titles 29, 40, and 49.

The following federal policies related to public health and environmental hazards may apply to the implementation of the project.

Resource Conservation and Recovery Act

The Federal Resource Conservation and Recovery Act enables the EPA to administer a regulatory process that extends from the manufacture of hazardous materials to their disposal, thus regulating the generation, transportation, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (also known as Superfund) was passed to facilitate the cleanup of the nation's toxic waste sites. In 1986, the act was amended by the Superfund Amendment and Reauthorization Act Title III (community right-to-know laws). Title III states that past and present owners of land contaminated with hazardous substances can be held liable for the entire cost of the cleanup, even if the material was dumped illegally when the property was under different ownership.

3.8.3.2 State

California regulations are equal to or more stringent than federal regulations. EPA has granted the State of California primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human and environmental health. Several key state laws pertaining to hazardous wastes are discussed below.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as unsafe raw or unused material that is part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the state hazardous waste management program, which is similar to but more stringent than the Federal Resource Conservation and Recovery Act program. The act is implemented by regulations contained in Title 26 CCR, which describes the following elements required for the proper management of hazardous waste.

- Identification and classification.
- Generation and transportation.
- Design and permitting of recycling, treatment, storage, and disposal facilities.
- Treatment standards.
- Operation of facilities and staff training.
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the CDTSC.

3.8.3.3 Local

The Sacramento County General Plan contains goals, objectives, and policies that guide growth and development in areas under County jurisdiction. Relevant policies contained in the plan are listed below.

Policy HM-4 The handling, storage, and transport of hazardous materials shall be conducted in a manner so as not to compromise public health and safety standards.

Policy HM-7 Encourage the implementation of workplace safety programs and to the best extent possible ensure that residents who live adjacent to industrial or commercials facilities are protected from accidents and the mishandling of hazardous materials.

Policy HM-8 Continue the effort to prevent ground water and soil contamination.

Policy HM–9 Continue the effort to prevent surface water contamination.

Policy HM-10 Reduce the occurrences of hazardous material accidents and the subsequent need for incident response by developing and implementing effective prevention strategies.

Policy HM-11 Protect residents and sensitive facilities from incidents which may occur during the transport of hazardous materials in the County.

Policy SA-23. The County shall require, unless it is deemed infeasible to do so, the use of mechanical vegetation control in lieu of burning or the use of chemicals in areas where hazards from natural cover must be eliminated, such as levees and vacant lots.

3.8.4 Environmental Effects

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Impact HAZ-1: Incidental Release of Hazardous Materials during Construction

Project implementation would require the use of hazardous materials such as fuels and lubricants to operate construction equipment and vehicles such as an excavator, a cement truck, and dump trucks. Construction contractors will be required to use, store, and transport hazardous materials in compliance with federal, state, and local regulations during project construction. However, fuels and lubricants could be accidentally released into the environment at the construction site and along haul routes, causing environmental or human exposure to these hazards.

Implementation of a SWPPP, as described under Impact GEO-1 in Section 3.6, Geology and Soils, and HAZ-MM-1 would ensure that the risk of accidental spills and releases into the environment would be minimal and that this impact would be less than significant.

Mitigation Measure HAZ-1: Implement a Spill Prevention, Control, and Countermeasure Plan

SAFCA or its contractor will develop and implement a spill prevention, control, and countermeasure plan (SPCCP) to minimize the potential for and effects from spills of hazardous, toxic, and petroleum substances during construction and operation activities, as well as minimize the effects of unearthing previously undocumented hazardous materials. The SPCCP will be completed before any construction activities begin. Implementation of this measure will comply with state and federal water quality regulations. The SPCCP will describe spill sources and spill pathways in addition to the actions that will be taken in the event of a spill (e.g., an oil spill from engine refueling will be cleaned up immediately with oil absorbents) or the exposure of an undocumented hazard. The SPCCP will outline descriptions of containment facilities and practices such as double-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures, and spill response kits. It also will describe how and when employees are trained in proper handling procedure and spill prevention and response procedures.

SAFCA will review and approve the SPCCP before onset of construction activities and routinely inspect the construction area to verify that the measures specified in the SPCCP are properly implemented and maintained. SAFCA will notify its contractors immediately if there is a non-compliance issue and will require compliance.

If a spill is reportable, the contractor's superintendent will notify SAFCA, and SAFCA will take action to contact the appropriate safety and cleanup crews to ensure that the SPCCP is followed. A written description of reportable releases must be submitted to the Central Valley RWQCB and DTSC. This submittal must contain a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases will be documented on a spill report form.

Impact HAZ-2: Potential Exposure to Hazardous Materials Encountered at Project Site

There is potential that known or previously undocumented hazardous materials could be encountered at the project site. Excavation and construction activities at or near areas of currently unrecorded soil or groundwater contamination could result in the exposure of construction workers, the general public, and the environment to hazardous materials such as petroleum hydrocarbons, contaminated debris, or elevated levels of other chemicals that could be hazardous. At this time, there are no known occurrences of hazardous materials at the project area. However, construction activities in the vicinity of potentially unknown recognized environmental concerns could result in public health hazards.

Implementation of HAZ-MM-1, Implement a Spill Prevention, Control, and Countermeasure Plan, described above would ensure that the effect on public health and the environment would be less than significant.

c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Two schools are located within a 0.25-mile radius of the project— Cosumnes River College at 8401 Center Parkway and Valley High School at 6300 Ehrhardt Avenue, both south of the project. The project will not involve hazardous emissions or the handling of acutely hazardous materials, substances, or waste. However, small quantities of hazardous materials (fuel, engine oil, and hydraulic line oil) would be temporarily handled on site during construction. Potential health and safety hazards related to the proposed project include possible accidental spills involving these fuels and lubricants. Because construction activities are temporary in nature, the handling of minor amounts would be in compliance with applicable regulations, and the operation of the project would not generate industrial wastes or toxic substances. Additionally, implementation of HAZ-MM-1, Implement a Spill Prevention, Control, and Countermeasure Plan, described above, would ensure that the effect on public health and the environment would be avoided. The project effects associated with the emission of hazardous materials near an existing or proposed school would be less than significant.

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The project area is not located on a site included on any list of hazardous materials sites . Therefore, there would be no impact.

e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?

f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?

The project area is not located within an airport land use plan are or within 2 miles of a public airport, public use airport, or in the vicinity of a private airstrip. Therefore, there would be no impact.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Construction-related activities would not involve temporary or permanent obstruction of any major roadways within the city and would not otherwise interfere with emergency operations or evacuations. Therefore, there would be no impact.

h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Impact HAZ-3: Possible Temporary Exposure of People or Structures to Wildland Fires

The project is located within a low moderate to high fire hazard severity zone. Because of the dryness of channel and project area vegetation and the proximity of residential development, the construction-related risk of wildland fires is considered significant. During construction, equipment and vehicles may come in contact with vegetated areas within the creek channel and may

accidentally spark and ignite the vegetation. Therefore, potential effects related to wildland fires are considered significant**.** Implementation of Mitigation Measure HAZ-2 would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-2: Develop and Implement a Fire Management Plan

SAFCA's contractor will develop and implement a fire management plan. The plan will include fire precaution, presuppression, and suppression measures consistent with the policies and standards in the city of Sacramento.

3.9 Hydrology and Water Quality

3.9.1 Existing Conditions

Surface Water

Unionhouse Creek is a perennial stream in the Morrison Creek watershed that generally runs east to west through the project area, and its confluence with Strawberry Creek is located at the eastern end of the project area. Unionhouse Creek is tributary to Morrison Creek to the west, which drains into the Sacramento River. The Morrison Creek watershed drains a large urban and agricultural area, and urban runoff has the potential to introduce commercial and industrial sources of pollutants to the watershed. However, Unionhouse Creek and Morrison Creek are not listed on the 2006 CWA Section 303(d) list of water quality–limited segments for impaired waters.

Unionhouse Creek and Morrison Creek are a primary water source for the Beach and Stone Lakes area. Summer flows and low stormwater flows are diverted from Morrison Creek into the Sacramento River by a pump maintained by the City, which prevents pollutants in urban runoff from reaching the lakes. However, the pump's limited capacity prevents full diversion of local runoff during moderate to high storm events, which allows some runoff to drain into the Beach and Stone Lakes area.

Unionhouse Creek has a concrete-lined bottom and receives urban runoff from municipal storm drains during the dry season. It is highly channelized with a relatively flat gradient. The City of Sacramento maintains the channel by keeping it clear of debris and by mowing vegetation that grows on the banks. The south bank of the creek has a small earthen berm that prevents sheet flow from the adjacent area between the creek and Cosumnes River Boulevard from entering the waterway. The adjacent area south of the creek has a slight slope downward from Cosumnes River Boulevard toward Unionhouse Creek.

Existing conditions modeling of Unionhouse Creek has indicated that the USACE's embankment-lowering completed downstream of Franklin Boulevard has reduced flooding along Unionhouse Creek downstream of Strawberry Creek. However, 100-year flows exceed the channel capacity in a portion of the channel upstream of Franklin Boulevard in the project area (City of Sacramento 2012).

Groundwater

The project area has two saturated water-bearing zones. The first zone is approximately 20 to 50 feet below the ground surface and is referred to as the *shallow saturated zone*. The second zone is approximately 50 to 80 feet below the ground surface and is referred to as the *first aquifer*. Groundwater wells at the Sacramento Regional Wastewater Treatment Plant show seasonal elevation changes of approximately 5 feet. The groundwater system in the project area has very little exchange with the Sacramento River and is hydraulically independent. Groundwater recharge is mostly a result of infiltration from streams in the watershed. It is assumed that groundwater in the project area has similar characteristics to the groundwater below the treatment plant, as they share the same groundwater basin.

Groundwater monitoring has been conducted since 1982 in order to identify potential releases from the treatment plant's solids disposal facility and any associated impacts these leaks would have on local groundwater. More extensive monitoring was implemented in 1990 to comply with the Central Valley Regional Water Board's waste discharge requirements (WDRs). Additional studies of the local groundwater established up-gradient groundwater conditions for the two water-bearing zones discussed above, meaning that groundwater in the project area moves toward the treatment plant (Sacramento Regional County Sanitation District 1994).

Quarterly groundwater monitoring was performed at the treatment plant between 1990 and 1994 for specific conductance, pH, nitrate as elemental nitrogen, chloride, total dissolved solids, arsenic, and chromium. Monitoring results indicated that constituent concentrations varied between monitoring wells, and that concentrations varied greatly between the upper and lower groundwater saturation zones. Cadmium, copper, nickel, and zinc were tested on an annual basis, and the results were below detection limits (Sacramento Regional County Sanitation District 1994).

3.9.2 Regulatory Setting

3.9.2.1 Federal

The following federal regulations related to hydrology and water quality may apply to implementation of the project.

Clean Water Act Sections 404, 402, and 401

Section 404

Section 404 of the CWA requires that a permit be obtained from the USACE for the discharge of dredged or fill material into "waters of the United States, including wetlands."

Section 402

Section 402 of the CWA mandates that certain types of construction activity comply with the requirements of the EPA's NPDES program. The EPA has delegated to the State Water Board the authority for the NPDES program in California, where it is implemented by the state's nine Regional Water Boards. Construction activity disturbing 1 acre or more must obtain coverage under the state's General Permit for control of stormwater both during and after project implementation.

The Central Valley Water Board administers the NPDES stormwater permit program in Sacramento County. Obtaining coverage under the General Permit requires that the project applicant:

- File a notice of intent to obtain coverage under the General Permit before construction begins.
- Prepare and implement a SWPPP.
- File a notice of termination with the State Water Board when construction is complete and the construction area has been permanently stabilized.

The SWPPP describes proposed construction activities, receiving waters, stormwater discharge locations, and BMPs that will be used to reduce project construction effects on receiving water quality.

Section 401

Under federal CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval [such as issuance of a Section 404 permit]) also must comply with CWA Section 401. In California, the authority to grant water quality certification has been delegated to the State Water Board, and applications for water quality certification under CWA Section 401 typically are processed by the Regional Water Boards with local jurisdiction. Water quality certification requires evaluation of potential impacts in light of water quality standards and CWA Section 404 criteria governing discharge of dredged and fill materials into waters of the United States.

3.9.2.2 State

The following state regulation related to hydrology and water quality may apply to implementation of the project.

Porter-Cologne Water Quality Control Act of 1969

In 1967, the Porter-Cologne Act established the State Water Board and nine Regional Water Boards as the primary state agencies with regulatory authority over California water quality and appropriative surface water rights allocations. Under this act (and the CWA), the state is required to adopt a water quality control policy and WDRs to be implemented by the State Water Board and nine Regional Water Boards. The State Water Board also establishes Water Quality Control Plans (Basin Plans) and statewide plans. The Regional Water Boards carry out State Water Board policies and procedures throughout the state. Basin Plans designate beneficial uses for specific surface water and groundwater resources and establish water quality objectives to protect those uses.

3.9.2.3 Local

City of Sacramento Grading, Erosion, and Sediment Control Ordinance

The City of Sacramento Grading Ordinance sets forth rules and regulations to control land disturbances, landfill, soil storage, pollution, and erosion and sedimentation resulting from construction activities. The ordinance requires that the proponents of projects that involve land grading prepare and implement an erosion and sediment control plan to control accelerated erosion and sedimentation during preconstruction- and construction-related grading, and a post-construction erosion and sediment control plan to address similar issues once grading is complete.

3.9.3 Environmental Effects

a. Violate any water quality standards or waste discharge requirements?

Excavation and equipment staging that would occur during the construction of the proposed project would result in substantial ground disturbance in the project area, and heavy machinery would be used within the confines of the creek. Excavated soil would be left in loose piles adjacent to the creek for use in a separate project following the rainy season.

Impact HYD-1: Introduction of Pollutants to Surface Waters

Contamination of channel soils could result from construction activities as heavy machinery would be used within the creek. Spills of petroleum products and other pollutants related to machinery could occur during vehicle operation, refueling, parking, and maintenance. Improper handling, storage, or disposal of these materials in the vicinity of Unionhouse Creek could cause degradation of surface water quality if they eventually are washed into the creek. However, flows in the creek would be minimal, as construction would occur near the end of the dry season. Also, cofferdams would be used in the creek during construction to route water out of the construction zone, thereby minimizing the potential for direct impacts on water quality.

In addition to the potential for construction-related pollutants to enter the waterway, soil that is left loosely stockpiled after the completion of construction activities could be washed away and introduced to surface waters during the rainy season. Local hydrology would prevent it from washing directly into creek, but there would be potential for loose soils to enter storm drains and be carried into the creek.

However, SAFCA would prepare and implement a SWPPP to address erosion, stormwater runoff, sedimentation, and other construction-related pollutants during project construction until all areas disturbed during construction have been permanently stabilized. The preparation and implementation of the SWPPP is necessary to comply with the requirements of the county's erosion control ordinance and the state's NPDES general construction activity stormwater permit. The specific BMPs that would be incorporated into the SWPPP would be determined during the final design phase and prepared in accordance with the Regional Water Board field manual, and would prevent violation of water quality standards or WDRs. BMPs that likely would be included are described in Section 3.6, Geology and Soils. Additionally, a spill prevention response plan would be implemented to control any spills that would occur during construction, and is described in Section 3.8, Hazards and Hazardous Materials. Therefore, this impact is considered less than significant.

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

Impact HYD-2: Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge

There is low potential for substantial depletion of groundwater supplies or interference with groundwater recharge, as the project is not likely to reach the depth at which groundwater normally occurs in the project area. The proposed project activities would not involve groundwater extraction or the lowering of the local groundwater table. In addition, lining the creek banks is not likely to interfere substantially with groundwater recharge because of the clay soils in the vicinity, and because construction would occur during the dry season. Therefore, this impact is considered less than significant.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?

Ground-disturbing activities that would occur during the construction of the proposed project would result in minor alterations to Unionhouse Creek and temporary alterations to the drainage pattern adjacent to the creek.

Impact HYD-3: Increased Sedimentation

The creek would be widened between Center Parkway and Franklin Boulevard, but the relative shape of the channel would be maintained, and no erosion or siltation would occur. Between Bruceville Road and Center Parkway the bed and banks of the channel would be lined with concrete, which would prevent erosion and siltation. However, the stockpiling of excavated material adjacent to the creek would create the potential for material to be washed into storm drains and increase siltation in local waterways. The implementation of a SWPPP, as described in Impact HYD-1 and Section 3.6, Geology and Soils, would prevent the stockpiled soil from washing away and resulting in substantial erosion or siltation. Additionally, the applicant will obtain approval for a Section 401 Water Quality Certification from the Central Valley RWQCB, which will provide terms and conditions for protecting water quality in Unionhouse Creek. Therefore, this impact is considered less than significant.

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site?

The ground-disturbing activities that would occur during construction of the proposed channel modifications would result in very minor alterations to local drainage patterns in the project area. The widening of the channel between Center Parkway and Franklin Road would not increase the rate or amount of surface runoff. The concrete lining to be constructed on the segment between Bruceville Road and Center Parkway would prevent the infiltration of surface water into the banks of the channel, but this increased area of impermeable surfaces would not substantially increase the rate or amount of surface runoff and therefore would not result in flooding on site or off site. The modifications instead would increase the flood capacity of the channel. Therefore, this effect is considered beneficial.

e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The channel modifications would result in a decrease of the 100- and 200-year flood profiles by up to 2 feet compared to existing conditions. As discussed in Impacts GEO-1, HYD-1, and HYD-3, implementation of a SWPPP and following the terms and conditions of a Section 401 Water Quality Certification would substantially reduce the potential of providing additional sources of polluted runoff that could adversely affect water quality in Unionhouse Creek.

f. Otherwise substantially degrade water quality?

As discussed in Impacts GEO-1, HYD-1, and HYD-3, implementation of a SWPPP and following the terms and conditions of a Section 401 Water Quality Certification would substantially reduce the potential for construction-related erosion and sedimentation to adversely affect water quality in Unionhouse Creek.

g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The proposed project does not involve the construction of houses. The proposed project is intended to reduce the risk of flooding to houses that are already in a mapped floodplain. Therefore, there would be no impact.

h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?

There will be no new structures associated with the proposed project. The purpose of the project is to increase the flood capacity of Unionhouse Creek, and thereby removing the surrounding residential area from the 100-year floodplain. Therefore, there would be no impact.

i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

The proposed project is not located near a levee or dam and would not result in the failure of any levee or dam. No people or structures would be exposed to a significant risk of loss, injury, or death involving flooding. Therefore, there would be no impact.

j. Contribute to inundation by seiche, tsunami, or mudflow?

The proposed project would slightly alter the size and capacity of Unionhouse Creek but would not involve alterations that would increase susceptibility of surrounding communities to inundation by seiches, tsunamis, or mudflows. Therefore, there would be no impact.

3.10 Noise

This section presents a discussion of existing noise and vibration conditions in the project area in a regional and site-specific context. Potential impacts of the proposed project related to noise and vibration also are considered, and applicable mitigation is proposed.

3.10.1 Existing Conditions

3.10.1.1 Noise Terminology

Below are brief definitions of noise terminology used in this section.

- **Sound.** Sound is caused by vibration that produces pressure waves that travel outward from the source of the disturbance. The human perception of sound varies according to the characteristics of the sound waves (e.g., period, amplitude, frequency, speed, and wavelength) and the characteristics of the media through which the sound travels (e.g., air, water, and solids).
- **Noise.** Noise is defined as unwanted sound that adversely affects any given receiver location. In general, sound waves travel away from a ground level noise source in a hemispherical pattern. As a result, the energy contained in a sound wave is spread over an increasing area as it travels away from the source. This results in a decrease in loudness at greater distances from the noise source.
- **Decibel (dB).** Sound level meters measure the air pressure fluctuations caused by sound waves, with separate measurements made for different sound frequency ranges. The dB scale used to describe sound is a logarithmic scale, which accounts for the large range of audible sound intensities.
- **A-Weighted Decibel (dBA).** Most sounds consist of a broad range of sound frequencies. The dBA scale is a measure of sound intensity that is weighted to take into account the human perception of different frequencies of sound. Typical A-weighted noise levels for various types of sound sources are summarized in Table N-1.
- **Equivalent Sound Level (L_{eq}).** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level that would contain the same acoustical energy as the time-varying sound that actually occurs during the monitoring period. The 1-hour A-weighted equivalent sound level (L_{eq} 1h) is the energy average of A-weighted sound levels occurring during a 1-hour period.
- **Percentile-Exceeded Sound Level (L_{xx}).** The sound level exceeded some percentage of the time during a monitoring period. For example L_{90} is the sound level exceeded 90% of the time, and L_{10} is the sound level exceeded 10% of the time.
- **Maximum and Minimum Sound Levels (L_{max}, L_{min}).** The maximum (L_{max}) and minimum (L_{min}) sound levels measured during a monitoring period.
- **Day-Night Level (L_{dn}).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with a 10-dB penalty added to sound levels between 10:00 p.m. and 7:00 a.m.

Table 3.10-1. Typical A-Weighted Sound Levels

Sound Source	dBA	Typical Response
Carrier deck jet operation	140	
Limit of amplified speech	130	Painfully loud
Jet takeoff (200 feet) Auto horn (3 feet)	120	Threshold of feeling and pain
Riveting machine Jet takeoff (2,000 feet)	110	
Shout (0.5 foot) New York subway station	100	Very annoying
Heavy truck (50 feet) Pneumatic drill (50 feet)	90	Hearing damage (8-hour exposure)
Passenger train (100 feet) Helicopter (in flight, 500 feet) Freight train (50 feet)	80	Annoying
Freeway traffic (50 feet)	70	Intrusive
Air conditioning unit (20 feet) Light auto traffic (50 feet)	60	
Normal speech (15 feet)	50	Quiet
Living room Bedroom Library	40	
Soft whisper (15 feet)	30	Very quiet
Broadcasting studio	20	
	10	Just audible
	0	Threshold of hearing

Because of the logarithmic decibel scale, sound levels from different noise sources cannot be added directly to give a combined noise level. Instead, the combined noise level produced by multiple sources is calculated logarithmically. For example, if one bulldozer produces a noise level of 80 dBA, two bulldozers would generate a combined noise level of 83 dBA, not 160 dBA. For another example, if a steady stream of cars on a roadway causes an L_{eq} noise level of 60 dBA at the nearest home and occasional trucks (by themselves) cause 50 dBA, the noise caused by the combined traffic (cars plus trucks) would be 60.4 dBA.

People generally perceive a 10-dBA increase in a noise source as a doubling of loudness. For example, an average person would perceive a 70 dBA sound level as being twice as loud as a 60 dBA sound. People generally cannot detect differences of 1 to 2 dBA between noise levels of a similar nature (e.g., an increase in traffic noise compared to existing traffic noise). However, under ideal listening conditions, some people can detect differences of 2 or 3 dBA. Under normal listening conditions, most people would likely perceive a 5 dBA change in sounds of a similar nature. When the new sound is of a different nature than the background sound (e.g., backup alarms compared to quiet residential sounds), most people can discern the new noise even if it increases the overall L_{eq} noise by less than 1 dBA.

When distance is the only factor considered, sound levels from isolated point sources of noise typically decrease by about 6 dBA for every doubling of distance from the noise source. When the noise source is a continuous line (e.g., vehicle traffic on a highway), sound levels decrease by about 3 dBA for every doubling of distance. Attenuation rate is used to describe the rate at which the intensity of a sound signal declines as it travels outward from its source. For traffic noise studies, an attenuation rate of 4.5 dBA per doubling of distance is often used when the roadway is at ground level and the intervening ground is effective in absorbing sound (e.g., ground vegetation, scattered trees, clumps of bushes). When the roadway is elevated, 3 dBA of noise attenuation per doubling of distance is used because the sound-absorbing effects of the intervening ground are limited.

Noise levels also can be affected by several factors other than the distance from the noise source. Topographic features and structural barriers that absorb, reflect, or scatter sound waves can affect the reduction of noise levels. Atmospheric conditions (e.g., wind speed and direction, humidity levels, temperatures) can affect the degree to which sound is attenuated over distance.

Echoes off topographical features or buildings can sometimes result in higher sound levels (lower sound attenuation rates) than normally expected. Temperature inversions and altitudinal changes in wind conditions can refract and focus sound waves toward a location at considerable distance from the noise source. These effects are usually noticeable only for very intense noise sources, such as blasting operations. As a result, the existing noise environment can be highly variable depending on local conditions.

3.10.1.2 Ambient Noise Environment

The primary sources of noise in and near the project area are traffic on area roadways, occasional planes and helicopters, residential and recreational activities, and natural sounds such as wind and wildlife. However, the overall ambient noise level is defined mainly by traffic, especially on Franklin Boulevard and Center Parkway.

3.10.1.3 Noise-Sensitive Land Uses

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Noise-sensitive land uses typically include residences, hospitals, schools, guest lodgings, libraries, and certain types of passive recreational uses, such as parks to be used for reading, conversation, meditation, etc. (Federal Transit Administration 2006). The nearest sensitive receptors include residential subdivisions located immediately adjacent to the northern and southern boundaries of the project impact area along most of the project alignment. In addition, Cosumnes River College is located south of the project impact area between Center Parkway and Bruceville Road, and the Sunny Creek Infant Care is located immediately adjacent to the northern boundary of the project impact area across from Cosumnes River College. These noise-sensitive land uses are generally 50 to 100 feet from the project area. However, in some cases, residences are as close as 25 feet from the creek and potential project construction activities.

3.10.2 Regulatory Setting

3.10.2.1 City of Sacramento General Plan Noise Element

The Health and Safety Element of the City General Plan establishes specific policies for noise sources. The applicable policies include:

- **Policy EC 3.1.1** The City shall require noise mitigation for all development where the projected exterior noise levels exceed the highest level of noise exposure that is regarded as "Normally Acceptable," to the extent feasible.
- **Policy EC 3.1.5** The City shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby residential and commercial uses based on the current City or Federal Transit Administration (FTA) criteria.

According to the General Plan Noise Element, *Normally Acceptable* means that the "specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements." The highest level of noise exposure in the project area that is regarded as Normally Acceptable is 65 dBA.

3.10.2.2 City of Sacramento Noise Ordinance

The City's Noise Control Ordinance sets limits for exterior noise levels on designated agricultural and residential property. The ordinance is concerned primarily with regulating noise other than noise generated by transportation noise sources such as passing cars or aircraft flyovers. The ordinance limits the duration of sound based on many factors, including the type of source, ambient noise levels, and time of day, by using a system of noise criteria not to be exceeded based on the duration of noise over any given hour. The City's exterior noise standards that would apply to the project are described below.

A. The following noise standards unless otherwise specifically indicated in this article shall apply to all agricultural and residential properties.

    1. From 7:00 a.m. to 10:00 p.m. the exterior noise standard shall be 55 dBA.

    2. From 10:00 p.m. to 7:00 a.m. the exterior noise standard shall be 50 dBA.

B. It is unlawful for any person at any location to create any noise which causes the noise levels when measured on agricultural or residential property to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by:

Cumulative Duration of the Intrusive Sound	Allowance Decibels
Cumulative period of 30 minutes per hour	0
Cumulative period of 15 minutes per hour	+5
Cumulative period of 5 minutes per hour	+10
Cumulative period of 1 minute per hour	+15
Level not to be exceeded for any time per hour	20

The City's noise standards also include exemptions for the following activities: Noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure between the hours of 7:00 a.m. and 6:00 p.m. on Monday, Tuesday, Wednesday, Thursday, Friday and Saturday and between 9:00 a.m. and 6:00 p.m. on Sunday, provided, however, that the operation of an internal combustion engine shall not be exempt pursuant to this subsection if such engine is not equipped with suitable exhaust and intake silencers that are in good working order.

3.10.3 Environmental Effects

3.10.3.1 Significance Criteria

In accordance with CEQA requirements, City of Sacramento plans and policies, and professional standards, a project noise impact would be considered significant if the project would:

- Result in construction noise levels in excess of the City of Sacramento noise ordinance limits outside of exempted hours.
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels.

a. Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?

Impact NOI-1: Exceed City of Sacramento Noise Standards

Construction activities associated with implementation of the project could result in temporary increases in noise in the vicinity of the site-specific activity. Where those increases result in noise in excess of adopted standards, the impact would be considered significant. The severity of construction noise impacts would depend on:

- Types of construction activity in the given area.
- Types of land uses in the area and their proximity to construction activity.
- Construction phasing and equipment type.
- Duration of proposed construction activities.
- Distance between the noise source and receptors.
- Presence or absence of barriers between noise source and receptor.

Table 3.10-2 summarizes typical construction noise levels for various phases of typical construction projects using vibratory hammers and pile driving equipment, bulldozers, cranes, backhoes and graders, pumps, dump trucks, rollers and graders, asphalt/concrete trucks, paving machines, grinders, and similar construction equipment described in Chapter 2.

Table 3.10-2. Construction Equipment Noise Levels

Equipment	Typical Noise Level at 50 feet from Source (dBA)
Air compressor	81
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, derrick	88
Crane, mobile	83
Dozer	85
Generator	81
Grader	85
Jackhammer	88
Loader	85
Paver	89
Pneumatic tool	85
Pump	76
Roller/sheep's foot	74
Saw	76
Scraper	89
Shovel	82
Truck	88

Source: Federal Transit Administration 2006.

As indicated in Chapter 2, "Project Description," construction activities are anticipated to occur between the hours of 7:00 a.m. and 6:00 p.m., Monday through Saturday, with no nighttime work expected. These hours of construction activities are consistent with the City's exemption for construction activities, and any construction activities outside of these hours could result in construction noise impacts at adjacent noise-sensitive land uses. Noise from construction activity attenuates at a rate of about 6 dB per doubling of distance. This means that land uses located within about 1,000 feet of site-specific construction sites could be exposed to construction noise in excess of City of Sacramento construction noise standards. Because of the potential for noise to exceed applicable local City of Sacramento noise standards, this impact is considered significant.

To reduce construction noise at these residential properties, the Mitigation Measures NOI-MM-1 and NOI-MM-2 will be incorporated into construction plans and contractor specifications. With the incorporation of Mitigation Measures NOI-MM-1 and NOI-MM-2, the noise impact resulting from project construction would be considered less than significant.

Mitigation Measure NOI-MM-1: Limit Hours of Construction Activities

The project applicant will ensure the construction specifications limit activities to the hours between 7:00 a.m. and 6:00 p.m., on Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday.

Mitigation Measure NOI-MM-2: Implement a Noise Control Plan

Prior to construction, the project applicant will prepare a Noise Control Plan. The plan will incorporate the following noise abatement measures into construction plans and contractor specifications to reduce the impact of temporary construction-related noise on nearby residences.

- Comply with manufacturers' muffler requirements on all construction equipment engines.
- Turn off construction equipment when not in use, where applicable.
- Locate stationary equipment as far as practical from receiving properties.
- Use temporary sound barriers or sound curtain around loud stationary equipment if the other noise reduction methods are not effective or possible.
- Temporarily relocate residents where practicable.
- Provide advance written notification of construction activities to residences around the construction site. Notification will include a brief overview of the proposed project and its purpose, as well as the proposed construction activities and schedule. It also will include the name and contact information of the project manager or representative responsible for resolving any noise concerns.

b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?

Impact NOI-2: Generate Excessive Groundborne Vibration or Groundborne Noise

For the vibration analysis, vibration levels associated with the proposed construction activities were evaluated using FTA (2006) guidance and methodology. There are no commonly accepted thresholds for levels of ground vibration. However, the U.S. Department of Transportation (USDOT) suggests vibration damage thresholds of 0.20 inch per second for non-engineered timber and masonry buildings and 0.12 inch per second for buildings extremely susceptible to vibration damage. Vibration annoyance thresholds are expressed as vibration noise levels (L_V), which are measured in vibration decibels (VdB). FTA thresholds are categorized by land use and frequency of events. Construction activities such as bulldozing and grading would be considered frequent events (more than 70 vibration events per day). FTA's annoyance threshold for frequent events for Category 2 land uses (residences and buildings where people normally sleep, such as homes, hospitals, and hotels) is 72 VdB, and its threshold for Category 3 land uses (institutional land uses such as schools, libraries, and churches) is 75 VdB (Federal Transit Administration 2006). For the purposes of this assessment, exposure of non-engineered timber and masonry buildings to ground vibration in excess of 0.20 inch per second, exposure of buildings extremely susceptible to vibration damage in excess of 0.12 inch per second, or violation of the annoyance thresholds discussed above would result in a significant impact (Federal Transit Administration 2006).

Because of noise-sensitive land uses are located within approximately 25 feet from the creek and potential project construction activities, excavation and other construction activities could create seismic waves that radiate along the ground surface and downward into the earth. These surface waves can be felt as ground vibration. Varying geology and distance will result in different vibration levels containing different frequencies and displacements. In all cases, vibration amplitudes will decrease with increasing distance.

As seismic waves travel outward from a source, they excite the particles of rock and soil through which they pass and cause them to oscillate. The actual distance that these particles move is usually only a few ten-thousandths to a few thousandths of an inch. The peak rate or velocity (in inches per second) at which these particles move is the commonly accepted descriptor of the vibration amplitude and is referred to as the peak particle velocity (PPV).

Project-specific data regarding particular equipment that would be used during excavation are not available at this time. Therefore, it was assumed that activities using the excavator would generate vibration levels similar to a bulldozer, which has a base PPV of 0.089 inch per second at 25 feet and an L_V of 87 VdB at 25 feet (Federal Transit Administration 2006). The construction-related PPV is below the USDOT's suggested vibration damage threshold of 0.12 inch per second for extremely fragile historic buildings; therefore, the construction-related vibration is not expected to damage building structures adjacent to the construction site. However, the vibration noise levels exceed the FTA annoyance vibration criterion of 72 VdB for a Category 2 land use. The groundborne vibration impact related to human annoyance is considered potentially significant. Implementation of Mitigation Measure NOI-MM-3 would reduce this impact to a less-than-significant level.

Mitigation Measure NOI-MM-3. Limit Timing of Construction Activities That Cause Vibration, Inform Adjacent Residents, Designate a Complaint Coordinator, and Temporarily Relocate Residents If Necessary

The applicant and construction contractor will ensure that construction scheduling identifies the times and duration of vibration-causing effects due to construction activities. These construction activities will be limited to a specified period during the day, as determined by the applicant and construction contractor with approval from the City of Sacramento, with advance notice given to adjacent residents.

Notice to adjacent residents will include contact information for a SAFCA-designated complaint coordinator responsible for handling and responding to any complaints received during such periods of construction. A reporting program will be required that documents complaints received, actions taken, and the effectiveness of these actions in resolving disputes. The complaint coordinator will be authorized to offer residents who complain of exposure to vibration levels exceeding threshold levels temporary relocation off site (i.e., providing hotel vouchers) during construction activities. These requirements will be included in all relevant construction contracts and shown on construction plans.

c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

The project would not result in additional long-term operational activities beyond those currently ongoing. In addition, it should be noted that current operations and maintenance (O&M) activities that will cease upon project implementation include mowing activities along the creek bed from Center Parkway to Bruceville Road, as the vegetated creek banks along this alignment will be replaced with concrete creek banks that no longer require O&M activities. Consequently, this would result in a long-term net benefit to surrounding noise-sensitive land uses, as project implementation would remove this noise-generating activity.

d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Impact NOI-1: Exceed City of Sacramento Noise Standards

The discussion of construction noise under question "a" above indicates that construction activity will result in a temporary increase in noise during the construction period. However, with implementation of Mitigation Measures NOI-MM-1 and NOI-MM-2, this impact would be less than significant.

Mitigation Measure NOI-MM-1: Limit Hours of Construction Activities

Mitigation Measure NOI-MM-2: Implement a Noise Control Plan

e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?

The project is not located within 2 miles of a public airport. Therefore, no impacts would be expected.

f. Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?

The proposed project is not in the vicinity of a private airstrip. No impacts related to noise generated from private airstrips would occur on the project site.

3.11 Transportation and Traffic

3.11.1 Existing Conditions

3.11.1.1 Project Area Transportation Network

Freeways/Roadways

The project site is located in the southern portion of the city of Sacramento. SR-99 and Cosumnes River Boulevard provide primary access to the project area. Franklin Boulevard, Center Parkway, and Bruceville Road also provide access.

SR-99 runs north/south and is located east of the project area. SR-99 is a multi-lane, interstate freeway that provides regional access to the project area.

Cosumnes River Boulevard is a two-lane arterial road that runs primarily east/west from SR-99 to Franklin Road, and forms the southern boundary of the project area as it runs parallel to the south bank of Unionhouse Creek. Cosumnes River Boulevard provides primary access to the project area. Cosumnes River Boulevard widens to six lanes between Bruceville Road and CA-99.

Franklin Road is a divided four-lane arterial road that runs primarily north/south and intersects Unionhouse Creek at the west end of the project area. Franklin Boulevard primarily serves local residences and is adjacent to open space and residential areas near the project area.

Center Parkway is a divided four-lane arterial road that runs northwest/southeast and intersects Unionhouse Creek near the middle of the project area. Near the project area, Center Parkway serves mainly residential and some commercial uses.

Bruceville Road is an arterial road that runs north/south and is located just east of the confluence of Unionhouse Creek and Strawberry Creek. Bruceville Road is a four-lane road north of Cosumnes River Boulevard and a six-lane road south of Cosumnes River Boulevard.

Cosumnes River Boulevard would be the sole surface street used to access the project site. The most recent traffic counts at intersections along the route used to access the project area are provided in Table 3-11.1.

Table 3-11.1. Average Daily Traffic

Street Name	Intersects with	Average Daily Traffic	Count Date
Cosumnes River Boulevard	CA-99	43,594	
Cosumnes River Boulevard	Bruceville Road	22,788	9/21/2011
Cosumnes River Boulevard	Center Parkway	22,788	9/21/2011
Cosumnes River Boulevard	Franklin Boulevard	16,242	9/21/2011
Source: City of Sacramento 2011.			

Transit

Sacramento Regional Transit provides public transportation in the city of Sacramento, operating bus and light rail systems. Bus routes 54, 55, 56, and 65 either intersect or run adjacent to the project area. Routes 54, 55, and 56 intersect Cosumnes River Boulevard as it runs along Bruceville Road, and route 65 intersects Cosumnes River Boulevard as it runs along Franklin Boulevard. No bus routes run along Cosumnes River Boulevard, and there are no light rail stations near the project area. (Sacramento Regional Transit 2012.)

Bicycle/Pedestrian Facilities

The project area is located adjacent to suburban neighborhood, and near Cosumnes River College and a shopping center at Bruceville Road and Cosumnes River Boulevard. The project vicinity is accessed primarily by automobiles, with bus routes intersecting the project area. There are no sidewalks along the northern (westbound) side of Cosumnes River Boulevard, which forms the southern boundary of the project area. The only pedestrian sidewalks within or adjacent to the project area are on Franklin Boulevard, Center Parkway, Bruceville Road, and along the southern (eastbound) side of Cosumnes River Boulevard. Bike lanes run along Cosumnes River Boulevard, Franklin Boulevard, Center Parkway, and Bruceville Road.

3.11.2 Regulatory Setting

3.11.2.1 City of Sacramento General Plan

The quality of service provided by a roadway is quantified in terms of level of service (LOS). This method uses a letter rating to describe the peak period driving conditions for a particular facility. The letters A–F represent progressively worse driving conditions—generally, LOS A indicates a free-flowing operation with little or no delay, and LOS F denotes jammed flow with substantial delay. City of Sacramento roadway LOS thresholds for roadways to be used as haul routes are provided in Table 3.11-2.

Table 3-11.2. Roadway Level of Service Thresholds

Facility Type	A	B	C	D	E
2–lane arterial with high access control	12,000	14,000	16,000	18,000	20,000
6–lane arterial with high access control	36,000	43,000	48,000	54,000	60,000

Source: City of Sacramento 2009a.

City of Sacramento policy, as defined within the General Plan, requires maintenance of operations on all roadways and intersections at LOS A-D at all times, including peak travel times, unless maintaining this LOS would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals. LOS E or F conditions may be accepted, provided that provisions are made to improve the overall system and/or promote nonvehicular transportation as part of a development project or a City-initiated project (City of Sacramento 2009b).

3.11.3 Environmental Effects

a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

During construction, the movement of crew, equipment, and material would result in temporary increases in traffic. Locally, vehicles associated with construction activities are anticipated to travel on SR-99 and Cosumnes River Boulevard. Construction-related traffic impacts are expected to be temporary, and the additional traffic would be minor, requiring no more than 64 total vehicle trips per day during construction. These additional trips are negligible compared with current conditions; the project would not generate enough trips to degrade traffic further than current conditions, and does not conflict with any applicable plans, ordinances, or policies.

Impact TRA-1: Temporary Impact on Localized Traffic Patterns

While it is anticipated that construction activities would not worsen LOS on the city's local street system, localized traffic patterns could be negatively affected. Implementation of Mitigation Measures TRA-MM-1 and TRA-MM-2 would reduce this impact to a less-than-significant level.

Mitigation Measure TRA-MM-1: Coordinate Truck Routes

The project contractor will coordinate truck routes and construction activities with the appropriate City departments and restore roadways damaged by construction activities to pre-project conditions.

Mitigation Measure TRA-MM-2: Develop and Implement a Traffic Control Plan

SAFCA, in coordination with relevant City and County public works departments, will develop and implement traffic control plan(s) for the proposed project.

A traffic control plan describes the methods of traffic control to be used during construction. All on-street construction traffic will be required to comply with the local jurisdiction's standard construction specifications. The plan will reduce the effects of construction on the roadway system in the project area throughout the construction period. Construction contractors will follow the standard construction specifications of affected jurisdictions and obtain the appropriate encroachment permits, if required. Measures to be included in the traffic control plan will include the following measures:

- Construction vehicles would not be permitted to block any roadways or driveways.
- Signs and flagmen will be used as needed to alert motorists, bicyclists, and pedestrians to the presence of haul trucks and construction vehicles at all access points.
- Vehicles would be required to obey all speed limits, traffic laws, and transportation regulations during construction.
- Construction workers would be encouraged to carpool and park in designated staging areas.
- The contractor would be required to repair any roads damaged by construction activities.

At least one lane of traffic will be maintained at all times along major streets. Safe pedestrian and bicyclist access, if any, will be maintained in or around the construction areas at all times. Construction areas will be secured as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and all stationary equipment will be located as far away as possible from areas where bicyclists and pedestrians are present. SAFCA will notify and consult with emergency service providers to maintain emergency access and facilitate the passage of emergency vehicles on city streets.

b. Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?

As indicated above for "a," construction-related traffic impacts are expected to be temporary, and the additional traffic would be minor (64 trips per day or fewer) compared to existing daily and peak-hour traffic volumes on local roadways. Under the City of Sacramento's LOS standards, Cosumnes River Boulevard is currently operating at LOS F at Bruceville Road and Center Parkway, and LOS D at Franklin Boulevard. The amount of traffic generated during the construction phase is minor compared to existing daily and peak-hour traffic volumes, and would not change the current level-of-service. However the additional traffic would contribute to already congested roadways.

Impact TRA-1: Temporary Impact on Localized Traffic Patterns

While it is anticipated that construction activities would not worsen LOS on the city's local street system, localized traffic patterns could be negatively affected. Implementation of Mitigation Measures TRA-MM-1 and TRA-MM-2, described above, would reduce this impact to a less-than-significant level.

c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The proposed project would not affect air traffic patterns or cause any air traffic safety risks. There would be no impact.

d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The proposed project does not have any design features or incompatible uses that would result in hazardous traffic conditions. Design features would not increase hazards for motorists, bicyclists, or pedestrians. Therefore, there would be no impact.

e. Result in inadequate emergency access?

Impact TRA-2: Temporary Construction-Related Blockage of Emergency Access

While there would be no lane closures involved with the project, construction of the proposed project could result in reduced emergency access as a result of slow-moving construction and haul vehicles entering and departing the construction site. Implementation of Mitigation Measure TRA-MM-2, described above, would reduce this impact to a less-than-significant level.

f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Construction of the proposed project would be temporary and would not conflict with any adopted policies, plans, or programs supporting alternative transportation. There would be no impact.

3.12 Utilities and Service Systems

3.12.1 Existing Conditions

Natural gas service is provided to the project vicinity by The Pacific Gas and Electric Company (PG&E). Electric service is provided by the Sacramento Municipal Utility District. The City of Sacramento Department of Utilities provides and maintains water, sewer, solid waste, storm collection, and storm drainage services.

3.12.2 Regulatory Setting

3.12.2.1 State

The following state regulations related to utilities and public services may apply to implementation of the project.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies in the state. CPUC is responsible for ensuring that California utility customers have safe, reliable utility service at reasonable rates, protecting utility customers from fraud, and promoting the health of California's economy. CPUC establishes service standards and safety rules and authorizes utility rate changes. CPUC enforces CEQA compliance for utility construction. CPUC also regulates the relocation of power lines by public utilities under its jurisdiction, such as PG&E. CPUC works with other state and federal agencies in promoting water quality, environmental protection, and safety.

California Integrated Waste Management Act

In 1989, Assembly Bill 939 (AB 939), known as the Integrated Waste Management Act, was passed into law. Enactment of AB 939 established the California Integrated Waste Management Board and set forth aggressive solid waste diversion requirements. Under AB 939, every city and county in California is required to reduce the volume of waste sent to landfills by 50% through recycling, reuse, composting, and other means. AB 939 requires counties to prepare a countywide integrated waste management plan (CIWMP). An adequate CIWMP contains a summary plan that includes goals and objectives, a summary of waste management issues and problems identified in the incorporated and unincorporated areas of the county, a summary of waste management programs and infrastructure, existing and proposed solid waste facilities, and an overview of specific steps that would be taken to achieve the goals outlined in the components of the CIWMP.

3.12.2.2 Local

The Sacramento County General Plan contains goals, objectives, and policies that address public facilities, utilities, and emergency services concerns in Sacramento County, including those following.

Utilities Goal: Safe, efficient, and environmentally sound operation of solid waste facilities in Sacramento County.

Utilities Policy PF-24: Transportation of solid waste shall utilize the safest practical means and routes of transport.

3.12.3 Environmental Effects

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The project would not exceed wastewater requirements, nor would it necessitate expansion of any wastewater treatment facilities. There would be no impact.

c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The project requires modifying the Unionhouse Creek channel and relocating an existing sump pump and associated infrastructure. Project construction consists of the widening and concrete-lining the channel of the creek and the relocation of a sump pump approximately 8 feet south of its current location, between Franklin Boulevard and Center Parkway, outside the future Regional Transit light rail access road. Construction would occur during the dry season, early August through the end of October, and require temporarily accessing the existing potable water supply, sanitary sewer, or storm sewer systems during these months, but no public utility outages are expected to occur during the project. Because of the timing of construction, it is anticipated that only a minor amount of runoff and storm flows during the dry season would contribute to flow to the channel. This flow would be intercepted by a cofferdam at the upstream boundary of the project just downstream of the confluence with Strawberry Creek and pumped to the downstream end of the project. These stormwater drainage infrastructure modifications would not cause significant environmental effects and would improve stormwater conveyance capacity to the area. Therefore, the effects of the project would be less than significant.

d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?

e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The project would not result in the expansion of water supply entitlement, nor produce wastewater; therefore, the proposed project would not result in an impact on wastewater treatment capacity.

f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Solid waste generated by the project would be minimal and would be limited to construction debris, including excavated material from the creek that is not used for backfill purposes and concrete removed from the channel lining. Solid waste would be disposed of at permitted landfills. Therefore, the proposed project would not generate the need for new solid waste facility and effects of the project would be less than significant.

g. Comply with federal, state, and local statutes and regulations related to solid waste?

Solid waste disposal would occur at permitted landfills. Therefore, there would be no impact.

3.13 Mandatory Findings of Significance

With the mitigation measures described in Chapter 3, all environmental impacts would be reduced to a less-than-significant level. Please refer to individual resource sections in Chapter 3 for a complete discussion of the environmental impacts and associated mitigation.

Chapter 4
Cumulative Impacts

4.1 Cumulative Impacts

The following projects are planned or proposed in the vicinity of the proposed project. These projects have been through environmental review, and mitigation or compensation measures have been developed to avoid or reduce any adverse impacts to a less-than-significant level.

Cosumnes River Boulevard Extension (City of Sacramento). The I-5/Cosumnes River Boulevard Interchange Project involves extending Cosumnes River Boulevard from its western end at Franklin Boulevard to a new interchange at I-5. The Cosumnes River Boulevard alignment would extend north and then west from Franklin Boulevard until it reaches the interchange location. The Sacramento Regional Transit proposed Phase 2 light rail transit alignment would be located north of the extension and would generally parallel the new roadway. The City of Sacramento, in cooperation with the State of California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA), completed a Draft EIS/EIR for the project in February 2006 (SCH# 2002022072). A Final EIS/EIR was completed in April 2007 and a Notice of Determination was issued in May 2007. FHWA issued its Record of Decision on October 26, 2007 (FR No. 20070442). Construction is scheduled to begin in summer 2012 or 2013 (City of Sacramento 2006).

South Sacramento Corridor Phase 2. Sacramento Regional Transit (RT) has proposed to extend their light rail transit service approximately 4.3 miles from the terminus of the South Sacramento Corridor Phase 1 terminus at Meadowview Road. The proposed alignment would travel south along the Union Pacific Railroad (UPRR) right-of-way and then turn east across the UPRR tracks and Unionhouse Creek. It then would cross Franklin Boulevard and run parallel to Cosumnes River Boulevard before turning south at Bruceville Road and terminating at Cosumnes River College. The Federal Transit Authority and RT completed a Supplemental Draft EIS /Subsequent EIR in January 2007 (Sacramento Regional Transit 2007) to supplement the 1994 South Sacramento Corridor Alternative Analysis DEIS/DEIR. The final EIS/EIR was issued in September 2008 and the ROD was signed in February 2009. Construction is scheduled to begin in spring 2013.

South Sacramento County Streams Morrison Creek–Union Pacific Railroad. USACE has proposed to construct 3,000 feet of floodwall, 100 feet of levee, and 900 feet of retaining wall on the east side of Morrison Creek along the UPRR tracks between the railroad bridge and Unionhouse Creek below Mack Road. USACE and SAFCA completed a Final EA/IS in July 2011, and a Notice of Determination was issued in August 2011 (SCH# 1997102056). Construction is scheduled to begin in spring 2012 and be completed by October 1, 2012.

The projects listed above are required to evaluate the impacts of the proposed project features on environmental resources in the area. In addition, mitigation and/or compensation measures must be developed to avoid or reduce any significant impacts to a less-than-significant level based on state and local agency criteria. Those impacts that cannot be avoided or reduced to less than significant are more likely to contribute to cumulative effects in the area.

The State CEQA guidelines define cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental

impacts" (Section 15355). The following analysis focuses on considering the potential for impacts identified in Chapter 3 to make a considerable contribution to significant cumulative impacts. The Unionhouse Creek Channel Improvements Project would not cause long-term significant impacts on the resources discussed in Chapter 3. However, some of the resources have the potential to incur temporary, short-term impacts during the construction period. As construction of the South Sacramento Corridor Phase 2 Project and the Unionhouse Creek Channel Improvements Project would not overlap in their construction period or impacts, the Sacramento Corridor Phase 2 Project is not considered further in this chapter. An initial assessment of potential cumulative impacts indicated that impacts on air quality, GHGs, transportation and traffic, biological resources, and hydrology and water quality have the potential to contribute to cumulative impacts. The potential cumulatively considerable impacts on these resources, in combination with potential impacts from the local projects described above, are discussed below.

4.1.1 Air Quality

According to the SMAQMD, a project is considered to have a significant cumulative impact if:

- The project requires a change in the existing land use designation (general plan amendment or rezone).Projected emissions (ROG or NO_x) or emission concentrations (criteria pollutants) of the proposed project are greater than the emissions anticipated for the site if developed under the existing land use designation.
- The project individually would result in a significant impact on air quality.

Construction of the proposed project is not expected to have any long-term impacts on air quality because the operational activities are expected to be similar to existing conditions. However, construction would result in short-term, construction-related impacts on air quality mainly related to the use of combustion emissions and dust emissions. Implementation of mitigation measures during construction would reduce these emissions to the extent possible. The proposed project would not require a change in the existing land use designations, and therefore long-term projected emissions of criteria pollutants would be the same with or without the project. Also, the proposed project would not result in a significant impact on air quality.

However, construction of the Unionhouse Creek Channel Improvements Project has the potential to overlap construction of the Cosumnes River Boulevard Extension Project, as well as the Morrison Creek–UPRR Floodwall Project. These concurrent construction activities could have a significant cumulative impact on air quality. It is expected that impacts from these project would be similar to the current project in that impacts would be due primarily to construction activities. Therefore, construction of these projects would increase emissions of criteria pollutants, including volatile organic compound (VOC), NO_x, CO, SO_2, and PM emissions.

Individually, these projects would mitigate their emissions below significance threshold levels. If these construction projects are implemented concurrently, the combined cumulative impacts could be above CEQA thresholds for air quality emissions and de minimis thresholds. However, all air quality impacts are cumulative, and the thresholds used by SMAQMD assume cumulative existing ongoing and future development.

4.1.2 Biological Resources

Construction of the Unionhouse Creek Channel Improvements Project, the Morrison Creek–UPRR Floodwall Project, and the Cosumnes River Boulevard Extension Project would directly and indirectly affect giant garter snake, western pond turtle, burrowing owl, and Sanford's arrowhead. Mitigation measures for these projects have been prescribed to offset potential impacts on these species. Therefore, there would be no significant cumulative impact on special-status species as a result of the proposed project.

The proposed project could also result in direct and indirect impacts on nesting raptors and other migratory birds, including Swainson's hawk. Mitigation measures in this IS/MND have been prescribed to offset potential impacts on nesting raptors and other migratory birds. As a result, cumulative impacts are not anticipated for nesting raptors and migratory birds. The Cosumnes River Boulevard Extension Project and the Morrison Creek–UPRR Floodwall Project are located in the vicinity and would result in short-term disturbances of wildlife habitat. In addition, some permanent loss of wildlife habitat would occur at each of the project sites. However, suitable high-quality habitat that could support temporary and permanent relocation of displaced wildlife species is available near each of these projects .

All projects would produce temporary impacts on vegetation and habitat associated with clearing and grubbing the existing surfaces. The new transportation corridors created by the Cosumnes River Boulevard Extension Project and the Morrison Creek–UPRR Floodwall Project would result in permanent loss of habitat. These projects have completed environmental documents that provide mitigation for this loss of habitat. To compensate for the loss of this vegetation, mitigation sites would be replanted with native plants and grasses. Disturbed areas in the Unionhouse Creek Channel Improvements Project area would be restored following construction, with the exception of areas of new concrete, and it is anticipated that wildlife species would be able to return to the project area upon completion of restoration activities. The vegetation loss associated with the seasonal swale and annual grassland would not have a significant cumulative impact on vegetation in the region.

4.1.3 Greenhouse Gases

It is unlikely that a single project would have a significant impact on the environment with respect to GHGs. However, the cumulative impact of human activities has been clearly linked to quantifiable changes in the composition of the atmosphere, which in turn has been shown to be the primary cause of global climate change (Intergovernmental Panel on Climate Change 2007). While the emissions of a single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact on global climate change.

CO_2 is tracked as a contributor to GHG emissions. SMAQMD emission models calculate air emissions based on construction phase and duration, type of equipment and machinery, project area, and other input criteria. The air quality analysis in Section 3.3 includes CO_2 emissions.

GHG impacts are inherently cumulative and are analyzed as such in Section 3.7. Impacts related to GHG emissions were determined to be less than significant.

4.1.4 Hydrology and Water Quality

Implementation of the proposed project would alter water surface elevations in the Morrison Creek watershed, especially during higher flows, and could have a cumulative impact on hydrology if other concurrent flood control projects did not take the proposed project into account. The Morrison Creek–UPRR Floodwall Project area is located just upstream of the confluence of Unionhouse Creek and Morrison Creek, and water surface elevations in this area potentially could be affected by changes incurred from the proposed project. However, the Morrison Creek–UPRR Floodwall Project involves only increasing the freeboard along that section of the creek to increase flood protection, and does not involve altering the existing channel or flow elevations. Therefore, the Morrison Creek–UPRR Floodwall Project would not have additional cumulative impacts related to flows and hydrology. All subsequent flood control projects in the watershed would be required to analyze and take into account the changes in hydrology resulting from the proposed project in order to avoid future cumulative impacts.

4.1.5 Transportation and Traffic

Construction associated with the proposed project would cause a temporary increase in traffic volumes on the existing roadway network on a localized and temporary basis only. The project would likely overlap the Cosumnes River Boulevard Extension Project, as well as the Morrison Creek–UPRR Floodwall Project. All three projects have the potential to use the same local roadways and major transportation corridors for construction traffic. These roads include SR 99 and Cosumnes River Boulevard.

The proposed construction activities would have short-term impacts on traffic levels on local and regional roadways, which would temporarily decrease their LOS. While construction of the projects would temporarily increase traffic counts on roadways within the vicinity of the project, the volume of trucks associated with these projects would not be enough to reduce the existing LOS, although parts of Cosumnes River Boulevard currently operate at LOS F. SAFCA would coordinate the scheduling and sequencing of construction activities with the City of Sacramento and the USACE to reduce significant impacts on traffic and circulation. Following the completion of construction activities, the proposed project would not contribute to cumulative regional traffic and transportation impacts associated with other projects in the region. Minimization measures at all construction sites and the relative distances between multiple projects would reduce cumulative impacts on local transportation networks to less-than-significant levels.

Chapter 5
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Chapter 6
List of Preparers

This chapter lists the people who contributed to the preparation of this IS/MND. This list is consistent with the requirements set forth in CEQA (Public Resources Code §15129).

6.1 ICF International

Name	Education/Experience	Project Role
Chris Elliott	B.S. Landscape Architecture, California Licensed Landscape Architect, Certified Arborist; 17 years' experience	Project Director
Megan Smith	B.A. English, J.D.; 10 years' experience	Project Manager
Susan Swift	Master of Planning and Development Studies, B.A. Psychology (Environmental Emphasis); 20 years' experience	Aesthetics, Agriculture and Forestry Resources, Land Use and Planning
Andrew Humphrey	B.A. History; 4 years' experience	Hydrology and Water Quality, Public Services, Transportation and Traffic
Laurel Armer	B.S. Environmental Horticulture and Urban Forestry; 9 years' experience	Geology and Soils, Hazards and Hazardous Materials, Mineral Resources, Recreation, Utilities
Shannon Hatcher	B.S. Environmental Science, B.S. Environmental Health and Safety; 12 years' experience	Air Quality, Greenhouse Gases, Noise
Lisa Webber	B.S. Biology, M.S. Botany; 22 years' experience	Biological Resources
John Howe	B.S. Biology, M.S. Environmental Biology; 15 years' experience	Biological Resources
Gabriel Roark	B.A. Anthropology; 10 years' experience	Cultural Resources
Darle Tilly	B.A. English Literature; 25+ years' experience	Lead Editor
Corrine Ortega	A.A. Communications; 19 years' experience	Publications Specialist
Edward Douglas	B.A. Geography; 6 years' experience	GIS Analyst

6.2 Sacramento Area Flood Control Agency

Name, Title	Project Role
Peter Ghelfi, Director of Engineering	Lead Agency Reviewer
Mick Klassen, Environmental Planner	Lead Agency Reviewer

6.3 Other Contributors

Name, Title	Project Role
Jesse Patchett, PE, CFM (Peterson Brustad Inc.)	Technical Reviewer
Karl Brustad, PE, MBA (Peterson Brustad Inc.)	Technical Reviewer

Appendix A

Environmental Checklist

Appendix A
Environmental Checklist

1. **Project Title:** Unionhouse Creek Channel Improvements Project
2. **Lead Agency Name and Address:** Sacramento Area Flood Control Agency
3. **Contact Person and Phone Number:** Peter Ghelfi (916/874-7606)
4. **Project Location:** Sacramento, CA
5. **Project Sponsor's Name and Address:** Sacramento Area Flood Control Agency
6. **General Plan Designation:** Suburban Neighborhood, Public/Quasi-Public,
7. **Zoning:** Single and Multi-Family Residential, Agriculture
8. **Description of Project:**

   The proposed project consists of modifying the channel of Unionhouse Creek for approximately 1.6 miles, from immediately downstream (west) of Bruceville Road to upstream (east) of Franklin Boulevard. The primary purpose of this effort is to increase the creek channel's capacity to contain 100-year storm flows within the proposed banks of the channel. Unionhouse Creek is a trapezoidal channel that has a 12-foot-wide concrete bottom, steep unlined side slopes, and a top width of approximately 61 feet. The proposed project includes flood risk-reduction measures in two segments of the creek: re-lining the channel bottom and side slopes with concrete from Bruceville Road downstream to the crossing of Center Parkway, and widening the channel by an additional 8 feet, to a total width of 20 feet, from Center Parkway downstream to Franklin Boulevard.

9. **Surrounding Land Uses and Setting:**

   Areas to the north and south of the project area are residential. The area to the east is residential and commercial, and the area to the west is open land.

10. **Other Public Agencies Whose Approval is Required:**

    U.S. Army Corps of Engineers
    U.S. Fish and Wildlife Service
    Central Valley Regional Water Quality Control Board
    California Department of Fish and Game
    Central Valley Flood Protection Board
    California State Historic Preservation Officer
    County of Sacramento
    City of Sacramento

A.1 Environmental Factors Potentially Affected

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural and Forestry	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance

A.2 Aesthetics

I. Aesthetics	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	☐	☐	☐	☒
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.3 Agricultural and Forestry Resources

II. Agricultural and Forestry Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.4 Air Quality

III. Air Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.5 Biological Resources

IV. Biological Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.6 Cultural Resources

V. Cultural Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.7 Geology and Soils

VI. Geology and Soils	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. 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.	☐	☐	☐	☒
2. Strong seismic ground shaking?	☐	☐	☐	☒
3. Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
4. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d. 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?	☐	☐	☐	☒
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.8 Greenhouse Gas Emissions

VII. Greenhouse Gas Emissions	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☒	☐	☐
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.9 Hazards and Hazardous Materials

VIII. Hazards and Hazardous Materials	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒	☐	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.10 Hydrology and Water Quality

IX. Hydrology and Water Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?	☐	☐	☒	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	☐	☐	☐	☒
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f. Otherwise substantially degrade water quality?	☐	☐	☒	☐
g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	☐	☐	☐	☒
i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j. Contribute to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.11 Land Use and Planning

X. Land Use and Planning		Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Physically divide an established community?	☐	☐	☐	☒
b.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c.	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.12 Mineral Resources

XI. Mineral Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.13 Noise

XII. Noise	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☒	☐	☐
b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f. Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.14 Population and Housing

XIII. Population and Housing	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.15 Public Services

XIV. Public Services	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.16 Recreation

XV. Recreation	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.17 Transportation/Traffic

XVI. Transportation/Traffic	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b. Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?	☐	☒	☐	☐
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e. Result in inadequate emergency access?	☐	☒	☐	☐
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.18 Utilities and Service Systems

XVII. Utilities and Service Systems	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	☐	☐	☐	☒
e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.19 Mandatory Findings

XVIII. Mandatory Findings of Significance		Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b.	Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c.	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

Appendix B

Mitigation, Monitoring, and Reporting Plan

Appendix B
Mitigation, Monitoring, and Reporting Plan

Mitigation, Monitoring, and Reporting Plan for the Unionhouse Creek Channel Improvements Project

Description of Measure	Implementation Schedule	Responsible Party
Aesthetics		
No mitigation required.		
Agriculture and Forestry Resources		
No mitigation required.		
Air Quality		
AQ-MM-1: Implement Basic Construction Emission Control Practices Recommended by the SMAQMD	Prior to and during construction	SAFCA
Biological Resources		
BIO-MM-1: Conduct Preconstruction Surveys and Relocate Individual Western Pond Turtles If Necessary	24-hours prior to construction	SAFCA
BIO-MM-2: Compensate for the Loss of Giant Garter Snake Habitat	Prior to construction	SAFCA
BIO-MM-3: Follow USFWS Avoidance and Minimization Measures for Giant Garter Snake during Construction	Prior to and during construction	SAFCA
BIO-MM-4: Conduct Preconstruction Surveys for Burrowing Owl and Implement CDFG Avoidance and Minimization Measures	Initiated no less than 14 days and again 24 hours prior to construction	SAFCA
BIO-MM-5: Conduct Preconstruction Surveys for Nesting Swainson's Hawks and Follow CDFG Guidance If They Are Detected	Between June 10 and July 30, and 5 days prior to construction	SAFCA
BIO-MM-6: Conduct Preconstruction Surveys for Nesting Birds and Raptors and Establish No-Disturbance Buffers If They Are Detected	Within 15 days and 5 days prior to construction	SAFCA
BIO-MM-7: Compensate for Loss of Seasonal Swale	Prior to construction	SAFCA
BIO-MM-8: Obtain Tree Permit and Compensate for Loss of Oak Tree	After construction	SAFCA
Cultural Resources		
CUL-MM-1: Stop Work, Assess Resource Significance, and Mitigate If Needed	During construction	SAFCA
CUL-MM-2: Stop Work and Treat Remains in Accordance with State Laws	During construction	SAFCA
Geology and Soils		
No mitigation required.		
Greenhouse Gas Emissions		
GHG-MM-1 (Optional): Implement SMAQMD Best Management Practices for Reducing Construction-Related Greenhouse Gas Emissions	Prior to and during construction	SAFCA

Description of Measure	Implementation Schedule	Responsible Party
Hazards		
HAZ-1: Implement a Spill Prevention, Control, and Countermeasure Plan	Prior to and during construction	SAFCA or Construction Contractor
HAZ-2: Develop and Implement a Fire Management Plan	Prior to and during construction	Construction Contractor
Hydrology and Water Quality		
No mitigation required.		
Land Use and Planning		
No mitigation required.		
Mineral Resources		
No mitigation required.		
Noise		
NOI-MM-1: Limit Hours of Construction Activities	During construction	SAFCA
NOI-MM-2: Implement a Noise Control Plan	Prior to construction	SAFCA
NOI-MM-3: Limit Timing of Construction Activities That Cause Vibration, Inform Adjacent Residents, Designate a Complaint Coordinator, and Temporarily Relocate Residents If Necessary	Prior to and during construction	SAFCA
Population and Housing		
No mitigation required.		
Public Services		
No mitigation required.		
Recreation		
No mitigation required.		
Transportation and Traffic		
TRA-MM-1: Coordinate Truck Routes	During and after construction	Construction Contractor
TRA-MM-2: Develop and Implement a Traffic Control Plan	Prior to and during construction	SAFCA
Utilities and Service Systems		
No mitigation required		
Growth-Inducement		
No mitigation required.		
Cumulative		
No mitigation required.		

Appendix C

California Natural Diversity Database (CNDDB) Results

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Portrait
Florin, Clarksburg, Sacramento West, Sacramento East, Carmichael, Elk Grove, Galt, Bruceville, and Courtland Quadrangles

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Accipiter cooperii Cooper's hawk	ABNKC12040			G5	S3	
2	Agelaius tricolor tricolored blackbird	ABPBXB0020			G2G3	S2	SC
3	Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
4	Aquila chrysaetos golden eagle	ABNKC22010			G5	S3	
5	Archoplites interruptus Sacramento perch	AFCQB07010			G3	S1	SC
6	Ardea alba great egret	ABNGA04040			G5	S4	
7	Ardea herodias great blue heron	ABNGA04010			G5	S4	
8	Athene cunicularia burrowing owl	ABNSB10010			G4	S2	SC
9	Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened		G3	S2S3	
10	Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150			G2	S2	
11	Brasenia schreberi watershield	PDCAB01010			G5	S2	2.3
12	Buteo regalis ferruginous hawk	ABNKC19120			G4	S3S4	
13	Buteo swainsoni Swainson's hawk	ABNKC19070		Threatened	G5	S2	
14	Carex comosa bristly sedge	PMCYP032Y0			G5	S2	2.1
15	Cicuta maculata var. bolanderi Bolander's water-hemlock	PDAPI0M051			G5T3T4	S2	2.1
16	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
17	Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Candidate	Endangered	G5T3Q	S1	
18	Cuscuta obtusiflora var. glandulosa Peruvian dodder	PDCUS01111			G5T4T5	SH	2.2
19	Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened		G3T2	S2	
20	Downingia pusilla dwarf downingia	PDCAM060C0			G2	S2	2.2
21	Dumontia oregonensis hairy water flea	ICBRA23010			G1G3	S1	
22	Elanus leucurus white-tailed kite	ABNKC06010			G5	S3	
23	Elderberry Savanna	CTT63440CA			G2	S2.1	
24	Emys marmorata western pond turtle	ARAAD02030			G3G4	S3	SC

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Falco columbarius merlin	ABNKD06030			G5	S3	
26	Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060		Endangered	G2	S2	1B.2
27	Great Valley Cottonwood Riparian Forest	CTT61410CA			G2	S2.1	
28	Great Valley Mixed Riparian Forest	CTT61420CA			G2	S2.2	
29	Great Valley Valley Oak Riparian Forest	CTT61430CA			G1	S1.1	
30	Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3			G4	S2.2	1B.2
31	Hydrochara ricksecker Ricksecker's water scavenger beetle	IICOL5V010			G1G2	S1S2	
32	Juglans hindsii Northern California black walnut	PDJUG02040			G1	S1.1	1B.1
33	Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1			G2T1	S1.2	1B.2
34	Lasiurus cinereus hoary bat	AMACC05030			G5	S4?	
35	Lathyrus jepsonii var. jepsonii Delta tule pea	PDFAB250D2			G5T2	S2.2	1B.2
36	Legenere limosa legenere	PDCAM0C010			G2	S2.2	1B.1
37	Lepidium latipes var. heckardii Heckard's pepper-grass	PDBRA1M0K1			G4T1	S1.2	1B.2
38	Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered		G3	S2S3	
39	Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030		Rare	G2	S2	1B.1
40	Linderiella occidentalis California linderiella	ICBRA06010			G3	S2S3	
41	Northern Hardpan Vernal Pool	CTT44110CA			G3	S3.1	
42	Nycticorax nycticorax black-crowned night heron	ABNGA11010			G5	S3	
43	Oncorhynchus tshawytscha chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	G5	S1	
44	Oncorhynchus tshawytscha chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5	S1	
45	Orcuttia tenuis slender Orcutt grass	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
46	Orcuttia viscida Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	G1	S1.1	1B.1
47	Phalacrocorax auritus double-crested cormorant	ABNFD01020			G5	S3	
48	Plagiobothrys hystriculus bearded popcorn-flower	PDBOR0V0H0			G1G2	S1S2	1B.1

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
49	Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020			G2	S2	SC
50	Progne subis purple martin	ABPAU01010			G5	S3	SC
51	Riparia riparia bank swallow	ABPAU08010		Threatened	G5	S2S3	
52	Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0			G3	S3	1B.2
53	Scutellaria galericulata marsh skullcap	PDLAM1U0J0			G5	S2	2.2
54	Scutellaria lateriflora side-flowering skullcap	PDLAM1U0Q0			G5	S1	2.2
55	Spea hammondii western spadefoot	AAABF02020			G3	S3	SC
56	Symphyotrichum lentum Suisun Marsh aster	PDASTE8470			G2	S2	1B.2
57	Taxidea taxus American badger	AMAJF04010			G5	S4	SC
58	Thamnophis gigas giant garter snake	ARADB36150	Threatened	Threatened	G2G3	S2S3	
59	Trifolium hydrophilum saline clover	PDFAB400R5			G2	S2	1B.2
60	Valley Oak Woodland	CTT71130CA			G3	S2.1	
61	Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
62	Xanthocephalus xanthocephalus yellow-headed blackbird	ABPBXB3010			G5	S3S4	SC

Appendix D

U.S. Fish and Wildlife (USFWS) Species

These buttons will not appear on your list.

Revise Selection

Print this page

Print species list before going on to letter.

Make Official Letter

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 120305015451

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

- Branchinecta lynchi
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)
- Lepidurus packardi
  - vernal pool tadpole shrimp (E)

Fish

- Acipenser medirostris
  - green sturgeon (T) (NMFS)
- Hypomesus transpacificus
  - Critical habitat, delta smelt (X)
  - delta smelt (T)
- Oncorhynchus mykiss
  - Central Valley steelhead (T) (NMFS)

- Oncorhynchus tshawytscha
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- Ambystoma californiense
  - California tiger salamander, central population (T)

- Rana draytonii
  - California red-legged frog (T)

Reptiles

- Thamnophis gigas
  - giant garter snake (T)

Quads Containing Listed, Proposed or Candidate Species:

FLORIN (496B)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to

their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.
See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be June 03, 2012.

Appendix E

California Native Plant Society's (CNPS) Inventory Search

Inventory of Rare and Endangered Plants

v7-12mar 3-28-12

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Basic Tools:
- All CNPS-listed plants
- Checkbox and Preset search
- Getting Started guide

Tech Tools:
- Query Builder
- Query by list of names
- Nine-quad search

Database indexes
- CNPS List
- State Status
- Federal Status
- Family
- County
- Life Form
- Topo Quad
- Common Name

Members and Friends:
- Request assistance
- Submit survey data
- Show your Plant Press

other things:
- Documentation and Resources
- Looking for common plants?
- Home of CNPS

Quick Search Form:

Search

- **more**

8th EDITION interface now available online!.....
Same data, but now includes GIS and many improvements. Not all 7th Edition features have been added yet - you can continue to use them here. To simplify access to the new features, such as GIS, each record in the 7th Edition now has a link to the corresponding details page in the 8th Edition.

INTRODUCTION to the 7th EDITION

The CNPS Inventory of Rare and Endangered Plants is now published on-line and updated quarterly. Along with the latest Inventory data from CNPS, you will find a variety of search tools, maps, thumbnail illustrations, and links to additional information.

CalPhotos archive
What rare plant is this?
(Click on image.)

The statewide CNPS website has extensive • **background information** about the Inventory. Since the publication of the last hardcopy 6th Edition in 2001, the review process and revisions have been ongoing. Stay informed and get involved!

Users of the Inventory may find it helpful to read the • **FAQ**.
example: "Which search method should I use?" (answer)
New users might want to consult the • **Getting Started** guide.

The last hardcopy edition was August 2001, but much of the front matter remains useful and informative:

Rarity in Vascular Plants - Peggy L. Fiedler
Rare Bryophytes in California - James R. Shevock
Bibliography for Biology and Conservation of Rare Plants - Peggy L. Fiedler and James P. Smith, Jr.
Conserving Plants with Laws and Programs under the California Department of Fish and Game - Sandra Morey and Diane Ikeda
The California Natural Diversity Database- Roxanne L. Bittman
The Natural Communities Program - Todd Keeler-Wolf

CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 21 items - Wed, Mar. 28, 2012 19:13 c

Reformat list as: Standard List - with Plant Press controls

ECOLOGICAL REPORT

scientific	family	life form	blooming	communities	elevation	CNPS
Brasenia schreberi	Cabombaceae	perennial rhizomatous herb aquatic		•Marshes and swamps (MshSw)/ freshwater	30 - meters	List 2.3
Carex comosa	Cyperaceae	perennial rhizomatous herb		•Coastal prairie (CoPrr) •Marshes and swamps (MshSw)(lake margins) •Valley and foothill grassland (VFGrs)	0 - meters	List 2.1
Cicuta maculata var. bolanderi	Apiaceae	perennial herb		•Marshes and swamps (MshSw) Coastal, fresh or brackish water	0 - meters	List 2.1
Downingia pusilla	Campanulaceae	annual herb		•Valley and foothill grassland (VFGrs)(mesic) •Vernal pools (VnPls)	1 - meters	List 2.2
Gratiola heterosepala	Plantaginaceae	annual herb		•Marshes and swamps (MshSw)(lake margins) •Vernal pools (VnPls)/clay	10 - meters	List 1B.2
Hibiscus lasiocarpos var. occidentalis	Malvaceae	perennial rhizomatous herb emergent		•Marshes and swamps (MshSw) (freshwater)	0 - meters	List 1B.2
Juglans hindsii	Juglandaceae	perennial deciduous tree		•Riparian forest (RpFrs) •Riparian woodland (RpWld)	0 - meters	List 1B.1

Juncus leiospermus var. ahartii	Juncaceae	annual herb		•Valley and foothill grassland (VFGrs)(mesic)	30 - meters	List 1B.2
Lathyrus jepsonii var. jepsonii	Fabaceae	perennial herb	Months in parentheses are uncommon.	•Marshes and swamps (MshSw) (freshwater and brackish)	0 - meters	List 1B.2
Legenere limosa	Campanulaceae	annual herb		•Vernal pools (VnPls)	1 - meters	List 1B.1
Lepidium latipes var. heckardii	Brassicaceae	annual herb		•Valley and foothill grassland (VFGrs) (alkaline flats)	2 - meters	List 1B.2
Lilaeopsis masonii	Apiaceae	perennial rhizomatous herb		•Marshes and swamps (MshSw) (brackish or freshwater) •Riparian scrub (RpScr)	0 - meters	List 1B.1
Limosella subulata	Scrophulariaceae	perennial stoloniferous herb		•Marshes and swamps (MshSw)	0 - meters	List 2.1
Orcuttia tenuis	Poaceae	annual herb	Months in parentheses are uncommon.	•Vernal pools (VnPls)	35 - meters	List 1B.1
Orcuttia viscida	Poaceae	annual herb		•Vernal pools (VnPls)	30 - meters	List 1B.1
Plagiobothrys hystriculus	Boraginaceae	annual herb		•Valley and foothill grassland (VFGrs)(mesic) •Vernal pools (VnPls)margins/ often vernal swales	0 - meters	List 1B.1
Sagittaria sanfordii	Alismataceae	perennial rhizomatous herb emergent		•Marshes and swamps (MshSw) (assorted shallow freshwater)	0 - meters	List 1B.2

Scutellaria galericulata	Lamiaceae	perennial rhizomatous herb		•Lower montane coniferous forest (LCFrs) •Meadows and seeps (Medws) (mesic) •Marshes and swamps (MshSw)	0 - meters	List 2.2
Scutellaria lateriflora	Lamiaceae	perennial rhizomatous herb		•Meadows and seeps (Medws) (mesic) •Marshes and swamps (MshSw)	0 - meters	List 2.2
Symphyotrichum lentum	Asteraceae	perennial rhizomatous herb		•Marshes and swamps (MshSw) (brackish and freshwater)	0 - meters	List 1B.2
Trifolium hydrophilum	Fabaceae	annual herb		•Marshes and swamps (MshSw) •Valley and foothill grassland (VFGrs)(mesic, alkaline) •Vernal pools (VnPls)	0 - meters	List 1B.2

Appendix F

Study Area Plant Species

Appendix F
Study Area Plant Species

Table F-1. List of Plant Species Identified in the Unionhouse Creek Study Area during March, 2012 Surveys

Common Name	Scientific Name	Indicator Status*
Common fiddleneck	*Amsinckia intermedia*	–
Slender wild oat	*Avena barbata*	–
Black mustard	*Brassica nigra*	–
Field mustard	*Brassica rapa*	–
Ripgut brome	*Bromus diandrus*	NI
Yellow star-thistle	*Centaurea solstitialis*	–
Bindweed	*Convolvulus arvensis*	–
Bermuda grass	*Cynodon dactylon*	FAC
Nutsedge	*Cyperus eragrostis*	FACW
Long beaked filaree	*Erodium botrys*	–
Redstem filaree	*Erodium cicutarium*	–
Italian ryegrass	*Festuca perennis* [*Lolium multiflorum*]	FAC
Sweet fennel	*Foeniculum vulgare*	FACU
Narrowleaf cottonrose	*Logfia gallica* [*Filago gallica*]	–
Mediterranean barley	*Hordeum marinum* ssp. *gussoneanum*	FAC
Hare barley	*Hordeum murinum* ssp. *leporinum*	NI
Common rush	*Juncus effusus*	OBL
Prickly lettuce	*Lactuca serriola*	FAC
Italian ryegrass	*Lolium multiflorum*	FAC
Floating water primrose	*Ludwigia peploides*	OBL
Common mallow	*Malva neglecta*	–
Bur clover	*Medicago polymorpha*	–
Olive	*Olea europaea*	–
Interior live oak	*Quercus wislizeni*	–
Flowering plum	*Pyrus calleryana*	–
Wild radish	*Raphanus sativus*	–
Curly dock	*Rumex crispus*	FACW-
Russian thistle	*Salsola tragus*	FACU+
Old man of spring	*Senecio vulgaris*	NI
Hedge mustard	*Sisymbrium* sp.	–
Dandelion	*Taraxacum officinale*	FACU
Spring vetch	*Vicia sativa*	FACU
Cocklebur	*Xanthium strumarium*	FAC+

Sources: Reed 1988; Hickman 1993.

* Indicator status:

FACW = facultative wetland plant.
FAC = facultative plant.
FACU = facultative upland plant.
NI = no indicator.
– = not listed in Reed 1988.

UNIONHOUSE CREEK
CHANNEL IMPROVEMENTS PROJECT

MITIGATED NEGATIVE DECLARATION/
FINAL INITIAL STUDY

PREPARED FOR:

Sacramento Area Flood Control Agency
1007 7th Street, 7th Floor
Sacramento, CA 95814
Contact: Pete Ghelfi
916.874.7606

PREPARED BY:

ICF International
630 K Street, Suite 400
Sacramento, CA 95814
Contact: Megan Smith
916.737.3000

June 2012

ICF International. 2012. *Unionhouse Creek Channel Improvements Project Mitigated Negative Declaration/Final Initial Study*. June. (ICF 00217.12.) Sacramento, CA. Prepared for Sacramento Area Flood Control Agency, Sacramento, CA.

Unionhouse Creek Channel Improvements Project

Mitigated Negative Declaration

~~Proposed~~ Mitigated Negative Declaration
Unionhouse Creek Channel Improvements Project

The Sacramento Area Flood Control Agency (SAFCA), acting as the California Environmental Quality Act (CEQA) lead agency and project proponent, has reviewed the proposed project described below to determine whether it could have a significant effect on the environment as a result of project completion. "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in the any of the physical conditions within the area affected by the project, including land use, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Name of Project: Unionhouse Creek Channel Improvements Project

Project Description: The proposed project consists of modifying the channel of Unionhouse Creek for approximately 1.6 miles, from immediately downstream (west) of Bruceville Road to upstream (east) of Franklin Boulevard in the city of Sacramento, California. The proposed project includes flood risk-reduction measures in two segments of the creek: lining the side slopes with concrete and re-lining the channel bottom ~~and side slopes~~ with concrete from Bruceville Road ~~downstream to~~ to the downstream (west) side of the crossing of Center Parkway; and widening the channel by an additional 8 feet, to a total width of 20 feet, from immediately west of Center Parkway downstream to Franklin Boulevard. The primary purpose of this effort is to increase the creek channel's capacity to contain 100-year storm flows within the proposed banks of the channel.

Construction of the proposed project would occur between August and October, 2012. No known hazardous waste sites exist in the project area.

Project Location: The project is located in the southern portion of the city of Sacramento, along Unionhouse Creek, from immediately downstream (west) of Bruceville Road to upstream (east) of Franklin Boulevard.

Contact Information of Lead Agency Representative: Ms. Megan Smith, Project Manager, ICF International, 630 K Street, Suite 400, Sacramento, CA 95814. (916) 231-7677, **msmith3@icfi.com**.

Findings: SAFCA finds the project described above will not have a significant effect on the environment. The attached Final Initial Study identifies one or more potentially significant effects on the environment for which the project proponent, before public release of this proposed Mitigated Negative Declaration, has made or agrees to make project revisions that clearly mitigate the effects to a less-than-significant level. SAFCA further finds that there is no substantial evidence that this project may have a significant effect on the environment.

Public Review Period: The Unionhouse Creek Channel Improvements Project Initial Study and proposed Mitigated Negative Declaration (IS/MND) ~~is~~ was available for review and comment from May 15, 2012, to June 13, 2012. The IS/MND ~~may be viewed~~ was available for public review at the following locations:

- SAFCA: 1007 7th Street, 7th Floor Sacramento, CA 95814
- Sacramento Public Library – Valley Hi-North Laguna Branch: 7400 Imagination Parkway, Sacramento, CA 95823
- online at **http://www.safca.org/Programs_SoSacStreams.html**.

Digital or physical copies ~~may also be~~ could be requested from Ms. Megan Smith by email at **msmith3@icfi.com**, at the above address or at **(916) 231-7677**.

No later than **June 13, 2012**, any person ~~may~~ could:

(1) Review the IS/MND; and

(2) Submit written comments regarding the information, analysis, and mitigation measures in the IS/MND to the contact person above by mail or email.

Public Comment: In response to public comment and additional lead agency review, the following minor clarifications were made to finalize the Initial Study:

- Page 1-3: Future additional flood risk-reduction projects in the area are not precluded by this project. This clarification will not result in any new or undisclosed impacts.
- Page 2-1: The project's upstream measure – concrete sideslope lining – will continue westward under the Center Parkway bridge, ending on the downstream side of the creek crossing. This clarification will not result in any new or undisclosed impacts.
- Page 2-3: Channel excavation would be conducted with disclosed equipment using both in-channel and channel-adjacent construction methods. This clarification will not result in any new or undisclosed impacts.
- Page 3.3-4: At the request of Sacramento Metropolitan Air Quality Management District (SMAQMD), the IS/MND has been revised to include SMAQMD rules that may relate to the project.

Name: _____

Title: _____

Signed: _____

Circulated on: May 15, 2012

Adopted on: June 21, 2012

Unionhouse Creek Channel Improvements Project

Final Initial Study

Contents

Tables

Figures

Acronyms and Abbreviations

AB	Assembly Bill
AB 939	Assembly Bill 939
ACHP	Advisory Council on Historic Preservation
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
APE	area of potential effects
ARB	California Air Resources Board
B.P.	before present
BA	biological assessment
BAAQMD	Bay Area Air Quality Management District
Basin Plans	Water Quality Control Plans
BO	biological opinion
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CCAs	Community Choice Aggregations
CCR	California Code of Regulations
CDTSC	California Department of Toxic Substances Control
CEQ	Council on Environmental Quality
CEQA	California Environmental Policy Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CHRIS	California Historical Resources Information System
CIWMP	countywide integrated waste management plan
CNDDB	California Natural Diversity Database
CNPS's	California Native Plant Society's
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO2 equivalents
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CVFPB	California Central Valley Flood Control Board
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
dbh	diameter at breast height
DFG	California Department of Fish and Game
DWR	Department of Water Resources
EA	Environmental Assessment
EIR	Environmental Impact Report

EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESPs	energy service providers
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FR	Federal Register
Ft	feet
FTA	Federal Transit Administration
GHG	greenhouse gas
GPS	global positioning system
GWP	global warming potential
HSC	Health and Safety Code and
I-5	Interstate 5
ICF	ICF International
IOUs	investor-owned utilities
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
km	kilometers
L_{dn}	day-night level
L_{eq}	equivalent sound level
L_{eq} 1h	1-hour A-weighted equivalent sound level
L_{max}, L_{min}	maximum and minimum sound levels
LOS	level of service
L_V	vibration noise levels
L_{XX}	percentile-exceeded sound level
MBTA	Migratory Bird Treaty Act
MDAQMD	Mojave Desert Air Quality Management District
mi	mile
MLD	most likely descendant
MOA	memorandum of agreement
MPOs	metropolitan planning organizations
MRZ-3	Mineral Resource Zone–3
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOI	notice of intent
NO_X	oxides of nitrogen

NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O&M	operations and maintenance
O_3	ozone
OHWM	ordinary high-water mark
PG&E	The Pacific Gas and Electric Company
PM	particulate matter
PM10	PM less than or equal to 10 microns in diameter
PM2.5	PM less than or equal to 2.5 microns in diameter
ppm	parts per million
ppt	parts per trillion
PPV	peak particle velocity
PRC	Public Resources Code
psi	pounds per square inch
Regional Water Boards	Regional Water Quality Control Boards
ROG	reactive organic gases
RPS	California's Renewable Portfolio Standard
RT	Regional Transit
SAFCA	Sacramento Area Flood Control Agency
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCEMD	Sacramento County Environmental Management Department
SHPO	State Historic Preservation Officer
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SPCCP	spill prevention, control, and counter-measure plan
SR	State Route
SRCSD	Sacramento Regional County Sanitation District
SSSG	South Sacramento County Streams Group project
SVAB	Sacramento Valley Air Basin
SWPPP	stormwater pollution prevention plan
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	vibration decibels
VOC	volatile organic compound
WDRs	waste discharge requirements
$\mu g/m^3$	micrograms per cubic meter

Chapter 1
Introduction

1.1 Project Purpose

The Sacramento Area Flood Control Agency (SAFCA) is proposing construction of channel upgrades, including channel widening and creek bank lining, in portions of approximately 1.6 miles of Unionhouse Creek in south Sacramento County. The project area runs adjacent to Cosumnes River Boulevard, bounded upstream by Bruceville Road and downstream by Franklin Boulevard, in the southern portion of the city of Sacramento.

The primary purpose of this effort is to increase the creek channel's capacity to handle higher flows during flood events. This project would raise the level of flood protection in the project area to a minimum level of 100-year flood protection, defined as safely containing a flood event with less than a 1% chance of occurrence in any given year, and ensure that the area meets the minimum Federal Emergency Management Agency (FEMA) level of flood protection. This project will provide flood insurance relief and additional flood protection for properties adjacent to Unionhouse Creek between Franklin Boulevard and Bruceville Road.

1.2 Document Purpose and Use

This Initial Study (IS) was prepared in accordance with Article 5, Section 15060 et seq. of the California Environmental Policy Act (CEQA) Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3). This IS describes the existing environmental resources in the project area, evaluates the environmental impacts of the proposed project on these resources, and identifies mitigation measures to avoid or reduce any potentially significant impacts to a less-than-significant level.

The CEQA Lead Agency, SAFCA, will consider the findings of this IS, as well as public input on the content of the IS, in determining whether preparation of an Environmental Impact Report (EIR) is necessary prior to implementation of the proposed project. This IS also will be used by multiple responsible, trustee and cooperating agencies, including the City of Sacramento, California Department of Fish and Game (DFG), California Department of Water Resources (DWR), Central Valley Regional Water Quality Control Board (Regional Water Board), Regional Transit (RT), and California Central Valley Flood Control Board (CVFPB), in taking action under CEQA and other regulatory schemes to authorize implementation of the proposed channel upgrades.

1.3 Project Location and Setting

In the project area, Unionhouse Creek, part of the Morrison Creek stream group, is located in southern Sacramento County on land owned and managed by the City of Sacramento. Unionhouse Creek is located in the Beach/Stone Lakes basin, a system of streams, lakes, and floodplains that drains the area southeast of Laguna and Elk Grove Creeks and the Morrison Creek watershed.

Historically the Beach/Stone Lakes basin was an overflow area of the Sacramento River (Sacramento Regional County Sanitation District 2000). The primary streams in the Beach/Stone Lakes basin are Morrison Creek and its major tributaries: Elder Creek, Florin Creek, Laguna Creek, and Unionhouse Creek. Unionhouse Creek empties into Morrison Creek less than 1 mile downstream of the study area. During non-flood conditions, there is no direct hydrologic connectivity between Unionhouse Creek and the Sacramento River (Sacramento Area Flood Control Agency 2004). During these periods, water is pumped from Morrison Creek into the Sacramento River by the City of Sacramento (Sacramento Area Flood Control Agency 2004).

West of the project area, Unionhouse Creek flows along the northern edge of the Bufferlands. The Bufferlands was established in the 1970s by the Sacramento Regional County Sanitation District (SRCSD) as an undeveloped buffer area between the Sacramento County Regional Wastewater Treatment Plant and surrounding neighborhoods. The Bufferlands encompasses 2,650 acres of managed wetlands, grasslands, and riparian forest habitat.

The proposed project area evaluated for the purpose of this IS is centered along the segment of Unionhouse Creek from immediately downstream (west) of Bruceville Road to immediately upstream (east) of Franklin Boulevard. The total project area encompasses approximately 30 acres, although ground disturbance (e.g., grading, excavation, cut and fill) would occur on approximately 9.5 acres, and only 0.97 acre would be outside the limits of the existing channel. To the north, the project area is closely bounded by residential and commercial development. A buffer area adjacent to the south bank of Unionhouse Creek between the creek and Cosumnes River Boulevard would be used for temporary staging and material disposal and also is evaluated in this IS. The proposed construction activities would be located in the above identified project impact area and would be limited primarily to the drainage channel of Unionhouse Creek.

1.4 Project Background

The South Sacramento County Streams drainage basin has a long history of flooding during heavy rainfall. Local runoff from the Morrison Creek watershed can cause flooding because of limited channel capacities and bridge restrictions. To address various potential flooding hazards, including those in the area of the proposed project, the South Sacramento County Streams Group project (SSSG) was authorized by the Water Resources Development Act of 1999. The SSSG is a federally authorized flood control project that, in relevant part, improves flood protection along four creeks (Morrison, Florin, Elder, and Unionhouse Creeks) in the southern part of the city of Sacramento. The U.S. Army Corps of Engineers (USACE), along with CVFPB and SAFCA, has been implementing improvements identified in the authorization since 2005.

In preparation, USACE, the CVFPB, and SAFCA have conducted numerous studies and prepared environmental documentation related to flood control projects in the Morrison Creek stream group, which includes Unionhouse Creek.

- 1998 EIS/EIR: In 1998 USACE and SAFCA prepared a joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR) addressing improvements on the streams in the Morrison Creek Stream Group in accordance with CEQA and the National Environmental Policy Act (NEPA) (State Clearinghouse No. 1997102056). USACE identified the Locally Preferred Plan and completed the Final EIS/EIR, recognizing that changes to the project may occur during design. SAFCA subsequently certified the completion of the EIR in April 2000.

- 2004 Environmental Assessment: USACE released an Environmental Assessment (EA) in accordance with NEPA, addressing proposed refined design improvement measures in 2004. The EA concluded that the proposed design improvements would be implemented with no significant adverse effect on the environment, supporting a Finding of No Significant Impact (FONSI).
- 2004 Supplemental EIR: In 2004, SAFCA prepared a separate Supplemental EIR on the refined design improvements pursuant to State CEQA Guidelines Section 15163. This Supplemental EIR relied on the 1998 EIS/EIR analysis and complemented it by evaluating the additional environmental effects that would result from changes to the previously studied project features and components. SAFCA adopted a Statement of Overriding Considerations pursuant to State CEQA Guidelines Section 15093 for the 2004 Supplemental EIR at the time of project approval.
- 2008 EA/IS: In 2008, USACE, the CVFPB, and SAFCA finalized a joint NEPA/CEQA EA/IS in support of a proposed effort to make further design refinements to the previously authorized SSSG. The proposed action included channel upgrades to Unionhouse Creek, which were not ultimately carried out. The project area of the 2008 EA/IS included Unionhouse Creek upstream of Franklin Boulevard to Center Parkway, approximately 1 mile of the present proposed project area.

Presently, as USACE continues its efforts under the SSSG, the channel improvements proposed in 2008 to Unionhouse Creek between Franklin Boulevard and Center Parkway have not been initiated because of the project's estimated costs, projected to be over $40 million.

In order to expedite flood insurance relief to area residents and improve flood protection, SAFCA has partnered with the City of Sacramento and RT to design a simplified proposed project that provides a minimum level of 100-year flood protection when complete~~, and the USACE improvements mentioned above no longer would be necessary~~. This project does not preclude implementation of improvements to further increase the level of protection in the future.

1.5 Regulatory Compliance

In carrying out this project, SAFCA will seek all necessary permissions, authorizations, concurrences and permits, if any, to comply with the following regulatory schemes, as relevant:

- Clean Water Act Sections 404 and 401
- California Fish and Game Code Section 1602
- National Historic Preservation Act Section 106
- Federal Endangered Species Act
- California Endangered Species Act
- Porter-Cologne Water Quality Control Act
- Federal Clean Air Act
- California Clean Air Act

1.6 Document Organization

This document is organized as follows:

- Chapter 1, "Introduction," describes the project background, elements, purpose, and regulatory compliance.
- Chapter 2, "Project Description," describes the project area.
- Chapter 3, "Environmental Setting and Impacts," describes the environmental resources present in the project area, and analyzes the potential of the proposed project to impact such resources.
- Chapter 4, "Cumulative Impacts," discusses the potential for the proposed project's incremental effect to be cumulatively considerable when combined with other projects causing related impacts.
- Chapter 5, "References," provides a list of all printed references and personal communications used to prepare the IS.
- Chapter 6, "List of Preparers," presents a list of all personnel who assisted in the preparation of this document.
- Appendix A, "Environmental Checklist," contains the Environmental Checklist Form, CEQA Guidelines Appendix G.
- Appendix B, "Mitigation, Monitoring, and Reporting Plan," details all proposed mitigation measures that would be implemented in conjunction with the proposed project.
- Appendix C, "California Natural Diversity Database (CNDDB) Results," provides the results of the CNDDB search.
- Appendix D, "U.S. Fish and Wildlife (USFWS) Species," provides a list of endangered, threatened, and proposed species that have the potential to occur near the project area.
- Appendix E, "California Native Plant Society's (CNPS) Inventory Search", provides a list of rare and endangered plants with potential to occur near the project area.
- Appendix F, "Study Area Plant Species" provides a list of plant species identified during surveys of the Unionhouse Creek study area.

Chapter 2
Project Description

2.1 Introduction

This chapter describes the elements of the proposed project. The project consists of channel modifications to 1.6 miles of Unionhouse Creek, along Cosumnes River Boulevard from immediately west of its confluence with Strawberry Creek (just west of Bruceville Road) to its crossing with Franklin Boulevard, in the city of Sacramento. The channel modifications would reduce the risk of flooding in SAFCA's planning area.

2.2 Description of Proposed Project

This section includes a discussion of features and construction details, including channel excavation, staging, borrow and disposal sites, construction equipment and personnel, access routes, schedule, restoration and cleanup, and operation and maintenance for the proposed project.

2.2.1 Project Features

The proposed project consists of modifying the channel of Unionhouse Creek for approximately 1.6 miles, from immediately downstream (west) of Bruceville Road to upstream (east) of Franklin Boulevard (Figure 2-1). The primary purpose of this effort is to increase the creek channel's capacity to contain 100-year storm flows within the proposed banks of the channel. Unionhouse Creek is a trapezoidal channel that has a 12-foot-wide concrete bottom, steep unlined side slopes, and a top width of approximately 61 feet. The proposed project includes flood risk-reduction measures in two segments of the creek: lining the side slopes with concrete and re-lining the concrete channel bottom from Bruceville Road to the downstream (west) side of ~~downstream to~~ the crossing of Center Parkway, and widening the channel by an additional 8 feet, to a total bottom width of 20 feet, from immediately west of Center Parkway downstream to Franklin Boulevard. While no new pumps or infrastructure are proposed with this project, an existing sump pump and outlet structure would be relocated approximately 8 feet south of its current position to accommodate the channel widening. (Figure 2-1). In addition, an existing regional site antenna pole located next to the sump pump would be removed and relocated outside the future light rail access road, approximately 5 feet northeast of its current position.

Unionhouse Creek is presently concrete-lined on the bottom; the additional concrete lining would reduce friction in the channel so channel velocity and flow rate are increased, thereby reducing water surface elevation, and the channel widening also would reduce water surface elevations. Where concrete lining is employed, the surface of the existing channel slope and bottom would be removed to a depth adequate to offset the additional concrete, such that no cross-sectional area would be lost. The channel bottom would not be deepened in either segment. The total project area encompasses approximately 30 acres, although ground disturbance would occur on approximately 9.5 acres, and only 0.97 acre would be outside the limits of the existing channel.

2.2.2 Construction Methods and Activities

The primary construction activities would include bypass pumping, infrastructure relocation, excavation, compaction, clearing/grubbing, and concrete placement.

2.2.2.1 Bypass Pumping

At least 15 days prior to beginning any excavation or construction, the contractor would establish a bypass pumping system at the upstream boundary of the project site (just downstream of the confluence with Strawberry Creek), as well as at locations where local storm drains discharge to Unionhouse Creek, for the duration of the project. These systems would consist of a temporary cofferdam, pump, generator or other power source, and piping necessary to convey minor flows to the downstream end of the project.

For each segment of construction, water would be pumped to the downstream limits of the in-channel work (at the Franklin Boulevard and/or Center Parkway bridges). A cofferdam or similar type of instream barrier would be placed at the bridges just above the location of reintroduced flow to prevent water from entering the active work area. Once cofferdams are in place, the channel work area would be passively or actively (i.e., pumped) dry and remain dry for at least 15 consecutive days prior to the start of construction in each segment to protect aquatic species, most notably giant garter snakes. Because of the construction schedule, only minor residential irrigation runoff and rare, minor storm flows during the dry season would contribute flow to the channel. Dewatering of groundwater would not occur on this project.

2.2.2.2 Infrastructure Relocation

An existing storm drain sump pump, gravity bypass outlet, and all ancillary structures (collectively described as Sump 201) would be relocated approximately 8 feet south to accommodate the channel widening between Center Parkway and Franklin Blvd. The contractor would install a bypass pumping system to intercept minor flows discharging to Sump 201 before beginning the relocation work. Once the bypass pumping system is in place, the contractor would demolish a gravity outlet structure in the south bank and remove an existing manhole, a discharge dissipator, and the Sump 201 manhole. Storm drainage lines connecting these structures would be removed and disposed of at an acceptable location. The removed manhole, discharge dissipator, and Sump 201 manhole would be relocated approximately 8 feet south of their previous location; new storm drainage piping would be installed to reconnect these structures to existing storm drains, and the trenches would be backfilled. The gravity outlet structure would be reconstructed once the proposed south bank is constructed.

In addition, an existing approximately 35-foot-tall regional site antenna pole located next to the sump pump would be removed and relocated outside the future light rail access road, approximately 5 feet northeast of its current position. During construction, a 9.5-foot-deep footing for the new pole would be excavated, the new concrete footing poured, and the electrical connection to the existing pole disconnected. The pole would then be relocated to the new foundation, and electrical service reconnected. It is anticipated this pole would be out of service for no more than 24 hours.

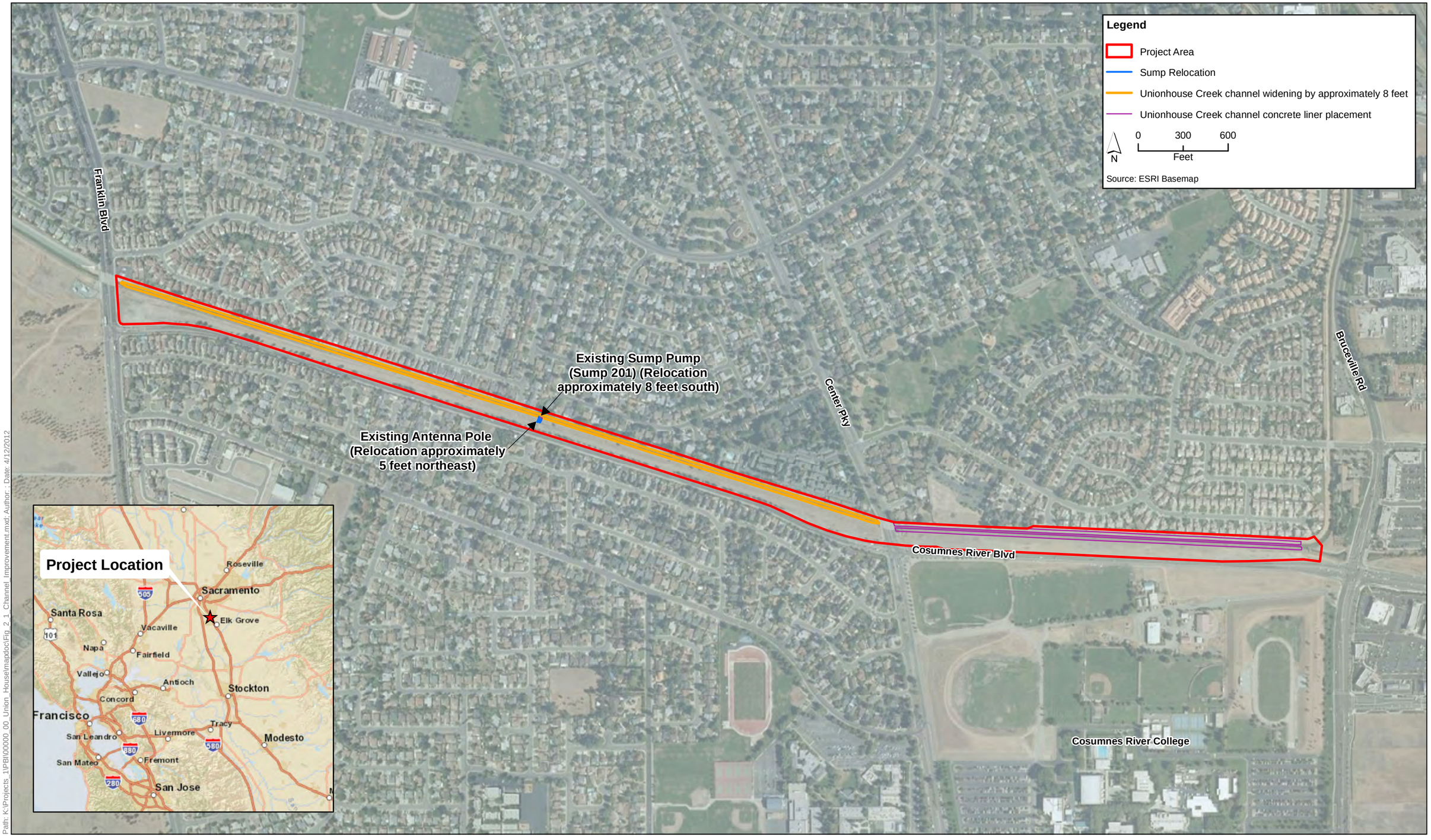

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Figure 2-1
Unionhouse Creek Channel Improvement Project

2.2.2.3 Excavation, Compaction, and Concrete Placement

Bruceville Road to Center Parkway

For the Bruceville Road to Center Parkway segment of the project, the north and south banks would be cleared and grubbed to remove existing vegetation, and the existing 12-foot-wide concrete bottom removed. Any excess dirt removed during this process would be used as fill for the future Regional Transit Light Rail project. Concrete removed would be disposed of at an appropriate waste site authorized to accept concrete waste in Sacramento County. Both banks and the channel bottom would be compacted to a minimum of 90% relative density. Prior to concrete placement, 6-inch welded wire fabric reinforcement would be installed on the sides and bottom of the channel. Weep holes would be installed in each bank 12 inches above the channel bottom at 10-foot intervals. Finally, 4 inches of 3,000 pounds per square inch (psi) concrete would be pneumatically applied over the reinforcing wire to finish the channel sides and bottom. A smooth finish would be applied and expansion joints sawed at 15-foot intervals.

Center Parkway to Franklin Boulevard

For the Center Parkway to Franklin Boulevard segment of the project, channel excavation would involve widening the channel to increase cross-sectional area, while maintaining the south bank at a slope of 1.8H:1V. Excavation of the south bank and removal of the existing 12-foot-wide concrete lining would take place first. Channel excavation would be conducted using both in-channel and channel-adjacent construction methods. Following creek flow diversion, existing concrete would be removed and disposed of at an appropriate waste site authorized to accept concrete waste in Sacramento County. The excavated soil would be stockpiled in the area between Cosumnes River Boulevard and Unionhouse Creek and would be used as fill for the future Regional Transit Light Rail project (an unrelated adjacent project). Soil would be stockpiled with a triangular cross section 20 feet wide and 10 feet tall, and the pile would be approximately 5,300 feet long, occupying approximately 2.43 acres.

Exposed soil along the channel bottom and south bank would be compacted to a minimum of 90% relative density. Prior to concrete placement, 6-inch welded-wire fabric reinforcement would be installed in the bottom of the 20-foot-wide channel. Finally, 4 inches of 3,000 psi concrete would be pneumatically applied over the reinforcing wire to finish the channel bottom. A smooth finish would be applied, contraction joints sawed in at 16-foot intervals, and expansion joints cut at 80-foot intervals.

2.2.2.4 Project Completion

As construction is completed in each channel segment, equipment would be removed from the staging area. The cofferdam then would be removed, and flow diverted back into the channel. Once construction activities are completed, all equipment and excess materials would be transported off site via local streets and regional highways. Any disturbed earthen portions of the project area would be reseeded with a noninvasive grass mix to promote revegetation and minimize soil erosion. The work sites and staging areas would be cleaned of construction debris, and the work area left similar to its pre-project condition.

2.2.3 Site Access, Staging, and Disposal Sites

Equipment and materials would be transported on local roadways to the construction site. Cosumnes River Boulevard would serve as the primary local roadway providing access to the site. State Route (SR) 99 and Interstate 5 (I-5) provide regional access to Cosumnes River Boulevard. Staging areas would be along the Sacramento Regional Transit easement that fronts Unionhouse Creek, within existing channel banks, and within the channel.

Staging areas would be located primarily in the area southeast of the Franklin Boulevard Bridge between Unionhouse Creek and Cosumnes River Boulevard. Access would be from Cosumnes River Boulevard. The location of the staging areas would depend on the channel segment being constructed; there is currently no curb or gutter along Cosumnes River Boulevard to prevent access along the length of the project, so staging and temporary access would move along the project length as the work progresses (Figure 2-1).

As stated above, various disposal sites may be used depending on the type of material to be disposed of. Old concrete from the existing channel lining would be disposed of at an approved waste site authorized to accept concrete waste. Cleared vegetation from the channel would be transported to the nearest transfer station or landfill for disposal. Excavated material from Unionhouse Creek not used for backfill purposes would be temporarily placed on the vacant area adjacent to the creek between Franklin Boulevard and Center Parkway and used on site in construction of Sacramento Regional Transit improvements scheduled for construction in 2013 (a separate project).

2.2.4 Construction Equipment and Personnel

Approximately 10 to 15 persons would be expected to be on site daily during peak construction periods. Private worker vehicles would be parked in the construction staging areas identified above. Typical equipment used at the project site would include excavators, dump trucks, concrete pumps, and cement trucks. See Table 3.3-5 Construction Equipment Assumptions.

2.2.5 Construction Schedule

Construction is expected to occur from 7 a.m. to 6 p.m. Monday through Saturday from early August through the end of October 2012.

2.2.6 Operation and Maintenance Activities

The City of Sacramento is responsible for maintenance of Unionhouse Creek. The channel bottom is kept free of debris, and the sides are mowed periodically. From Bruceville Road to Center Parkway, the City no longer would need to mow the sides of the channel because they would be concrete-lined. From Center Parkway to Franklin Boulevard, the proposed maintenance would not change.

Chapter 3
Environmental Setting and Impacts

3.1 Introduction

This chapter provides an overview of the existing physical environment and regulatory requirements for each of the resources that may be affected by the proposed project. The environmental setting is followed by an evaluation of the environmental impacts for each resource. The chapter is organized by resource topic and corresponds to the Environmental Checklist Form of the State CEQA Guidelines. A complete environmental checklist for each potentially affected resource is provided in Appendix A.

Implementation of the mitigation measures specified in the impact analysis would either avoid adverse impacts completely or reduce the impacts to a less-than-significant level. SAFCA would adopt a mitigation and monitoring program at the time it adopts the mitigated negative declaration. The purpose of the plan is to ensure that the mitigation measures adopted as part of the project approval would be implemented when the project is constructed. Some impacts have been avoided by including certain measures in the project description.

The following terminology is used to describe the level of significance of impacts:

- A finding of no impact is appropriate if the analysis concludes that the project would not affect the particular topic area in any adverse way.
- An impact is considered less than significant if the analysis concludes that it would cause no substantial adverse change to the environment and requires no mitigation.
- An impact is considered less than significant with mitigation incorporated if the analysis concluded that it would cause no substantial adverse change to the environment with the inclusion of mitigation measures that have been agreed to by the applicant.
- An impact is considered potentially significant if the analysis concludes that it could have a substantial adverse effect on the environment, and mitigation is not possible.

3.2 Resources Not Likely to Be Affected

Initial evaluation of the impacts of the proposed project indicated that there likely would be little to no impact on several resources. These resources are discussed below to add to the overall understanding of the project.

3.2.1 Aesthetics

Aesthetics impacts are typically based on viewer response to changes in their surroundings resulting from project construction and operation. Viewer response depends, in part, on the type of viewer exposed to the project, as well as the frequency and duration of their views. Consideration of these factors, combined with the visual characteristics of the area and the proposed activities, determines the likelihood of visual impacts.

Potential sensitive visual receptors depend upon nearby land uses, which in this case include roadways on the west, south, and east; single- and multiple-family residential uses to the north; commercial development to the east; and single-family residential areas and the Cosumnes River College campus to the south. Viewer groups likely to be affected by project activities therefore fall into three general categories: nearby residents, visitors to the Cosumnes River College campus, and travelers on adjacent roadways. Roads with views of the project site are Franklin Boulevard to the west, Cosumnes River Boulevard to the south, and Bruceville Road to the east, and Center Parkway, which crosses the project site.

Although the project site is visible from limited parts of nearby residential neighborhoods and roadways, the nature of the proposed project and its surroundings precludes direct views of the proposed channel improvements. Views consist primarily of foreground elements such as roadways, fences and trees and, from Cosumnes River College, berms surrounding the sports fields. These features effectively shield much of the project area from view, allowing only limited visibility of the existing chain-link fence; disturbed areas of gravel, soil, and grass along the channel banks; and the tops of some nearby buildings, back yard fences, trees, and shrubs. Because the area's topography is flat and the channel is located below grade, the channel itself is not easily seen from nearby roads and homes. Portions of the channel are briefly visible to travelers crossing the Franklin Boulevard, Center Parkway, and Bruceville Road bridges.

Implementation of the proposed project is not expected to result in any impacts on visual resources. The channel improvements will not affect any scenic vista or resources, as neither the existing Unionhouse Creek channel, nor the adjacent disturbed area, nor any nearby feature, is considered a scenic resource. Similarly, the proposed channel modifications consist of below-grade improvements that will not degrade the site's existing visual character or introduce new sources of light and glare. Construction equipment and activities will be temporarily visible to travelers on adjacent roadways for approximately 3 months. Changes within the channel itself will be minimally visible to travelers on the Center Parkway and Franklin Boulevard bridges, which pass near the channel area proposed for widening. Other viewers are unlikely to see modifications to the channel due to the area's flat topography and the channel's below-grade location. Consequently, aesthetic resources are not considered further in this document.

3.2.2 Agriculture and Forestry Resources

The proposed project consists of channel modifications to an existing, channelized creek in the urbanized city of Sacramento. The project site is surrounded by single and multiple family residential uses, and commercial and educational facilities. The Unionhouse Creek site does not encompass or border any agricultural or forest resources, and would therefore have no effect on these resources.

3.2.3 Land Use and Planning

The proposed Unionhouse Creek Channel Improvements Project consists of re-lining the existing Unionhouse Creek channel between Bruceville Road and Center Parkway with concrete, and widening the existing channel by 8 feet from Center Parkway downstream to Franklin Boulevard. Land uses adjacent to the project site include single and multiple family residential uses, and commercial and educational facilities. The northeastern corner of the Sacramento Regional County Sanitation District's Bufferlands area lies across Franklin Boulevard from the project site's western end. The land use proposed under the Unionhouse Creek Channel Improvements Project already exists on the project site. Specifically, modifications to the existing channel would not physically divide an established community or conflict with any applicable land use plan, policy, or regulation, including the *Sacramento 2030 General Plan*, the City of Sacramento Zoning Code, or the Sacramento Regional County Sanitation District's *Bufferlands Master Plan*. Implementation of the project therefore would not result in any changes to existing land uses.

3.2.4 Mineral Resources

Sacramento County's mineral resources consist primarily of sand and gravel construction aggregates, and clay. The proposed project is located in an area classified Mineral Resource Zone–3 (MRZ-3) defined as an area containing mineral deposits, the significance of which cannot be evaluated from available data (City of Sacramento 2009). The proposed project is not located near a mineral extraction site (City of Sacramento 2009). The proposed project would not result in the loss of availability of mineral resources or otherwise prevent the extraction of important mineral resources. The project would have no impact on mineral resources.

3.2.5 Population and Housing

The proposed project would not involve the construction of any new housing, businesses, roads or infrastructure, but would aid in protecting the existing housing, businesses, roads, and infrastructure from future flooding. Implementation of the proposed project would not displace any existing housing units or residents, and therefore would not necessitate the construction of replacement housing units elsewhere. The project would have no impact on population and housing.

3.2.6 Public Services

Public services in the project area consist of law enforcement, fire protection, emergency medical assistance, and utilities. The Sacramento City Police Department provides law enforcement services, and the Sacramento City Fire District provides fire and emergency medical services. Construction of the proposed project would not result in any loss of service ratios, response times, or other performance objectives as there would be no road closures involved, and the proposed project

would not block access to any local areas. No schools or parks are located in or adjacent to the project area. The project would have no impact on public services.

3.2.7 Recreation

The project is in the South Sacramento Planning Area of the City of Sacramento Department of Parks and Recreation. There are no existing recreational facilities located adjacent to or within the project footprint. Construction of the project would not restrict access to or interrupt use of any recreational facilities. Furthermore, construction activities would be short-term and limited in scope. The project would have no impact on recreational facilities.

3.2.8 Growth Inducement

The proposed project would provide flood protection in the project area and adjacent residential areas that would accommodate 100-year flood events. However, the project's goal of providing increased flood risk-reduction to local, adjacent homes and businesses would not remove a barrier to growth. The project area and the floodplain the project would protect are presently densely developed, and are not subject to any state or federal development restrictions due to the present level flood risk. Land use designations, growth rates, employment, and housing values would continue to be determined by local government regulations and economic conditions. Therefore, the proposed project is not considered growth-inducing.

3.3 Air Quality

This section provides an analysis of air quality impacts resulting from the proposed project. It summarizes the overall regulatory framework for air quality management in California and the region, describes existing air quality conditions in the project area, and identifies sensitive land-uses. Environmental impacts related to air quality, and mitigation measures to reduce or eliminate potential impacts, also are discussed.

3.3.1 Physical Setting

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted from those sources. Meteorological and topographical conditions are also important factors. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients, interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. Air quality is indicated by ambient concentrations of criteria pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, and particulate matter (PM), which consists of PM less than or equal to 10 microns in diameter (PM10) and PM less than or equal to 2.5 microns in diameter (PM2.5).

3.3.1.1 Climate and Topography

Hot, dry summers and mild, rainy winters characterize the mediterranean climate of the Sacramento Valley Air Basin (SVAB). During the year, the temperature may range from 20 to 115°F, with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 20 inches, with about 75% of the total falling during the rainy season (generally from November through March). The prevailing winds are moderate in strength and vary from moist, clean breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants under certain meteorological conditions. The highest frequency of air stagnation occurs in autumn and early winter when large high-pressure cells lie over the Sacramento Valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduce the influx of outside air and allow air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke or when temperature inversions trap cool air, fog, and pollutants near the ground.

The ozone season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds with the Delta sea breeze arriving in the afternoon out of the southwest. Usually, the evening breeze transports the airborne pollutants to the north out of the Sacramento Valley. During about half of the days from July to September, however, a phenomenon called the Schultz Eddy prevents this from occurring. Instead of allowing the prevailing wind patterns to move north carrying the pollutants out, the Schultz Eddy causes the wind pattern to circle back south. Essentially, this phenomenon causes the air pollutants to be blown south toward the Sacramento area. This phenomenon exacerbates the pollution levels in the area and increases the likelihood of violating federal or state standards. The eddy normally dissipates around noon, when the Delta sea breeze arrives. (Sacramento Metropolitan Air Quality Management District 2009a.)

3.3.1.2 Existing Air Quality Conditions

Existing air quality conditions in the project area can be characterized in terms of the federal and state air quality standards, and by monitoring data collected in the region. The U.S. Environmental Protection Agency (EPA) and California Air Resources Board (ARB) maintain an extensive network of monitoring stations throughout California. Table 3.3-1 presents pollutant concentrations measured at the Elk Grove–Bruceville Monitoring, El Camino and Watt, and Branch Center Road Stations for the past 3 years for which complete data are available (2007–2009). These stations were selected based on their proximity to the project area. Table 3.3-1 indicates which pollutants are measured at each station because not all stations monitor for the same pollutants. Concentrations typically are measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$).

As shown in Table 3.3-1, Sacramento County has experienced frequent exceedances of the state and federal ozone and PM10 standards. The state and federal ambient air quality standards are described in Table 3.3-2 below.

Table 3.3-1. Pollutant Concentrations Measured at the Elk Grove–Bruceville, El Camino and Watt, and Branch Center Road Monitoring Stations

	Sacramento County		
Pollutant Standards	**2007**	**2008**	**2009**
1-Hour Ozone (Elk Grove–Bruceville)			
Maximum 1-hour concentration (ppm)	0.102	0.111	0.102
1-hour California designation value (ppm)	0.110	0.110	0.100
1-hour expected peak day concentration (ppm)	0.109	0.105	0.099
Number of days standard exceeded[a]			
CAAQS 1-hour (>0.09 ppm)	1	5	2
8-Hour Ozone (Elk Grove–Bruceville)			
National maximum 8-hour concentration (ppm)	0.087	0.093	0.086
National second-highest 8-hour concentration (ppm)	0.082	0.085	0.078
State maximum 8-hour concentration (ppm)	0.088	0.093	0.087
State second-highest 8-hour concentration (ppm)	0.083	0.085	0.079
8-hour national designation value (ppm)	0.083	0.082	0.079
8-hour California designation value (ppm)	0.096	0.093	0.085
8-hour expected peak day concentration (ppm)	0.097	0.095	0.086
Number of days standard exceeded[a]			
NAAQS 8-hour (>0.075 ppm)	5	7	5
CAAQS 8-hour (>0.070 ppm)	13	13	12
Carbon Monoxide (El Camino and Watt)			
National maximum 8-hour concentration (ppm)[b]	3.20	2.84	2.84
National second-highest 8-hour concentration (ppm)[b]	2.96	2.60	2.84
California maximum 8-hour concentration (ppm)[c]	3.20	2.84	2.84
California second-highest 8-hour concentration (ppm)[c]	2.96	2.60	2.84
Maximum 1-hour concentration (ppm)	3.50	3.20	–
Second-highest 1-hour concentration (ppm)	3.10	2.80	–

Pollutant Standards	Sacramento County 2007	2008	2009
Number of days standard exceeded[a]			
NAAQS 8-hour (≥9 ppm)	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	0	0
NAAQS 1-hour (≥35 ppm)	0	0	0
CAAQS 1-hour (≥20 ppm)	0	0	0
PM10[d] (Branch Center Road)			
National[b] maximum 24-hour concentration (μg/m³)[b]	70	71	45
National[b] second-highest 24-hour concentration (μg/m³)[b]	61	53	35
California maximum 24-hour concentration (μg/m³)[c]	75	72	48
California second-highest 24-hour concentration (μg/m³)[c]	66	57	38
California annual average concentration (μg/m³)[e]	20.7	23.2	18.7
Number of days standard exceeded[a]			
NAAQS 24-hour (>150 μg/m³)[f]	0	0	0
CAAQS 24-hour (>50 μg/m³)[f]	30	12	0
PM2.5 (Elk Grove–Bruceville)			
National maximum 24-hour concentration (μg/m³)[b]	–	–	–
National second-highest 24-hour concentration (μg/m³)[b]	–	–	–
California maximum 24-hour concentration (μg/m³)[c]	57.7	83.3	41.0
California second-highest 24-hour concentration (μg/m³)[c]	48.2	79.2	39.3
National annual designation value (μg/m³)	–	–	–
National annual average concentration (μg/m³)	–	–	–
California annual designation value (μg/m³)	–	16.0	16.0
California annual average concentration (μg/m³)[e]	–	16.1	14.7
Number of days standard exceeded[a]			
NAAQS 24-hour (>35 μg/m³)[f]	–	–	–

Sources: California Air Resources Board 2010a; U.S. Environmental Protection Agency 2010b.

Notes: CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
ppm = parts per million.
μg/m³ = micrograms per cubic meter.
– = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[c] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.

[d] Usually, measurements are collected every 6 days.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been truncated.

3.3.2 Regulatory Setting

3.3.2.1 Air Quality Management

The air quality management agencies of direct importance in Sacramento ~~San Joaquin County~~ include the EPA, ARB, and the Sacramento Metropolitan Air Quality Management District (SMAQMD). EPA has established federal ambient air quality standards for which ARB and the SMAQMD have primary implementation responsibility. ARB and the SMAQMD are responsible for ensuring that state ambient air quality standards are met. The SMAQMD is also responsible for implementing strategies for air quality improvement and recommending mitigation measures for new growth and development.

Air quality is determined primarily by the type and amount of contaminants emitted into the atmosphere, the size and topography of the basin, and its meteorological conditions. State and federal criteria pollutant emission standards have been established for six pollutants: CO, O_3, PM (which consists of both PM10 and PM2.5), NO_2, SO_2, and lead. In the SVAB, the SMAQMD is responsible for ensuring that these emission standards are not violated.

The proposed project may be subject to the following District rules. This list of rules may not be all encompassing, as additional District rules may apply to the project as specific developments are identified. These are rules that have been adopted by the SMAQMD to reduce emissions throughout the Sacramento County, and are required. Failure to comply with any applicable District rule would be a violation of said rule, and is subject to District enforcement action.

- **Rule 201: General Permit Requirements.** Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact the SMAQMD early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc.) with an internal combustion engine over 50 horsepower are required to have a SMAQMD permit or a California Air Resources Board portable equipment registration. Other general types of uses that require a permit include, but are not limited to dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions.
- **Rule 403: Fugitive Dust.** The developer or contractor is required to control dust emissions from earth moving activities, storage or any other construction activity to prevent airborne dust from leaving the project site.
- **Rule 460: Adhesives and Sealants.** The developer or contractor is required to use adhesives and sealants that comply with the volatile organic compound content limits specified in the rule.
- **Rule 902: Asbestos.** The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of asbestos containing material.
- **Naturally Occurring Asbestos:** The developer or contractor is required to notify SMAQMD of earth moving projects, greater than 1 acre in size in areas "Moderately Likely to Contain Asbestos" within eastern Sacramento County. Asbestos Airborne Toxic Control Measures, Section 93105 & 93106 contain specific requirements for surveying, notification, and handling soil that contains naturally occurring asbestos.

Table 3.3-2. National and California Ambient Air Quality Standards

			Standard (ppm)		Standard (µg/m^3)		Violation Criteria	
Pollutant	Symbol	Average Time	California	National	California	National	California	National
Ozone*	O_3	1 hour	0.09	–	180	–	If exceeded	–
		8 hours	0.070	0.075	137	147	If exceeded	If fourth-highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor in an area
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 hours	6	–	7,000	–	If equaled or exceeded	–
Nitrogen dioxide	NO_2	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.18	0.100	339	188	If exceeded	–
Sulfur dioxide	SO_2	24 hours	0.04	0.14	105	–	If exceeded	–
		1 hour	0.25	0.075	655	196	If exceeded	If exceeded on more than 1 day per year
		3 hours	–	0.50*	-	1,300*	–	–
		Annual arithmetic mean	–	0.030	–	–	–	If exceeded on more than 1 day per year
Hydrogen sulfide	H_2S	1 hour	0.03	–	42	–	If equaled or exceeded	–
Vinyl chloride	C_2H_3Cl	24 hours	0.01	–	26	–	If equaled or exceeded	–
Inhalable particulate matter	PM10	Annual arithmetic mean	–	–	20	–	–	–
		24 hours	–	–	50	150	If exceeded	If exceeded on more than 1 day per year
	PM2.5	Annual arithmetic mean	–	–	12	15	–	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	–	–	–	35	–	If 3-year average of 98th percentile at each population-oriented monitor in an area is exceeded
Sulfate particles	SO_4	24 hours	–	–	25	–	If equaled or exceeded	–
Lead particles	Pb	Calendar quarter	–	–	–	1.5	–	If exceeded no more than 1 day per year
		30-day average	–	–	1.5	–	If equaled or exceeded	–
		Rolling 3-month average	–	–	–	0.15	If equaled or exceeded	Averaged over a rolling 3-month period

Source: California Air Resources Board 2012.
* = secondary standard; ppm = parts per million; µg/m^3= micrograms per cubic meter.

3.3.2.2 Federal and State Ambient Air Quality Standards

Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that the federal government and California have established for several different pollutants. For some pollutants, separate standards have been set for different measurement periods. Most standards have been set to protect public health and welfare with an adequate margin of safety. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, and avoidance of nuisance conditions). The national ambient air quality standards (NAAQS), which describe acceptable conditions, were authorized by the federal Clean Air Act of 1970. Air quality is considered in "attainment" if pollutant levels are below or equal to the NAAQS continuously and exceed them no more than once each year. The California Ambient Air Quality Standards (CAAQS), which describe adverse conditions, were authorized by the State legislature in 1967. Pollution levels must be below the CAAQS before a basin can attain the standard. California standards are generally more stringent than the national standards. The pollutants of greatest concern in the proposed project area are CO; O_3; and PM10 and PM2.5, which are inhalable. NAAQS and CAAQS are presented in Table 3.3-2.

3.3.2.3 Attainment Status

Areas are classified as either attainment or nonattainment with respect to state and federal air quality standards. These classifications are made by comparing actual monitored air pollutant concentrations to state and federal standards. If a pollutant concentration is lower than the state or federal standard, the area is classified as being in *attainment* of the standard for that pollutant. If a pollutant violates the standard, the area is considered a *nonattainment* area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated *unclassified*. Areas that previously were designated as nonattainment areas but have recently met the standard are called *maintenance* areas.

Table 3.3-3 summarizes the attainment status of Sacramento County with regard to the NAAQS and CAAQS.

Table 3.3-3. Federal and State Attainment Status of Sacramento County

	Sacramento County	
Pollutant	**NAAQS**	**CAAQS**
1-hour ozone	–	Serious nonattainment
8-hour ozone	Serious nonattainment	Nonattainment
CO	Moderate maintenance[a]	Attainment
PM2.5	Nonattainment	Nonattainment
PM10	Moderate nonattainment	Nonattainment

Sources: California Air Resources Board 2010b; U.S. Environmental Protection Agency 2010a.
– = no applicable standard.
CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
CO = carbon monoxide.
PM2.5 = particulate matter less than or equal to 2.5 microns.
PM10 = particulate matter less than or equal to 10 microns.
[a] Designation applies to a portion of the county.

3.3.2.4 Sensitive Receptors

The SMAQMD identifies sensitive receptors as "facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants." Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors (Sacramento Metropolitan Air Quality Management District 2009). The nearest sensitive receptors are residential subdivisions located immediately adjacent to the northern and southern boundaries of the project area along most of the project alignment. In addition, Cosumnes River College is located south of the project impact area between Center Parkway and Bruceville Road, and the Sunny Creek Infant Care is located immediately adjacent to the northern boundary of the project impact area across from the college. These sensitive receptors are generally 50 to 100 feet from the project area. However, in some cases, residences are as close as 25 feet from the creek and potential project construction activities.

3.3.3 Environmental Effects

3.3.3.1 Significance Criteria

Sacramento Metropolitan Air Quality Management Thresholds of Significance

Appendix G in the State CEQA Guidelines states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to determine the project's level of impact. The SMAQMD has established quantitative thresholds, which are summarized in Table 3.3-4, for the evaluation of air quality impacts.

Table 3.3-4. Sacramento Metropolitan Air Quality Management Thresholds of Significance

Pollutant	Construction	Operational
ROG	–	65
NO_X	85	65
CO	Exceedance of CAAQS	Exceedance of CAAQS
PM10 and PM2.5	Exceedance of CAAQS	Exceedance of CAAQS

Source: Sacramento Metropolitan Air Quality Management District 2009.
– = no applicable threshold.
ROG = reactive organic gas.
NOx = oxides of nitrogen.
CO = carbon monoxide.
CAAQS = California ambient air quality standards.
PM10 = particulate matter less than or equal to 10 microns.
PM2.5 = particulate matter less than or equal to 2.5 microns.

In addition to the thresholds listed in Table 3.3-4, the SMAQMD has established screening criteria for the evaluation of PM10 and PM2.5 impacts from construction activities. Projects that implement all Basic Construction Emission Control Practices recommended by the SMAQMD and do not exceed a maximum daily disturbed area (grading, excavation, cut and fill) of 15 acres are presumed not to have the potential to exceed or contribute to the SMAQMD's concentration-based threshold of

significance for PM10 and PM2.5 at an off-site location (Sacramento Metropolitan Air Quality Management District 2009).

a. Conflict with or obstruct implementation of the applicable air quality plan?

A project is deemed inconsistent with air quality plans if it would result in either population or employment growth that exceeds growth estimates included in the applicable air quality plan. Such growth would generate emissions not accounted for in the applicable air quality plan emissions budget. Therefore, proposed projects need to be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rates included in the relevant air plans.

The proposed project entails only construction activities, and emissions associated with project construction would cease once construction activities have ended. In addition, the proposed project would not induce population or employment growth and would not conflict with or obstruct implementation of the applicable air quality plan. Consequently, the project would not conflict with or obstruct implementation of the applicable air quality plan, and no mitigation is required.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Implementation of the proposed project would result in construction activities that would result in short-term air pollutant emissions. Temporary construction emissions of reactive organic gas (ROG), oxides of nitrogen (NO_X), CO, PM10, and PM2.5 would result from site clearing and grubbing, excavation, concrete removal and placement, compaction activities, and utility replacement. Construction-related emissions include direct exhaust emissions from off-road equipment (such as excavators), on-road equipment (such as cement trucks and worker trucks), and fugitive dust emissions associated with earthmoving and other soil-disturbing activities. Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather.

Construction and mobile-source operational emissions were estimated using the URBEMIS2007, Version 9.2.4 emissions model. Information regarding project construction phasing, equipment number and types, worker numbers, and site disturbance, were obtained from the project engineers. Construction would consist of seven separate project elements, with multiple construction phases for each element. Construction information used in URBEMIS emissions modeling is summarized in Table 3.3-5.

Table 3.3-6 summarizes modeled maximum daily construction emissions, without implementation of mitigation measures, for each phase of construction activities. In addition, Table 3.3-6 presents total emissions anticipated to occur over the entire construction period. As indicated in Table 3.3-6, criteria pollutant emissions would remain below the SMAQMD NO_X and the CAAQS CO significance thresholds for all phases analyzed, including total construction emissions. Consequently, construction-related NO_X and CO impacts are considered less than significant.

As discussed above, the SMAQMD considers construction-related PM10 and PM2.5 emissions to be less than significant if the total maximum daily disturbed area (i.e., grading, excavation, cut and fill) is less than 15 acres in size and the project implements Basic Construction Emission Control Practices recommended by the SMAQMD. As indicated in the project description and Table 3.3-5, the total project area associated with ground disturbing activities is approximately 10 acres. For the purposes of Table 3.3-6, the theoretical maximum daily disturbed area is assumed to be 10 acres,

although the ground disturbance would actually occur over several weeks and the amount disturbed at any one time would be less than this maximum.

Activities associated with ground disturbance are clearing and grubbing of the creek banks and excavation. To ensure that construction-related PM10 and PM2.5 impacts are less than significant, Mitigation Measure AQ-MM-1 is required, which will require the project applicant to implement the SMAQMD's Basic Construction Emission Control Practices. Consequently, the project would not violate any particulate matter air quality standard or contribute substantially to an existing or projected air quality violation. Construction-related PM10 and PM2.5 emissions are considered less than significant because the project's maximum daily disturbed area is less than 15 acres in size and the project will implement the SMAQMD's Basic Construction Emission Control Practices as part of Mitigation Measure AQ-MM-1.

Mitigation Measure AQ-MM-1: Implement Basic Construction Emission Control Practices Recommended by the SMAQMD.

The project applicant will require, as a standard or specification of the contract, the construction contractor(s) to implement Basic Construction Emission Control Practices recommended by the SMAQMD to reduce construction-related fugitive dust. The project applicant will ensure through contract provisions and specifications that the contractor adheres to the emission control practices listed in this mitigation measure before and during construction and documents compliance with the measures.

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least 2 feet of freeboard space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- Complete the paving of all roadways, driveways, sidewalks, parking lots to be paved as soon as possible. In addition, lay building pads as soon as possible after grading unless seeding or soil binders are used.

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

As indicated above in b, the proposed project would not generate NO_X emissions in excess of SMAQMD thresholds. In addition, Mitigation Measure AQ-MM-1 will ensure construction-related PM10 and PM2.5 impacts are reduced to a less-than-significant level.

d. Expose sensitive receptors to substantial pollutant concentrations?

Construction activities are anticipated to involve the operation of diesel-powered equipment. In 1998, the ARB identified diesel exhaust as a toxic air contaminant. Cancer health risks associated with exposures to diesel exhaust typically are associated with chronic exposure, in which a 70-year

Table 3.3-5. Construction Equipment Assumptions

Phase[1]	Start Date	End Date	Truck Trips Per Day	Equipment Used	Hours per Day for each piece of equipment/Round trip mileage
Clearing and grubbing[2]	August 1, 2012	August 8, 2012	–	1 Chipper 1 Loader	Chipper—4 hours/day Loader—8 hours/day
Excavation[3]	August 8, 2012	September 19, 2012	–	1 Excavator	8 hours/day
Concrete removal	August 8, 2012	September 1, 2012	11	1 Excavator 1 Dump truck	Excavator—8 hours/day Dump truck—30 miles
Compaction	September 1, 2012	October 1, 2012	–	1 Roller	8 hours/day
Concrete placement	October 1, 2012	October 31, 2012	34	1 Cement Truck	10 miles
Utility relocation	September 1, 2012	September 19, 2012	–	1 Backhoe loader 1 Crane	Loader—8 hours/day Crane—8 hours/day
Bypass pumping	August 8, 2012	October 31, 2012	–	1 20 hp Diesel generator	Generator—12 hours/day
Crushed rock	2 trips during project (during concrete placement)		2 total	1 Dump truck	10 miles
Mowing	1–2 times/year		–	1 Tractor w/boom-type mower	8 hours/day

[1] Assumes 15 workers per day.

[2] Assumes maximum of 4.5 acres disturbed per day.

[3] Assumes maximum of 5.5 acres disturbed per day.

Table 3.3-6. Summary of Unmitigated Project Emissions (pounds per day)

			Pounds/Day								
Phase	Start Date	End Date	ROG	NO_X	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Clearing/Grubbing	August 1, 2012	August 8, 2012	1.57	11.60	7.70	45.00	0.76	45.76	9.40	0.70	10.10
Excavation	August 8, 2012	September 19, 2012	0.63	4.70	3.48	55.00	0.27	55.27	11.48	0.25	11.73
Concrete Removal	August 8, 2012	September 1, 2012	1.11	11.42	5.90	0.05	0.54	0.59	0.02	0.49	0.51
Compaction	September 1, 2012	October 1, 2012	0.54	3.36	2.30	0.00	0.29	0.29	0.00	0.27	0.27
Concrete Placement	October 1, 2012	October 31, 2012	0.50	6.92	2.49	0.05	0.27	0.32	0.02	0.25	0.27
Utility Relocation	September 1, 2012	September 19, 2012	1.16	9.42	5.03	0.00	0.52	0.52	0.00	0.47	0.47
Bypass Pumping	August 8, 2012	October 31, 2012	0.26	1.53	1.11	0.00	0.09	0.09	0.00	0.08	0.08
Crushed Rock	2 trips during project (during concrete placement)		0.09	1.22	0.44	0.01	0.05	0.06	0.00	0.04	0.04
Employee Commutes	15 workers/day		1.11	7.99	7.29	0.01	0.49	0.50	0.01	0.45	0.46
Construction Total			6.97	58.16	35.74	100.12	3.28	103.40	20.93	3.00	23.93
SMAQMD Thresholds of Significance			NA	85	NA	NA	NA	NA	NA	NA	NA
Mowing1	1-2 times/year		-0.49	-3.12	-2.48	-0.00	-0.27	-0.27	-0.00	-0.25	-0.25

Mowing activities will cease with project implementation, as vegetated creek banks will be replaced with concrete creek banks. Consequently, these emissions represent a net benefit, as they will no longer be emitted once the project is implemented.

ROG = reactive organic gas.

NO_X = oxides of nitrogen.

CO = carbon monoxide.

PM10 = particulate matter less than or equal to 10 microns in diameter.

PM2.5 = particulate matter less than or equal to 2.5 microns in diameter.

exposure period often is assumed. Although elevated cancer rates can result from exposure periods of less than 70 years, acute exposure (i.e., exposure periods of 2 to 3 years) to diesel exhaust typically are not anticipated to result in an increased health risk because acute exposure typically does not result in the exposure concentrations necessary to result in a health risk. Construction activities would take place over a 3-month period, with limited overlap of construction phasing and diesel equipment operation. As a result, construction activities would be staggered and would not occur in any one place longer than 90 working days. Health impacts associated with exposure to diesel exhaust from project construction are not anticipated to be significant because construction activities are expected to last well below the 70-year exposure period used in health risk assessments. Table 3.3-6 indicates that PM10 emissions from construction-related diesel exhaust are relatively low. Therefore, construction of the project is not anticipated to result in an elevated cancer risk to exposed persons.

e. Create objectionable odors affecting a substantial number of people?

Diesel exhaust from construction activities may generate temporary odors while construction of project improvements is underway. Once construction activities have been completed, these odors will cease.

3.4 Biological Resources

3.4.1 Methods

3.4.1.1 Prefield Investigation

ICF biologists reviewed the following resource information to evaluate whether special-status species or other sensitive biological resources could occur in the study area.

- The California Natural Diversity Database (CNDDB) of the U.S. Geological Survey (USGS) 7.5-minute Florin, Clarksburg, Sacramento West, Sacramento East, Carmichael, Elk Grove, Galt, Bruceville, and Courtland quadrangles (California Natural Diversity Database 2012) (Appendix C).
- The U.S. Fish and Wildlife Service (USFWS) list of endangered, threatened, and proposed species for the 7.5-minute Florin quadrangles obtained from the USFWS web site (U.S. Fish and Wildlife Service 2012) (Appendix D).
- The California Native Plant Society's (CNPS's) online Inventory of Rare and Endangered Plants of California for the USGS 7.5-minute Florin, Clarksburg, Sacramento West, Sacramento East, Carmichael, Elk Grove, Galt, Bruceville, and Courtland quadrangles (California Native Plant Society 2012) (Appendix E).
- ICF file information.

This information was used to develop lists of special-status species and other sensitive biological resources that could be present in the study area.

3.4.1.2 Field Surveys

Field surveys were performed on March 1 and 7, 2012. The general purposes of the field surveys were to:

- Characterize and map biological communities and their associated wildlife habitat values.
- Determine whether suitable habitat is present for special-status plant and wildlife species that have the potential to occur in the project vicinity.
- Identify potential waters of the United States, including wetlands.

During the field surveys, ICF botanist/wetland ecologists and a wildlife biologist conducted a reconnaissance-level, habitat-based assessment of the study area. In addition, the botanists/wetland ecologists conducted a delineation of waters of the United States using the routine on-site determination method described in the 1987 *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the supplemental procedures and wetland indicators provided in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008).

3.4.2 Existing Conditions

The approximately 30.24-acre project study area (study area) includes the proposed construction corridor along Unionhouse Creek (shown as "Beacon Creek" on the USGS 7.5-minute quadrangle), a staging area corridor on the south side of the creek, and the remaining uplands between the creek and Cosumnes River Boulevard. The study area is bounded by the fence-line on the north side of Unionhouse Creek, the edge of Cosumnes River Boulevard to the south, Franklin Boulevard to the west, and the confluence of Unionhouse Creek and Strawberry Creek to the east.

The study area is located in the Sacramento Valley subdivision of the California Floristic Province (Baldwin et al. 2012) and ranges in elevation from approximately 15 feet to 25 feet above mean sea level. Unionhouse Creek drains into Morrison Creek to the west, which drains into the Sacramento River.

3.4.2.1 Land Cover Types

Four land cover types were observed in the project area: ruderal annual grassland, seasonal swale, perennial drainage, and developed. Each of these land cover types is described below and their locations are shown on Figure 3.4-1. The acreages of each land cover type in the project area are shown in Table 3.4-1.

Table 3.4-1. Acreages of Land Cover Types in the Project Area

Land Cover Type	Acreage in Project Area
Ruderal Annual Grassland	24.41
Seasonal Swale	0.037
Perennial Drainage	5.29
Total Acreage*	29.74

* Does not include the area of the developed land cover type.

Ruderal Annual Grassland

Ruderal annual grassland occurs on the banks of Unionhouse Creek and occupies most of the area between the top of the creek bank and Cosumnes River Boulevard. Ruderal annual grassland includes disturbed areas that support a high proportion of ruderal species (weedy species that typically colonize disturbed areas) in addition to annual grasses and forbs. Most of the ruderal annual grassland in the study area has been mowed. Trees in the study area were planted for landscaping and include flowering plum (*Pyrus calleryana*) and olive (*Olea europaea*) along the edge of Cosumnes River Boulevard and a coast live oak (*Quercus agrifolia*) near the southeast corner of the bridge at Center Parkway. Vegetation along the banks of Unionhouse Creek is herbaceous, and dominant species include field mustard (*Brassica rapa*), slender wild oat (*Avena barbata*), long-beaked filaree (*Erodium botrys*), bindweed (*Convolvulus arvensis*), and nonnative grasses and forbs.

The ruderal annual grassland provides marginal habitat for wildlife. This area appears to be disked annually to control vegetation, which was evidenced from discing patterns observed during the reconnaissance-level surveys and from a review of aerial photographs. Common bird species may forage in these areas but because of the periodic disturbance, nesting would be limited to opportunistic ground-nesting that occurred prior to the annual discing. It is believed that this area

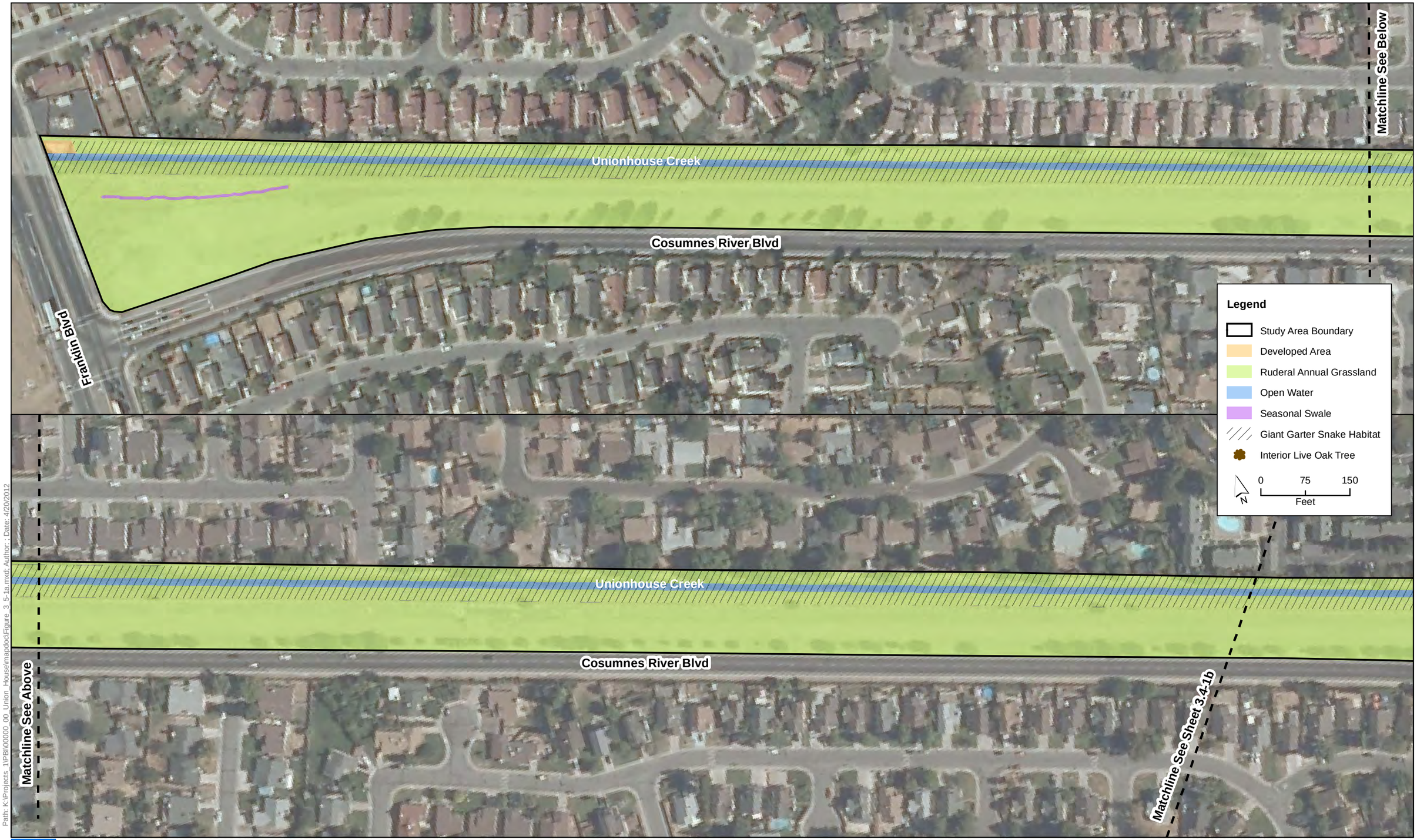

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Figure 3.4-1a
Biological Resources in the Study Area

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Figure 3.4-1b
Biological Resources in the Study Area

would not be suitable for ground-nesting after the vegetative cover is removed. Common bird species may nest in the trees planted along Cosumnes River Boulevard. Wildlife species observed in the ruderal annual grasslands during the March 7, 2012, reconnaissance surveys include killdeer (*Charadrius vociferous*), mourning dove (*Zenaida macroura*), black phoebe (*Sayornis saya*), western scrub jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), red-winged blackbird (*Agelaius phoeniceus*), and house finch (*Carpodacus mexicanus*). No nests were observed in the project area. No mammals or mammal sign (e.g., burrows, trails) was observed in the ruderal annual grassland. Additional species observed in flight in the vicinity of the project area include red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*B. jamaicensis*), and Swainson's hawk (*B. swainsoni*).

Seasonal Swale

A seasonal swale encompassing an area of approximately 0.037 acre is located in a depression at the western end of the study area on the south side of Unionhouse Creek near Franklin Boulevard. The dominant species observed in the seasonal swale were Italian ryegrass (*Festuca perennis [Lolium perenne]*), bindweed (*Convolvulus arvensis*), and curly dock (*Rumex crispus*). The sources of hydrologic input are surface runoff from the surrounding uplands and direct precipitation. Water movement within the seasonal swale is primarily vertical (i.e., seasonal fluctuations in depth). There is no outlet channel or other water connection to a permanent surface water, and the swale likely is subject to only very shallow ponding, if any, and soil saturation during the rainy season, becoming dry during the summer. Based on a review of recent aerial photographs, this swale appears to have been created by discing or scraping activities at some point between 2007 and 2009.

The seasonal swale does not provide particular habitat for common or special-status wildlife because it lacks suitable topography to inundate to a depth to provide habitat for aquatic species (e.g., vernal pool invertebrates) and does not provide foraging habitat for birds known to forage in wetlands.

Perennial Drainage

The two perennial drainages in the study area, Unionhouse Creek and Strawberry Creek, encompass a total area of approximately 5.37 acres and are both trapezoidal channels with steep banks. Unionhouse Creek drains east to west and is approximately 30 feet wide with a low-flow channel approximately 8 feet wide. Unionhouse Creek narrows under the Center Parkway Bridge to a width of approximately 27 feet to the western end of the study area at Franklin Boulevard. Unionhouse Creek eventually drains into Morrison Creek northwest of the study area. Strawberry Creek is at the east end of the study area and is approximately 15 feet wide. Strawberry Creek flows into Unionhouse Creek at the eastern end of the study area near Bruceville Road.

At the east end of the study area, an approximately 70-foot-long section of Unionhouse Creek upstream of the confluence with Strawberry Creek is unlined and supports some tufts of nutsedge (*Cyperus eragrostis*) and Italian ryegrass in the streambed. The rest of the creek segment in the study area has a concrete-lined low-flow channel, and the creek bed is unvegetated and maintained free of debris. The creek banks support ruderal annual grassland throughout most of the study area, except at the western end of the study area and under the Franklin Boulevard bridge, where the bed and banks of Unionhouse Creek are concrete-lined. Three outfalls drain into Unionhouse Creek in the study area, one on the north bank by Center Parkway, one at Sump 201, and one on the north bank near Franklin Boulevard.

The bed and banks of the segment of Strawberry Creek in the study area are concrete-lined, and a 7-foot box culvert conveys flows into the creek on the left bank just upstream of the confluence with Unionhouse Creek.

Unionhouse Creek provides poor habitat for aquatic species because of the lack of emergent and riparian vegetation (i.e., lack of cover), the straight and uniform channel, and the lack of instream habitat (e.g., gravel, cobbles, boulders, woody debris, undercut banks). No fish, amphibians, or reptiles were observed in the channel during the March 7, 2012, reconnaissance-level surveys. A pair of mallards (*Anas platyrhynchos*) and American coots (*Fulica americana*) were observed in the channel during the reconnaissance-level surveys. Old swallow nests were observed beneath the Franklin Boulevard bridge.

Developed

The developed land cover type includes Sump Station 201 and an existing regional site antenna pole located next to the sump pump where Center Parkway crosses the study area. This area is paved and does not support any vegetation or wildlife habitat.

3.4.2.2 Sensitive Biological Resources

Special-Status Species

Special-status species include plants and animals that are legally protected under the California Endangered Species Act (CESA), the federal Endangered Species Act (ESA), or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. For the purpose of this IS/MND, special-status species include

- species listed or proposed for listing as threatened or endangered under the ESA (50 Code of Federal Regulations [CFR] 17.12 [listed plants], 50 CFR 17.11 [listed animals], and various notices in the *Federal Register* [FR] [proposed species]).
- Species that are candidates for possible future listing as threatened or endangered under the ESA (75 FR 69222, November 10, 2010).
- Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 CCR 670.5).
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380).
- Plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.).
- Plants considered by CNPS to be “rare, threatened, or endangered in California” (Lists 1B and 2, California Native Plant Society 2007).
- Animal species of special concern to DFG (list obtained from <http://www.dfg.ca.gov/bdb/pdfs/spanimals.pdf>).
- Animals fully protected in California (California Fish and Game Code Sections 3511 [birds], 4700 [mammals], and 5050 [amphibians and reptiles]).

Special-Status Plant Species

The search of the CNDDB (2012) and CNPS Inventory (2012) conducted as part of the prefield investigation identified 22 special-status plants as having the potential to occur in the study area (Table 3.4-2). Of these 22 species, marginally suitable habitat is present in the study area for 12 species. No special-status plants were observed during the March 2012 surveys; however, the blooming period for most of these species occurs later in spring or in summer, and suitably timed surveys for these later-blooming species have not been conducted.

One species, Sanford's arrowhead (*Sagittaria sanfordii*), is known to occur approximately 1 mile upstream of the study area in Strawberry Creek (CNDDB 2012), but there is only moderate potential for this species to be present because of the disturbed conditions of habitat. This species does not begin blooming until May, but no vegetative plant parts similar to Sanford's arrowhead were observed during the March surveys of the study area. Sanford's arrowhead was not observed during surveys of Unionhouse Creek between Franklin Boulevard and Center Parkway conducted in April and May 2008 (U.S. Army Corps of Engineers et al. 2008). In the study area, nearly all of the creek beds are cement-lined and regularly maintained to remove debris and vegetation, with the exception of approximately 70 feet of Unionhouse Creek upstream of the confluence with Strawberry Creek where Sanford's arrowhead could grow.

The creek banks and the area between Cosumnes River Boulevard are mowed and disked regularly; therefore, the grassland habitat is likely too disturbed to support special-status plants.

Protected Trees

One interior live oak tree (*Quercus wislizenii*) was observed in the study area at the southeast corner of the Center Parkway bridge over Unionhouse Creek. This tree has one 14-inch-diameter trunk and one 9-inch-diameter trunk, for a cumulative diameter of 23 inches, which equals a cumulative circumference of 144 inches. This meets the size criterion to be covered by the City of Sacramento heritage tree ordinance, which is 36 inches or more in circumference. No other native tree species occur in the study area.

A row of trees, consisting of flowering plum and olive trees, grows along Cosumnes River Boulevard. The circumferences of these trees are less than 100 inches, the criterion for heritage trees of any species under the tree ordinance. Therefore, these trees would not be regulated under the City's heritage tree ordinance.,

Special-Status Wildlife Species

Based on a review of existing information, including CNDDB records, USFWS species list, and knowledge of the proposed project area, biologists identified 41 special-status wildlife species as a having potential to occur in the region (Table 3.4-3). Of these 41 species, 13 were identified as having some potential to occur in the project area; however, most of these were identified as having low potential to occur in the project area because of the poor-quality habitat in the project area.

3.4.3 Regulatory Setting

3.4.3.1 Federal

Federal Endangered Species Act

The ESA protects fish and wildlife species and their habitats that have been identified by USFWS or the National Marine Fisheries Service (NMFS) as threatened or endangered. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range. *Threatened* refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future.

The ESA is administered by USFWS and NMFS. In general, NMFS is responsible for protection of ESA-listed marine species and anadromous fish, and USFWS is responsible for other listed species. Provisions of Sections 7 and 9 of the ESA are relevant to this project and are summarized below.

ESA Authorization Process for Federal Actions (Section 7)

Section 7 of the ESA provides a means for authorizing take of threatened and endangered species by federal agencies. Under Section 7, the federal agency conducting, funding, or permitting an action (the lead federal agency, such as the USACE) must consult with USFWS or NMFS, as appropriate, to ensure that the proposed action will not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed project "may affect" a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment (BA) evaluating the nature and severity of the expected effect. In response, USFWS or NMFS issues a biological opinion (BO), with a determination that the proposed action either:

- may jeopardize the continued existence of one or more listed species (*jeopardy finding*) or result in the destruction or adverse modification of critical habitat (*adverse modification finding*), or
- will not jeopardize the continued existence of any listed species (*no jeopardy finding*) or result in adverse modification of critical habitat (*no adverse modification finding*).

The BO issued by USFWS or NMFS may stipulate discretionary "reasonable and prudent" conservation measures. If the project would not jeopardize a listed species, USFWS or NMFS issues an incidental take statement to authorize the proposed activity.

ESA Prohibitions (Section 9)

Section 9 of the ESA prohibits the take of any fish or wildlife species listed under the ESA as endangered. Take of threatened species also is prohibited under Section 9, unless otherwise authorized by federal regulations.[1] *Take*, as defined by the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Harm* is defined as "any act that kills or injures the species, including significant habitat modification." In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction.

[1] In some cases, exceptions may be made for threatened species under ESA Section 4[d]; in such cases, USFWS or NMFS issues a "4[d] rule" describing protections for the threatened species and specifying the circumstances under which take is allowed.

Table 3.4-2. Special-Status Plants Identified during the Prefield Investigation as Having the Potential to Occur in the Study Area

Common Name and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Potential for Occurrence in the Study Area
Watershield *Brasenia schreberi*	–/–/2.3	Scattered occurrences in north and central California; widespread across U.S.	Freshwater marshes; 30–2,200 meters	Jun–Sep	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.
Bristly sedge *Carex comosa*	–/–/2.1	Scattered occurrences throughout California; Oregon, Washington, and elsewhere	Coastal prairie, marshes and swamps at lake margins, valley and foothill grassland; below 625 meters	May–Sep	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat. Ruderal annual grassland is mowed and disced.
Bolander's water hemlock *Cicuta maculata* var. *bolanderi*	–/–/2.1	Contra Costa, Los Angeles*, Marin, Sacramento, Santa Barbara*, San Luis Obispo*, Solano Counties; also Arizona, New Mexico, Washington	Marshes and swamps, coastal, fresh or brackish water; 0–200 meters	Jul–Sep	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.
Peruvian dodder *Cuscuta macula* var. *bolanderi*	–/–/2.1	Not seen since 1948; occurrences in Butte, Los Angeles, Merced, Sacramento?, San Bernardino*, and Sonoma Counties; Baja California and elsewhere	Freshwater marshes and swamps; 15–280 meters	Jul–Oct	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.
Dwarf downingia *Downingia pusilla*	–/–/2.2	Inner North Coast Ranges, southern Sacramento Valley, northern and central San Joaquin Valley	Wet areas in valley and foothill grassland, vernal pools; below 445 meters	Mar–May	No suitable habitat in the study area, ruderal annual grassland is mowed and disced.
Boggs Lake hedge hyssop *Gratiola heterosepala*	–/E/1B.2	Inner North Coast Ranges, central Sierra Nevada foothills, Sacramento Valley, Modoc Plateau	Marshes and swamps along lake margins, vernal pools on clay soils; 10–2,375 meters	Apr–Aug	No suitable habitat in the study area.
Woolly rose-mallow *Hibiscus lasiocarpus* var. *occidentalis*	–/–1B.2	Central and southern Sacramento Valley, deltaic Central Valley, and elsewhere in the U.S.	Freshwater marsh along rivers and sloughs; below 120 meters	Jun–Sep	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.

Common Name and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Potential for Occurrence in the Study Area
Northern California black walnut *Juglans hindsii*	–/–/1B.1	Last two native stands in Napa and Contra Costa Counties; historically widespread through southern Inner North Coast Ranges, southern Sacramento Valley, northern San Joaquin Valley, San Francisco Bay	Riparian scrub and riparian woodland; below 440 meters	Apr–May	No suitable habitat in the study area.
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	–/–/1B.2	Eastern Sacramento Valley, northeastern San Joaquin Valley with occurrences in Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba Counties	Wet areas in valley and foothill grassland, vernal pool margins; 30–229 meters	Mar–May	No suitable habitat in the study area, ruderal annual grassland is mowed and disced.
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*	–/–1B.2	San Francisco Bay region, also part of Central Valley in Alameda, Contra Costa, Napa, Santa Clara*, San Joaquin, Solano, and Sonoma Counties	Coastal and estuarine marshes (freshwater and brackish); below 4 meters	May–Jul (Sep)	No suitable habitat in the study area.
Legenere *Legenere limosa*	–/–/1B.1	Sacramento Valley, North Coast Ranges, northern San Joaquin Valley and Santa Cruz mountains.	Vernal pools; below 880 meters	May–Jun	No suitable habitat in the study area.
Heckard's pepper-grass *Lepidium latipes* var. *heckardii*	–/–/1B.2	Southern Sacramento Valley	Alkaline flats in valley and foothill grassland; 10–200 meters	Mar–May	No suitable habitat in the study area.
Mason's lilaeopsis *Lilaeopsis masonii*	–/R/1B.1	Southern Sacramento Valley, Sacramento - San Joaquin River Delta, northeast San Francisco Bay area in Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Yolo Counties	Freshwater or brackish marsh, riparian scrub, in tidal zone	Apr–Nov	No suitable habitat in the study area
Delta mudwort *Limosella subulata*	–/–/2.1	Deltaic Central Valley: Contra Costa, Sacramento, San Joaquin, and Solano Counties; Oregon	Muddy or sandy intertidal flats and marshes, streambanks in riparian scrub generally at sea level	May–Aug	No suitable habitat in the study area

Common Name and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Potential for Occurrence in the Study Area
Slender Orcutt grass *Orcuttia tenuis*	T/E/1B.1	Sierra Nevada and Cascade Range foothills from Siskiyou to Sacramento Counties	Vernal pools; 35–1,760 meters	May–Sep (Oct)	No suitable habitat in the study area
Sacramento Orcutt grass *Orcuttia viscida*	E/E/1B.1	Endemic to Sacramento County	Vernal pools; 30–100 meters	Apr–Jul	No suitable habitat in the study area
Bearded popcorn-flower *Placgiobothrys hystriculus*	–/–/1B.1	Endemic to Solano County	Mesic grassland, vernal pools; 10–274 meters	Apr–May	No suitable habitat in the study area, ruderal annual grassland is mowed and disced. Study area is outside known species range.
Sanford's arrowhead *Sagittaria sanfordii*	–/–/1B.2	Scattered locations in Central Valley and Coast Ranges	Freshwater marshes, sloughs, canals, and other slow-moving water habitats; below 610 meters	May–Oct	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat. Known occurrence (#18) in Strawberry Creek approximately 1 mile upstream of the study area (CNDDB 2012).
Marsh skullcap *Scutellaria galericulata*	–/–/2.2	Northern high Sierra Nevada and Modoc plateau: El Dorado, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, San Joaquin, and Siskiyou Counties; Oregon and elsewhere	Marshes, mesic meadows, seeps, lower montane coniferous forest; below 2,100 meters	Jun–Sep	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.
Side-flowering skullcap *Scutellaria lateriflora*	–/–/2.2	Known in California from only three occurrences in northern San Joaquin Valley and east of the Sierra Nevada in Inyo, Sacramento, and San Joaquin Counties; New Mexico, Oregon, and elsewhere	Mesic meadows, marshes and swamps; below 500 meters	Jul–Sep	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.
Suisun Marsh aster *Symphyotrichum lentum*	–/–/1B.2	Sacramento–San Joaquin River Delta, Suisun Marsh, Suisun Bay: Contra Costa, Napa, Sacramento, San Joaquin, and Solano Counties	Brackish and freshwater marshes and swamps; below 3 meters	May–Nov	Marginally suitable habitat in the study area—most of the creek bed is maintained to prevent establishment of marsh vegetation, but unlined section of Unionhouse Creek could be habitat.

Common Name and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Potential for Occurrence in the Study Area
Saline clover *Trifolium hydrophilum*	–/–/1B.2	Sacramento Valley, central western California	Salt marsh, mesic alkaline areas in valley and foothill grasslands, vernal pools, marshes and swamps; below 300 meters	Apr–Jun	No suitable habitat in the study area.

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
– = no listing.

State

E = listed as endangered under the California Endangered Species Act.
R = listed as rare under the California Native Plant Protection Act.
– = no listing.

California Native Plant Society (CNPS) California Rare Plant Rank

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.
0.1= seriously endangered in California.
0.2= fairly endangered in California.

* Known populations believed extirpated from that county.
? Geographic Distribution uncertain in that county.

Table 3.4-3. Special-Status Wildlife Identified during the Prefield Investigation as Having the Potential to Occur in the Project Area

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Invertebrates			
Vernal pool fairy shrimp *Branchinecta lynchi*	T/–	Occurs in the Central Valley from Shasta County to Tulare County and the central and southern Coast Ranges from northern Solano County to Ventura County.	**None**—No suitable habitat occurs in the study area. The seasonal swale identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species.
Midvalley fairy shrimp *Branchinecta mesovallensis*	–/–	Vernal pools. Occurs in Central Valley from Sacramento and Solano Counties south to Fresno County.	**None**—No suitable habitat occurs in the study area. The seasonal swale identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/–	Elderberry shrubs, typically in riparian habitats. Central Valley, below approximately 3,000 feet elevation.	**None**—No elderberry shrubs were identified within 100 feet of the project area.
Hairy water flea *Dumontia oregonensis*	–/–	Described in 2003 from a specimen taken from a vernal pool in southern Oregon; little is known about its natural history; subsequently detected in vernal pools located in Mather Field and Travis Air Force Base in California.	**None**—No suitable habitat occurs in the study area. The seasonal wetland identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species.
Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	–/–	Aquatic, known to occur in vernal pools. Recorded in central coastal California and southern Sacramento Valley, known to occur in Solano County near Jepson Prairie.	**None**—No suitable habitat occurs in the study area. The seasonal wetland identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species.
Vernal pool tadpole shrimp *Lepidurus packardi*	E/–	Occupies a variety of vernal pool habitats, but typically occurs in pools that inundate for extended periods of time. Central Valley of California and San Francisco Bay Area.	**None**—No suitable habitat occurs in the study area. The seasonal swale identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species.
California linderiella *Linderiella occidentalis*	–/–	Vernal pools, swales, and other ephemeral wetlands. Central Valley and central coastal California.	**None**—No suitable habitat occurs in the study area. The seasonal swale identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Fish			
Green sturgeon *Acipenser medirostris*	T/SSC	Adult green sturgeon immigrate from the ocean into the Delta to begin their spawning migrations into the Sacramento River. The only known spawning population for the Southern DPS is in the Sacramento River. Immigration begins in late February.	**None**—The instream habitat in Unionhouse Creek is very poor in that it lacks natural bed materials (i.e., sand, gravel, and cobble) to support a prey base and lacks a meandering channel and natural bank to provide refugia. Also, there is no fish passage from the Sacramento River to Unionhouse Creek, except during flood conditions when floodwaters from the Mokelumne River back up into Beach and Stone Lakes. Despite this occasional connection, Unionhouse Creek does not support habitat for migratory fish.
Sacramento tule perch *Archoplites interruptus*	–/SSC	Sacramento tule perch are native to most lowland rivers and creeks in the Central Valley, larger tributaries to the San Francisco estuary, Petaluma River, Coyote Creek, the San Joaquin River drainage, the Delta, and Suisun Marsh.	**None**—Unionhouse Creek provides poor quality habitat and has no connections, except during flood events, to areas known to be occupied by this species.
Delta smelt *Hypomesus transpacificus*	T/E	Delta smelt live primarily in low-salinity habitats of the northern estuary prior to migrating into freshwater habitats to spawn. Spawning occurs in sloughs and shallow edge areas in the Delta and Sacramento River above Rio Vista in the Cache Slough/Sacramento River Deep Water Ship Channel complex. Spawning has been recorded historically in Suisun Marsh.	**None**—Unionhouse Creek does not provide suitable habitat for this species.
Central Valley steelhead *Oncorhynchus mykiss*	T/–	Central Valley steelhead immigrate from the ocean into the Delta and into the Sacramento and San Joaquin River watersheds. Spawning occurs in every major tributary downstream of dams in the Sacramento and San Joaquin River systems. Steelhead may remain in the ocean from 1 to 4 years before immigrating in the months ranging August through April.	**None—**The instream habitat in Unionhouse Creek is very poor in that it lacks natural bed materials (i.e., sand, gravel, and cobble) to support a prey base and lacks a meandering channel and natural bank to provide refugia. Also, there is no fish passage from the Sacramento River to Unionhouse Creek, except during flood conditions when floodwaters from the Mokelumne River back up into Beach and Stone Lakes. Despite this occasional connection, Unionhouse Creek does not support habitat for migratory fish.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Chinook—Central Valley spring-run ESU *O. tshawytscha*	T/T	Spawning occurs in mainstem Sacramento River, Mill, Deer, Clear, Cow, Battle, Antelope, Thomes, and Big Chico Creeks, Feather River, and Yuba River. San Joaquin River spawning tributaries include Stanislaus River, Mokelumne River, and Calaveras River. Spring-run Chinook salmon begin upstream migration from the ocean in late January and early February, entering the Sacramento River between March and September. Adult spring-run Chinook salmon may hold in natal tributaries for up to several months before spawning.	**None**—The instream habitat in Unionhouse Creek is very poor in that it lacks natural bed materials (i.e., sand, gravel, and cobble) to support a prey base and lacks a meandering channel and natural bank to provide refugia. Also, there is no fish passage from the Sacramento River to Unionhouse Creek, except during flood conditions when floodwaters from the Mokelumne River back up into Beach and Stone Lakes. Despite this occasional connection, Unionhouse Creek does not support habitat for migratory fish.
Chinook salmon—Sacramento River winter-run *O. tshawytscha*	E/E	Spawn in the mainstem of the Sacramento River and Battle Creek. Upstream migration of adult winter-run Chinook salmon reportedly occurs from December to July with a peak during the period between January and April.	**None—**The instream habitat in Unionhouse Creek is very poor in that it lacks natural bed materials (i.e., sand, gravel, and cobble) to support a prey base and lacks a meandering channel and natural bank to provide refugia. Also, there is no fish passage from the Sacramento River to Unionhouse Creek, except during flood conditions when floodwaters from the Mokelumne River back up into Beach and Stone Lakes. Despite this occasional connection, Unionhouse Creek does not support habitat for migratory fish.
Sacramento splittail *Pogonichthys macrolepidotus*	–/SSC	Splittail spend most of their life in the San Francisco Estuary throughout the Delta, Suisun Bay, and Suisun Marsh. Distributed throughout the Sacramento River watershed as far north as the lower Feather River, the lower American River, and throughout the San Joaquin River watershed. They also are found throughout the Sutter and Yolo Bypasses.	**None**—Unionhouse Creek provides poor quality habitat and has no connections, except during flood events, to areas known to be occupied by this species.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Amphibians			
California tiger salamander *Ambystoma californiense*	T/T	In winter, breeds in vernal pools and seasonal wetlands with a minimum 10-week inundation period; in summer, aestivates in grassland habitat, primarily in rodent burrows. Occurs from Yolo County to Kern County in the Central Valley and up to 2,000 feet elevation in the Sierra Nevada foothills, and from Sonoma County to Santa Barbara County on the coast.	**None**—No suitable habitat occurs in the study area. The seasonal swale identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species. In addition, California tiger salamander has not been documented between the Cosumnes River and the American River (CNDDB 2012).
California red-legged frog *Rana draytonii*	T/–	Foothill ponds and streams with none to dense shrubby or emergent riparian vegetation, minimum 11–20 weeks of water for larval development, and upland refugia for aestivation. Occurs primarily in the foothills of the central Coast Ranges, with isolated populations in the Sierra Nevada.	**None**—The project area is outside the known range of this species, and Unionhouse Creek does not provide suitable breeding habitat for this species.
Western spadefoot *Spea hammondii*	–/SSC	In winter, breeds in vernal pools and seasonal wetlands with a minimum 3-week inundation period; in summer, aestivates in grassland habitat, in soil crevices and rodent burrows. Range includes the Central Valley and southern Coast Ranges and foothills.	**None**—No suitable habitat occurs in the study area. The seasonal wetland identified near Franklin Boulevard does not appear to inundate to a depth and duration sufficient to support this species. Unionhouse Creek does not provide suitable habitat for this species.
Reptiles			
Western pond turtle *Emys marmorata*	–/SSC	Forages in ponds, marshes, slow-moving streams, sloughs, and irrigation/drainage ditches; nests in nearby uplands with low, sparse vegetation. Range spans across California west of the Sierra-Cascade crest, below 5,000 feet in elevation.	**Low**—Unionhouse Creek does not provide sufficient foraging, escape-cover, or basking habitat for this species; however, because suitable habitat occurs to the west at the Bufferlands, western pond turtles occasionally may enter Unionhouse Creek. Species has been documented in Laguna Creek and in the small lakes at the Bufferlands (CNDDB 2012).

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Giant garter snake *Thamnophis gigas*	T/T	Forages in slow-moving streams, sloughs, ponds, marshes, inundated floodplains, rice fields, and irrigation/drainage ditches; also requires upland refugia not subject to flooding during the snake's inactive season. Range spans the southern Sacramento and northern San Joaquin Valleys.	**Low**—Unionhouse Creek represents marginal habitat for giant garter snake. Giant garter snakes may move into Unionhouse Creek from more suitable habitat to the west at the Bufferlands during flooding or during dispersal; however, Unionhouse Creek in the project area does not provide sufficient foraging (no amphibians or fish were observed) or suitable cover for this species. Giant garter snake has been documented at Beach Lake and in Laguna Creek within the Bufferlands. The nearest record is approximately 1 mile southwest of the project area. (CNDDB 2012)
Birds			
Cooper's hawk *Accipiter cooperii*	–/WL	Nests and forages primarily in riparian woodlands and other wooded habitats. Year-round range spans most of the wooded portions of California.	**None**—No suitable habitat in the project area.
Tricolored blackbird *Agelaius tricolor*	–/SSC	Nests colonially in large, dense stands of freshwater marsh, riparian scrub, and other shrubs and herbs; forages in grasslands and agricultural fields. Year-round resident throughout the Central Valley and the central and southern coasts, with additional scattered locations throughout California.	**Low**—No suitable nesting habitat in the project area. Low-quality foraging habitat in the project area.
Golden eagle *Aquila chrysaetos*	BCC/FP	Nests and forages in a variety of open habitats, including grassland, shrubland, and cropland; most common in foothill habitats; rare foothill breeder; nests in cliffs, rock outcrops, and large trees. Winter range spans most of California; breeding range excludes the Central Valley floor.	**None**—No suitable habitat in the project area.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Great egret *Ardea alba*	–/–	Nests colonially in tall trees; forages in freshwater and saline marshes, shallow open water, and occasionally cropland or low, open upland habitats, such as pastures. Year-round range spans the Central Valley, central coast, and portions of southern California; winter range expands to include the remainder of the coast.	**Moderate**—No suitable nesting habitat in the project area, but species could forage in Unionhouse Creek and adjacent uplands.
Great blue heron *Ardea herodias*	–/–	Nests colonially in tall trees; forages in freshwater and saline marshes, shallow open water, and occasionally cropland or low, open upland habitats, such as pastures. Year-round range spans most of California except the eastern portion of the state and the highest elevations; winter range expands to include eastern California.	**Moderate**—No suitable nesting habitat in the project area, but species could forage in Unionhouse Creek and adjacent uplands.
Burrowing owl *Athene cunicularia*	BCC/SSC	Nests and forages in grasslands, agricultural fields, and low scrub habitats, especially where ground squirrel burrows are present; occasionally inhabits artificial structures and small patches of disturbed habitat. Year-round range includes the Central Valley and Delta and portions of the central coast, eastern California, and southern California.	**Low/Moderate**—A few burrows were observed along the upper banks of Unionhouse Creek that could serve as potential habitat for the species. No burrowing owls or burrowing owl sign (e.g., pellets, whitewash, feathers) was observed during reconnaissance-level surveys. There are records of burrowing owl from the Cosumnes River College campus at Cosumnes River Boulevard and Bruceville Road; however, habitat there appears to have been removed (CNDDB 2012). There are also records at the Bufferlands with the nearest approximately 0.5 mile west of the project area.
Ferruginous hawk *Buteo regalis*	BCC/WL	Forages most commonly in grasslands and shrublands; also forages in agricultural fields. Winter range spans most of California except the higher elevations of the Sierra Nevada and northern Coast Ranges; does not nest in California.	**None**—No suitable foraging habitat in the project area.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Swainson's hawk *Buteo swainsoni*	BCC/T	Nests in isolated trees, open woodlands, and woodland margins; forages in grasslands and agricultural fields. Breeding range spans the Central Valley and Delta west of Suisun Marsh, northeastern California, and a few additional scattered sites; most of the population migrates south of California in fall/winter, although a small number winters in the Delta.	**Low**—No suitable nesting habitat occurs in the project area. Project area represents very poor foraging habitat for the species. Species has been documented nesting at the Bufferlands west of the project area (CNDDB 2012). Species was observed in flight to the south of the project area during the 3/12/2012 site visit.
Northern harrier *Circus cyaneus*	–/SSC	Nests on the ground among herbaceous vegetation, such as grasses or cattails; forages in grasslands, agricultural fields, and marshes. Breeding range encompasses much of lowland California; winter range expands to include the remaining lowland areas.	**Low**—No suitable nesting habitat (area is subject to annual disking) and very poor foraging habitat (no mammals observed in project area).
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	C/E	Nests in valley, foothill, and desert riparian forest with densely foliaged deciduous trees and shrubs, especially willows; other associated vegetation includes cottonwood trees, blackberry, nettle, and wild grape. Historically common but now a rare summer resident at isolated sites in Sacramento Valley in northern California and along Kern and Colorado River systems in southern California; occasionally documented in Colusa, Glenn, Butte, Sutter, and Yolo Counties within the last 20 years.	**None**—No suitable habitat occurs or near the project area.
White-tailed kite *Elanus leucurus*	–/FP	Forages in ponds, marshes, slow-moving streams, sloughs, and irrigation/drainage ditches; nests in nearby uplands with low, sparse vegetation. Year-round range spans the Central Valley, Coast Ranges and coast, Sierra Nevada foothills, and Colorado River.	**Low**—No suitable nesting habitat occurs in the project area. Foraging habitat is very poor because of a lack of small mammals.
Merlin *Falco columbarius*	–/WL	Forages in a wide variety of habitats, but in the Central Valley is most common around agricultural fields and grasslands. Winter range encompasses most of California except the highest elevations; does not breed in California.	**Low**—Project area provides marginal winter foraging habitat for the species.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Black-crowned night-heron *Nycticorax nycticorax*	–/–	Nests colonially in dense marshes, groves of low trees, and dense shrubs; forages in freshwater and saline marshes and in shallow open water at the edge of marsh vegetation. Year-round range includes much of lowland California.	**None**—No suitable habitat occurs in the project area.
Double-crested cormorant *Phalacrocorax auritus*	–/WL	Forages in open water; breeds colonially in rock ledges and trees. Breeding range spans the coast and offshore islands, Clear Lake, the Salton Sea, the Colorado River, and portions of northeastern California; winter range expands to include the Central Valley and additional portions of southern California.	**None**—No suitable habitat occurs in the project area.
Purple martin *Progne subis*	–/SSC	Nests in tree cavities, bridges, utility poles, lava tubes, and buildings; forages in foothill and low montane oak and riparian woodlands, and less frequently in coniferous forests and open or developed habitats. Breeding range includes the Sierra Nevada, Cascade Range, portions of the Coast Ranges and coast, and parts of southern California; extirpated from the Delta, and nesting in the Central Valley has been reduced to transportation structures in and around the city of Sacramento.	**None**—No suitable habitat occurs in the project area. There are no large trees with cavities, and the bridges lack weep holes or other crevices that may be used for nesting.
Bank swallow *Riparia riparia*	–/T	Nests in vertical banks or bluffs, typically adjacent to water, devoid of vegetation, and with friable, eroding soils; forages in a wide variety of habitats. Breeds in much of lowland and riparian California, with 75% nesting in colonies along the Sacramento and Feather Rivers and their tributaries; additional breeding locations are scattered throughout the northern and central portions of the state; migrates south of California in fall/winter.	**None**—No suitable habitat occurs in the project area.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Least Bell's vireo *Vireo bellii pusillus*	E/E	Nests and roosts in low riparian thickets of willows and shrubs, usually near water but sometimes along dry, intermittent streams; other associated vegetation includes cottonwood trees, blackberry, mulefat, and mesquite (in desert). Formerly a common and widespread summer resident throughout Sacramento and San Joaquin Valleys, and in the coastal valleys and foothills from Santa Clara County south, but its numbers have declined drastically, and the species has vanished from much of its California range.	**None**—No suitable habitat occurs in the project area.
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	–/SSC	Nests in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds. Breeding range includes primarily the Central Valley, northeastern California, and portions of southern California; most individuals migrate south of California in winter.	**None—**No suitable habitat occurs in the project area.
Mammals			
Pallid bat[b] *Antrozous pallidus*	–/SSC	Deserts, grasslands, shrublands, woodlands, and forests; most common in open, dry habitats; typically roosts in rock crevices, also in tree hollows, bridges, and buildings, in colonies ranging from one to more than 200 individuals. Year-round range spans nearly all of California.	**Low—**Species may forage in the project area, but the bridges lack crevices for roosting.
Townsend's big-eared bat[b] *Corynorhinus townsendii*	–/SSC	This species may use several alternate roost sites (Woodruff and Ferguson 2005). Typically roosts in colonies of fewer than 100 individuals in caves or mines; occasionally roosts in buildings or bridges, and rarely, hollow trees; forages in all habitats except alpine and subalpine, although most commonly in mesic forests and woodlands. Year-round range spans most of California except the highest elevations of the Sierra Nevada south of Lake Tahoe.	**Low—**Species may forage in the project area, but the bridges lack crevices and there are no hollow trees or trees with cavities for roosting.

Common Name and Scientific Name	Status Federal/State[a]	Habitat and Distribution in California	Potential for Occurrence in the Project Area
Hoary bat *Lasiurus cinereus*	–/–	Ranges widely, but populations in the Central Valley are most likely non-reproductive or migratory. Typically roosts alone in a variety of broadleaf tree species such as cottonwood and sycamore; also found roosting in conifers. May be found in a range of vegetation and roost substrates during migration.	**Low**—Species may forage in the project area, but there is no suitable roosting habitat in the project area.
American badger *Taxidea taxus*	–/SSC	Drier open shrub, forest, and herbaceous habitats with friable soils. Year-round range spans all of California except the Humboldt and Del Norte coasts.	**None**—Project area lacks a prey base (small mammals) for the species.

DPS = distinct population segment.

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
C = candidate for listing under the federal Endangered Species Act.
BCC = birds of conservation concern.
– = no listing.

State

E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
FP = fully protected under the California Fish and Game Code.
SSC = species of special concern in California.
WL = watch list.
– = no listing.

[b] This bat is considered a high priority species in California by the Western Bat Working Group. Available: <http://www.wbwg.org/spp_matrix.html>.

Clean Water Act

The Clean Water Act (CWA) was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers EPA to set national water quality standards and effluent limitations and includes programs addressing both point-source and nonpoint-source pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. The following sections provide additional details on pertinent sections of the CWA.

Section 404 of the Clean Water Act

The USACE and EPA regulate the discharge of dredged and fill material into "waters of the United States" under Section 404 of the CWA. USACE jurisdiction over nontidal waters of the United States extends to the ordinary high-water mark (OHWM), provided the jurisdiction is not extended by the presence of wetlands (33 CFR Part 328 Section 328.4). The OHWM is defined in the federal regulations to mean

> [T]hat line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. (33 CFR Part 328 Section 328.3[e].)

The USACE typically will exert jurisdiction over that portion of the study area that contains waters of the United States and adjacent or isolated wetlands. This jurisdiction equals approximately the bank-to-bank portion of a creek along its entire length up to the OHWM and adjacent wetlands areas that will be either directly or indirectly adversely affected by a proposed project.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union (now Russia) and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703, 50 CFR 21, 50 CFR 10). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. Examples of permitted actions that do not violate the MBTA are the possession of a hunting license to pursue specific gamebirds, legitimate research activities, display in zoological gardens, bird-banding, and other similar activities. USFWS is responsible for overseeing compliance with the MBTA, and the U.S. Department of Agriculture's Animal Damage Control Officer makes recommendations on related animal protection issues.

3.4.3.2 State

California Environmental Quality Act

CEQA is the regulatory framework by which California public agencies identify and mitigate significant environmental impacts. A project normally has a significant environmental impact on biological resources if it substantially affects a rare or endangered species or the habitat of that species; substantially interferes with the movement of resident or migratory fish or wildlife; or substantially diminishes habitat for fish, wildlife, or plants. The State CEQA Guidelines define rare, threatened, and endangered species as those listed under the CESA and ESA, as well as any other species that meet the criteria of the resource agencies or local agencies—for example, the DFG-designated "species of special concern" and CNPS-listed species. The State CEQA Guidelines state that the lead agency preparing an EIR must consult with and receive written findings from DFG concerning project impacts on species listed as endangered or threatened. The effects of a proposed project on these resources are important in determining whether the project has significant environmental impacts under CEQA.

California Fish and Game Code Section 1600: Streambed Alteration Agreements

DFG has jurisdictional authority over wetland resources associated with rivers, streams, and lakes under Sections 1600–1607. DFG has the authority to regulate all work under the jurisdiction of the State of California that would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed.

In practice, DFG marks its jurisdictional limit at the top of the stream or lake bank or the outer edge of the riparian vegetation, where present, and sometimes extends its jurisdiction to the edge of the 100-year floodplain. Because riparian habitats do not always support wetland hydrology or hydric soils, wetland boundaries as defined by CWA Section 404 sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Therefore, jurisdictional boundaries under Section 1600 may encompass a greater area than those regulated under CWA Section 404.

DFG enters into a streambed alteration agreement with an applicant and can impose conditions on the agreement to ensure that no net loss of wetland values or acreage will be incurred. The streambed or lakebed alteration agreement is not a permit but a mutual agreement between DFG and the applicant.

3.4.3.3 Local

City of Sacramento Heritage Tree Ordinance

The City Heritage Tree Ordinance (City of Sacramento Municipal Code, Title 12, Chapter 12.64) defines a *heritage tree* as:

- Any tree or any species with a truck circumference of one hundred (100) inches or more, which is of good quality in terms of health, vigor of growth and conformity to generally accepted horticultural standards of shape and location for its species.
- Any native *Quercus* species, *Aesculus californica* or *Platanus racemosa*, having a circumference of thirty-six (36) inches or greater when a single trunk, or a cumulative circumference of thirty-six (36) inches or greater when a multi-trunk.

- Any tree thirty-six (36) inches in circumference or greater in a riparian zone. The riparian zone is measured from the center line of the watercourse to thirty (30) feet beyond the high water line.
- Any tree, grove of trees or woodland trees designated by resolution of the city council to be of special historical or environmental value or of significant community benefit.

The ordinance states that, during construction activity on any property on which a heritage tree is located, unless the express written permission of the director is first obtained, no person shall:

- Change the amount of irrigation provided to any heritage tree from that provided prior to the commencement of construction activity.
- Trench, grade, or pave into the dripline area of a heritage tree, or trim roots.
- Change, by more than 2 feet, grade elevations within thirty (30) feet of the dripline area of a heritage tree.
- Park or operate any motor vehicle within the dripline area of any heritage tree.
- Place or store any equipment or construction materials within the dripline area of any heritage tree.
- Attach any signs, ropes, cables or any other items to any heritage tree.
- Cut or trim any branch of a heritage tree for temporary construction purposes.
- Place or allow to flow into or over the dripline area of any heritage tree any oil, fuel, concrete mix, or other deleterious substance.

In addition, the ordinance states that none of the following activities shall be performed without a tree permit:

- Removal of any heritage tree.
- Pruning or spraying of any heritage tree greater than 12 inches in circumference.
- Disturbing the soil or placing any chemical on the soil within the dripline of any heritage tree.

3.4.4 Environmental Effects

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

The proposed project would have potentially adverse effects on special-status plant and wildlife species. Specific impacts are discussed below.

Impact BIO-1: Adversely Affect or Modify Habitat of Special-Status Plants

In the unlined portion of the Unionhouse Creek channel upstream of the confluence with Strawberry Creek, there is potential for special-status plants that occur in freshwater marsh habitat, including Sanford's arrowhead and other species (Table 3.4-2). This area has not been recently surveyed during the blooming period of these species; therefore, the absence of special-status plant species cannot be confirmed. The proposed project would not include construction activities in this

upstream part of Unionhouse Creek, and the temporary cofferdam for bypass pumping will be placed downstream of the potential special status plant–species habitat. Therefore, no effects on special-status plants are expected to occur during project construction, and no habitat for these plants would be modified as part of the project. Measures to exclude construction equipment from Unionhouse Creek upstream of the project area are described below in Mitigation Measure BIO-MM-3 for giant garter snake, and implementation of these measures would further ensure avoidance of potential special-status plant habitat.

Impact BIO-2: Adversely Affect or Modify Habitat of Western Pond Turtle

The proposed project could affect western pond turtle during work in Unionhouse Creek. Though Unionhouse Creek represents poor quality habitat for western pond turtle because it lacks suitable foraging opportunities and escape cover, they may disperse through the project area from occupied aquatic habitat to the west in Morrison Creek and Beach Lake and could be affected by project construction. However, to avoid impacts on giant garter snake, Unionhouse Creek will be dewatered 15 days prior to construction activities in the channel, and it is likely that if pond turtles are present they will move downstream as flows diminish. Because the avoidance measures for giant garter snake (discussed below) will include creating in-channel barriers to prevent their movement into the project area, it is unlikely that western pond turtles will be in the channel during construction. Any stranded pond turtles potentially could be affected by project construction if they are unable to move out of the project area, which would be a potentially significant impact. Implementation of Mitigation Measure BIO-MM-1 would reduce this impact to less than significant.

Mitigation Measure BIO-MM-1: Conduct Preconstruction Surveys and Relocate Individual Western Pond Turtles If Necessary

Twenty-four hours prior to construction, a biologist with experience with western pond turtles will conduct a survey for western pond turtle in the Unionhouse Creek channel . The survey likely will coincide with the preconstruction surveys for giant garter snake (discussed below). If pond turtles are encountered in the project area, the surveying biologist will relocate the turtle(s) 500 feet downstream of the project area, or as far downstream as accessible. The surveying biologist will hold a scientific collecting permit and/or memorandum of understanding from CDFG authorizing capture and release of western pond turtles.

Impact BIO-3: Adverse Effects on Giant Garter Snake as a Result of Disturbing Aquatic and Upland/Bank Habitat

Activities associated with the proposed project that have the potential to result in effects on giant garter snake are listed below.

- Permanent conversion of ruderal grassland (potential upland habitat) to concrete along the banks of Unionhouse Creek from Bruceville Road to Center Parkway.
- Temporary disturbance of and giant garter snake exclusion from ruderal grassland (potential upland habitat) along the banks of Unionhouse Creek from Center Parkway to Franklin Boulevard during channel widening and bank reconfiguration.
- Temporary dewatering of Unionhouse Creek (potential aquatic habitat) from Bruceville Road to Franklin Boulevard.

Unionhouse Creek was initially evaluated for giant garter snake suitability as part of the South Sacramento County Streams Project EIR/EIS (U.S. Army Corps of Engineers 1998) in 1997 by giant garter snake expert George Hansen. Mr. Hansen conducted protocol-level giant garter snake surveys within the entire South Sacramento County Streams project area (encompassing the proposed project area) in April, May, and June 1997. No giant garter snakes were observed during the surveys; however, Mr. Hansen theorized that flooding during the previous winter may have displaced giant garter snakes from areas they had previously occupied. Mr. Hansen concluded that giant garter snake may venture into Unionhouse Creek from more suitable habitats during downstream flooding or other dispersal activities, but that Unionhouse Creek lacked suitable cover for the species and did not provide a sufficient prey base to support the long-term survival of giant garter snakes (Appendix E of the Sacramento Streams Project EIR/EIS, U.S. Army Corps of Engineers 1998). Based on habitat descriptions and representative photographs of Unionhouse Creek contained in the Sacramento Streams Project EIR/EIS, existing habitat conditions within and adjacent to the creek have not changed considerably since Mr. Hansen's evaluation.

Overall, giant garter snake is unlikely to occur in Unionhouse Creek for extended periods of time. However, there is a potential for incidental habitat use during dispersal and during flood events. Giant garter snake could venture into Unionhouse Creek within the project area from known occupied habitat to the west in the adjacent Bufferlands (California Natural Diversity Database 2012). Potential upland habitat within the project area is limited to the banks of Unionhouse Creek, which are currently vegetated with ruderal annual grasses. This habitat is considered marginal because it is routinely mowed and supports very few small mammal burrows, which limits the availability of refuge/resting habitat for giant garter snake. The portion of the ruderal annual grassland between the top of bank of Unionhouse Creek and Cosumnes River Boulevard to the south is not considered suitable upland habitat for giant garter snake because of the lack of mammal burrows and soil crevices and the periodic discing that occurs throughout the year.

Table 3.4-4 provides a summary of permanent and temporary impacts on giant garter snake habitat from project activities, identifies the type and amount of habitat to be affected, and identifies recommended compensation for project impacts. Figure 3.4-2 shows the location of affected habitat in the project footprint.

Table 3.4-4. Potential Permanent and Temporary Impacts on Suitable Habitat for Giant Garter Snake

Impact Type	Permanent or Temporary	Impact Area (acres)	Habitat Type	Habitat Function	Compensation Y/N? (ratio)
Dewatering of Unionhouse Creek from Bruceville Road to Franklin Boulevard	Temporary	2.25	Perennial drainage	Aquatic	N*
Exclusion of GGS from Unionhouse Creek banks from Center Parkway to Franklin Boulevard	Temporary	7.03	Ruderal grassland	Upland	N*
Placement of concrete along banks of Unionhouse Creek from Bruceville Road to Center Parkway	Permanent	3.51	Ruderal grassland	Upland	Y (1:1)

* Because all temporary construction disturbances will occur during one construction season and because temporarily affected habitats will be recontoured and revegetated to pre-project conditions, no compensation for temporary effects is proposed.

The temporary impacts on aquatic and upland/bank habitat and the permanent impacts on upland/bank habitat are potentially significant. Implementation of Mitigation Measures BIO-MM-2 and BIO-MM-3 would reduce this impact to less than significant.

Mitigation Measure BIO-MM-2: Compensate for the Loss of Giant Garter Snake Habitat

To compensate for the permanent loss of 3.51 acres of giant garter snake upland/bank habitat along the banks of Unionhouse Creek, SAFCA shall purchase mitigation credits at a CDFG- and USFWS-approved mitigation bank or conservation area at a ratio of 1:1 (one acre preserved for every acre affected). The 1:1 ratio is based on the marginal quality of the upland habitat present within the project area and the low likelihood of giant garter snake utilizing this habitat because of the lack of an adequate prey base, suitable cover, and burrows for hibernation.

Compensation for temporary impacts is not proposed because construction activities within any particular area will occur within one construction season and temporarily disturbed areas will be returned to pre-project conditions.

Mitigation Measure BIO-MM-3: Follow USFWS Avoidance and Minimization Measures for Giant Garter Snake during Construction

The project proponent will implement the following measures to avoid and minimize impacts on giant garter snake during construction. These measures are generally consistent with the USFWS's *Standard Avoidance and Minimization Measures during Construction Activities in Giant Garter Snake (*Thamnophis gigas) *Habitat* (U.S. Fish and Wildlife Service 1997).

- Dewatered areas within the project area shall remain dry for at least 15 consecutive days prior to the start of clearing/grubbing and excavation activities within the creek channel.
- During dewatering activities, pumps shall be screened with a mesh of the appropriate size to keep snakes from being pulled into the pump.
- Following the installation of the cofferdams and prior to the start of ground disturbance within the project area, silt fencing (or other suitable snake exclusion devices) will be installed as needed to exclude snakes from the work area. The exclusion zone will be established using a combination of fencing, cofferdams, and existing barriers (i.e., road and bridge structures). A qualified biologist will monitor the installation of exclusion devices to ensure proper placement to prevent giant garter snakes from entering the work area.
- All active work areas will be dewatered and fenced no later than October 1 to prevent giant garter snakes from seeking upland hibernation sites within the work area. Construction may proceed until October 31 within established exclusion zones.
- Immediately prior to installation of sediment fencing and within 24 hours prior to initial clearing/grubbing and excavation activities within any section of the project area, the work zone shall be surveyed for giant garter snakes by a qualified biologist. Surveys of the designated work area shall be repeated if a lapse in construction activity of 2 weeks or longer has occurred within any particular segment of the project area.
- Before the start of construction activities, including equipment staging, within the project area, all construction personnel shall receive environmental awareness training regarding special-status species (i.e., giant garter snake) and potential habitat present in the project area. The training program should consist of a brief presentation by persons knowledgeable

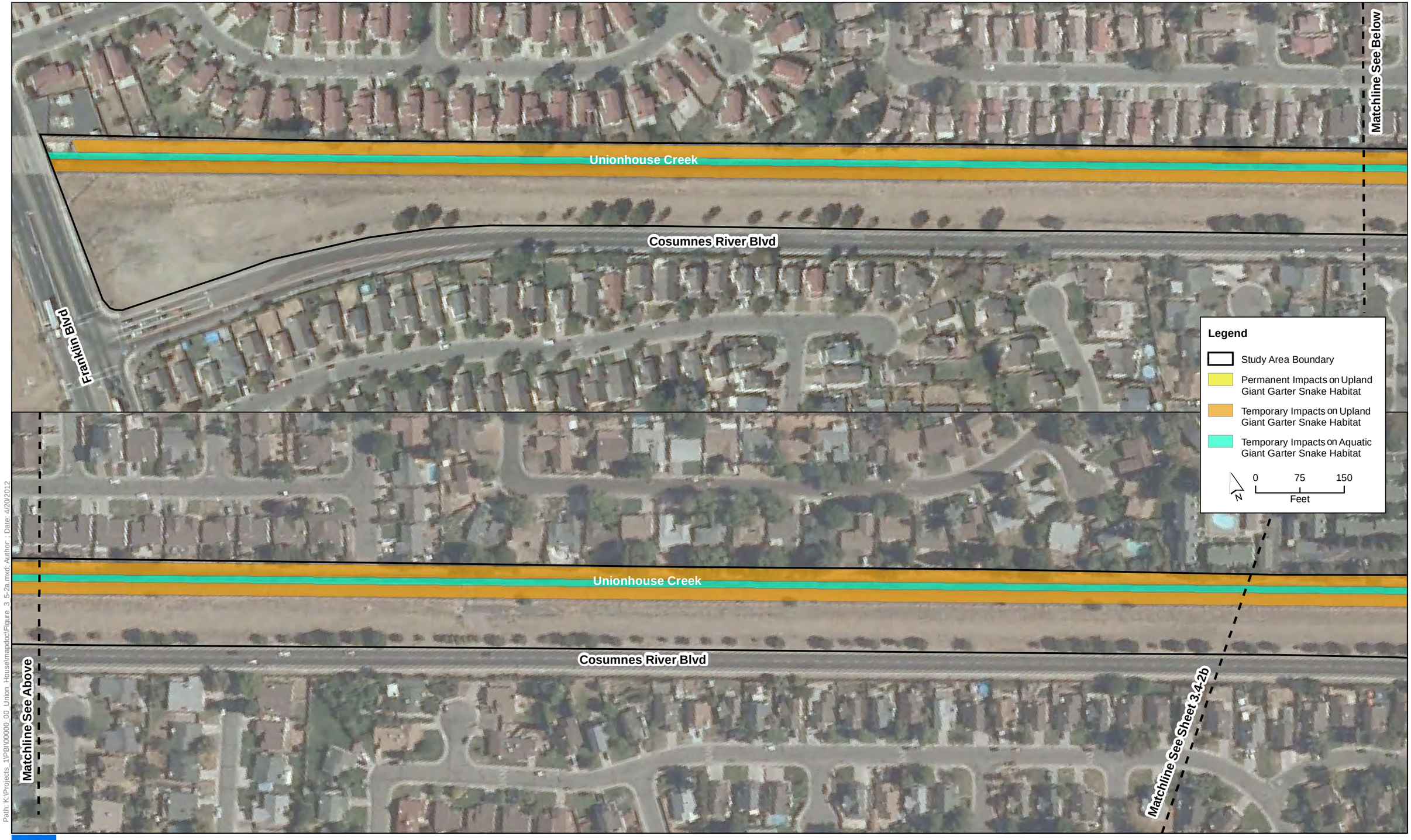

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Figure 3.4-2a
Impacts on Giant Garter Snake Habitat within the Study Area

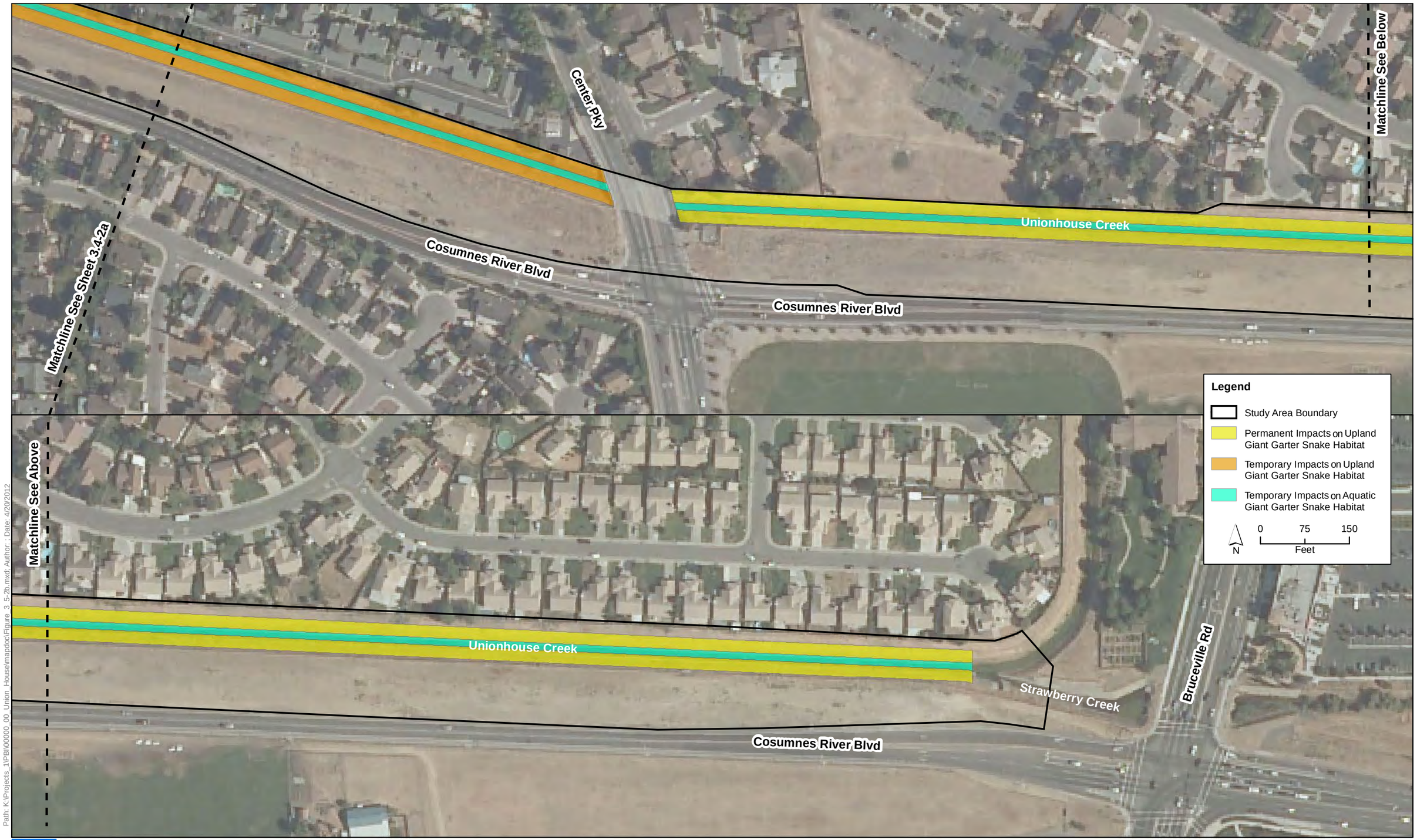

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Figure 3.4-2b
Impacts on Giant Garter Snake Habitat within the Study Area

in giant garter snake biology and legislative protection to explain endangered species concerns to contractors and their employees involved in the project. The program should include the following: a description of the giant garter snake and its habitat needs, an explanation of the status of the species and its protection under ESA and CESA, and a list of measures being taken to reduce impacts on the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the training program attendees and anyone else who may enter the project site.

- Weekly site visits will be conducted by a qualified biologist throughout construction to inspect sediment fencing/exclusion fencing and ensure compliance with project permits and protection measures.
- If a snake is encountered during construction, the animal will be allowed to move out of the work area unharmed. If it is determined that the snake is a giant garter snake, USFWS and CDFG will be contacted immediately to determine if additional measures are needed to avoid direct effects on the species.
- The movement of heavy equipment will be confined to the designated work area within the established giant garter snake exclusion zone.
- The upstream and downstream limits of the project area will be clearly designated as avoided giant garter snake habitat through signage and construction fencing/flagging.

Impact BIO-4: Adversely Affect Burrowing Owl during Construction

The proposed project has the potential to affect burrowing owl. Although no burrowing owls or burrowing owl sign was observed in the project area, they are known to have occurred historically to the south at Cosumnes River College and currently occur to the west in the Bufferlands. A few burrows were observed in the project area on the banks of Unionhouse Creek. If these areas are or become occupied by burrowing owls, project construction could directly affect burrowing owls. Impacts on burrowing owl would be potentially significant. Implementation of Mitigation Measure BIO-MM-4 would reduce this impact to less than significant.

Mitigation Measure BIO-MM-4: Conduct Preconstruction Surveys for Burrowing Owl and Implement CDFG Avoidance and Minimization Measures

To avoid and minimize impacts on burrowing owl, preconstruction surveys for burrowing owl should be initiated no less than 14 days prior to ground disturbing activities with a final survey conducted within 24 hours before ground disturbance. Surveys will be conducted according to the survey guidelines described in CDFG's *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 2012).

If burrowing owls are detected in or adjacent to the project area, avoidance and minimization measures outlined in the 2012 CDFG Staff Report would be implemented.

Impact BIO-5: Adversely Affect Nesting Swainson's Hawk during Construction

The proposed project has the potential to affect Swainson's hawks that could be nesting in the vicinity of the project. Swainson's hawks have been documented nesting to the west of the project area in the Bufferlands, and Swainson's hawks are known to nest in urban areas of this portion of Sacramento County where suitable foraging habitat occurs in the vicinity. If Swainson's hawks are nesting in the vicinity of the project area during construction, they may be affected by project

construction activities. Though streets and adjacent residential areas have high levels of vehicle and pedestrian traffic, the presence of and noise generated by large construction vehicles could disrupt nesting behavior. Impacts on nesting Swainson's hawks would be potentially significant. Implementation of Mitigation Measure BIO-MM-5 would reduce this impact to less than significant.

There is no suitable nesting or foraging habitat in the project area. The trees in the project area are small and lack the structure necessary for raptor nests. The upland portions of the project area do not provide suitable foraging habitat because of a lack of small mammals and the level of disturbance from vehicle and pedestrian traffic along Cosumnes River Boulevard. The only observed burrows were on the channel banks; however, no ground squirrels or ground squirrel sign was observed. No mitigation is recommended for the loss of ruderal annual grassland.

Mitigation Measure BIO-MM-5: Conduct Preconstruction Surveys for Nesting Swainson's Hawks and Follow CDFG Guidance If They Are Detected

Preconstruction surveys for nesting Swainson's hawks will be conducted according to the guidelines outlined in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (California Department of Fish and Game 2000). If the time between project approval and the start of construction does not allow for adherence to these guidelines, a minimum of two surveys will be conducted prior to construction, with one occurring between June 10 and July 30 (post-fledging) and a second within 5 days of the start of construction. If construction activities do not begin until after August 31, these surveys will not be necessary.

If Swainson's hawk nests are detected, CDFG will be contacted for further guidance.

Impact BIO-6: Disturb Nesting Birds and Raptors during Construction

The proposed project has a potential to affect nesting birds and raptors protected by the MBTA. The ruderal annual grassland, including the channel banks and landscape trees, provides potential nesting habitat for birds. In addition, the bridges at Center Parkway and Franklin Boulevard represent potential nesting habitat for swallows (old swallows nests were observed beneath Franklin Boulevard). Disturbances in these areas may affect nesting birds there and in areas adjacent to the project area. Because project construction is slated to start in early August, the chance of affecting nesting birds is relatively low, yet birds can have active nests into late August. Impacts on nesting birds would be potentially significant. Implementation of Mitigation Measure BIO-MM-6 would reduce this impact to less-than-significant.

Mitigation Measure BIO-MM-6: Conduct Preconstruction Surveys for Nesting Birds and Raptors and Establish No-Disturbance Buffers If They Are Detected

To avoid and minimize impacts on nesting birds and raptors, preconstruction surveys for nesting birds will be conducted. A minimum of two separate surveys will be conducted for both migratory birds and raptors. Surveys for nesting migratory birds will be conducted within 15 days prior to the initiation of construction activities (including tree removal) that are scheduled to begin during the breeding season, with the last survey occurring in the 5 days prior to the start of construction. These surveys will occur in the project area and the trees and shrubs immediately adjacent to the project area. Surveys for nesting raptors will occur in the project area and a 500-foot area around the project site. If time allows, surveys will occur during the height of the breeding season (March 1 to June 1), with one survey occurring in each of two

consecutive months in this peak period and the final survey occurring within 5 days of the start of construction.

If no active nests are detected during these surveys, no additional mitigation is required.

If active nests are found in the survey area, a no-disturbance buffer will be established around the site to avoid disturbance or destruction of the nest site until the end of the breeding season (August 31) or until after a qualified wildlife biologist determines that the young have fledged and moved out of the project area (this date varies by species). The extent of these buffers will be determined by the biologist in coordination with CDFG and will depend on the level of noise or construction disturbance, line-of-sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors will be analyzed to make an appropriate decision on buffer distances. Suitable buffer distances may vary between species.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No riparian or other sensitive natural communities, other than seasonal wetland discussed below, occur in the project area. Therefore, there would be no adverse effect.

c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

Impact BIO-6: Eliminate Topography and Vegetation of Seasonal Swale

The proposed project would have permanent impacts on the 0.037-acre seasonal swale located south of Unionhouse Creek near Franklin Boulevard. The final acreage of this wetland is pending verification of the delineation of waters of the United States by the USACE. Project construction activities would directly affect the seasonal swale for access to the creek channel during channel widening and placement of the concrete lining. The swale topography and vegetation would be eliminated by movement of construction vehicles through this area. This swale has limited wetland functions and likely was created by previous construction activity in the area, The wetland would not be restored after construction is complete, because the wetland has negligible habitat value, and the future Light Rail project sites the path of the new tracks directly on the wetland. However, because the wetland is federally protected under Section 404 of the CWA, the loss of a federally protected wetland would be considered a significant impact. Implementation of Mitigation Measure MM-BIO-7 would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-MM-7: Compensate for Loss of Seasonal Swale

SAFCA will obtain a CWA Section 404 permit for placement of fill in the seasonal swale and will implement all conditions of the permit.

The loss of approximately 0.037 acre of seasonal wetland habitat will be compensated by a 0.97 acre increase in surface area to Unionhouse Creek resulting from the project. This out-of-kind mitigation is suitable because of the low wetland function of the existing seasonal wetland and the higher value of the increased perennial drainage habitat in Unionhouse Creek.

Impact BIO-7: Temporarily Affect Water Quality in or Result in Loss of a Perennial Drainage

The proposed project would have temporary and permanent direct effects on Unionhouse Creek between the confluence with Strawberry Creek and Franklin Boulevard. Construction activities would have temporary effects on water quality through diversion of the creek flow and removal of the creek bed and bank surface. Permanent effects would occur from excavation and widening of the channel and placement of concrete in the widened creek bed and on the banks.

Water from dewatering activities would be treated and discharged pursuant to state regulations and permit conditions. Potential temporary impacts on water quality during construction could result from the release of hazardous construction-related materials (e.g., gasoline, oils, grease, lubricants, other petroleum-based products) onto the lined creek bed and bank before flow is restored to the channel. In addition, soil would be excavated from the channel bottom and south bank in order to widen the channel, resulting in a temporary disturbance that would be necessary to construct these improvements. These temporary effects would be considered significant. However, SAFCA will prepare and implement a SWPPP to address erosion, stormwater runoff, sedimentation, and other construction-related pollutants during project construction until all areas disturbed during construction have been permanently stabilized. BMPs that likely would be included are described in Section 3.6, Geology and Soils. Additionally, a spill prevention response plan will be implemented to control any spills that would occur during construction, and is described in Section 3.8, Hazards and Hazardous Materials.

The concrete lining in the eastern segment would be applied after the channel bottom and earthen sides are scraped and compacted, so that the resulting surface area would be virtually equal in size to the existing conditions, and as such would continue to hold an equal volume of water. Widening the western segment of the channel would result in an increase of 0.97 acres to water surface area. The USACE would consider installation of the concrete lining within the OHWM of Unionhouse Creek placement of fill.

Placement of fill in water of the United States would be considered a significant impact. However, because the channel is being widened within the OHWM, the project would not ultimately result in a loss of waters of the United States. No compensatory mitigation for impacts to waters of the U.S. would be implemented, because the increase in waters to Unionhouse Creek would offset the permanent fill and the temporary impacts incurred during project construction. In addition, all conditions of the CWA Section 404 permit and Section 401 water quality certification and the CDFG Section 1600 streambed alteration agreement would be addressed and implemented. With implementation of these permit conditions, the potential project loss of waters of the United States would be avoided and the impact would be less than significant.

The loss of habitat on the banks of Unionhouse Creek is addressed above in Impact BIO-MM-3 for giant garter snake habitat.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The proposed project would temporarily obstruct the movement of any wildlife that may use the Unionhouse Creek channel as a dispersal corridor. Because Unionhouse Creek provides poor instream habitat and no riparian vegetation, it represents very poor dispersal habitat for both aquatic and terrestrial species that use stream corridors for dispersal.

The proposed project is not expected to impede the use of native wildlife nursery sites because of the poor quality of habitat in Unionhouse Creek and dominance of urban land uses surrounding the project area.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Impact BIO-8: Loss of a Native Oak Tree

One native oak tree in the study area meets the size criterion for the City of Sacramento Heritate Tree Ordinance. Removal of this tree, if necessary for widening Unionhouse Creek, would require a tree permit from the City. Loss of this tree would be a significant impact. Implementation of Mitigation Measure BIO-MM-8 would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-MM-8: Obtain Tree Permit and Compensate for Loss of Oak Tree

The project proponent will provide the City with a tree survey for the oak tree, including the location, species, diameter of all trunks, approximate height and canopy diameter, and approximate age, in support of a tree permit application to the City for removal of the native oak tree, if necessary. All conditions of the tree permit will be implemented.

Compensatory mitigation for loss of the tree will include planting of one 15-gallon interior live oak tree for each inch of diameter of the removed tree, based on the measured size in the permit application. If tree removal occurs more than 2 years after the application is prepared, the tree will be remeasured and mitigation will be based on the current diameter. The planted trees will be irrigated for up to 3 years and monitored annually for survival and size. Remedial plantings will be planted and monitored in the same manner if there is less than 80% survival, or as required by the tree permit.

f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

There is no adopted habitat conservation plan that covers the project area. The South Sacramento Habitat Conservation Plan covers the project area, but this plan is still in draft phase.

3.5 Cultural Resources

Two broad types of historical resources can be expected in the project vicinity: historic built environment (historic buildings and structures) and archaeological sites (including Native American sites and non-Indian historic sites). For the purposes of cultural resources management in California, a resource is considered historic in age if it is 45 years or older at the time of identification (Office of Historic Preservation 1995), although not all historic structures constitute significant historic resources, as age is only one factor considered in evaluation of significance.

3.5.1 Existing Conditions

3.5.1.1 Environmental and Cultural Setting

Native American Archaeological and Ethnographic Summary

Native Americans may have inhabited the Sacramento Valley as early as 10,000 years ago or more, although the evidence for early human occupation likely is buried by deep alluvial sediments that accumulated rapidly during the late Holocene Epoch (ca. 13,500 years ago to present). Archaeological remains of this early period allegedly have been identified in and around the Central Valley, but the antiquity of some of the finds is disputed (Johnson 1967:283–284; Rosenthal et al. 2007:151).

Recent excavations at Sacramento City Hall (Sacramento City Hall overlies the Indian village of Sacum'ne, CA-SAC-38[1]) reveal the earliest confirmed habitation of the immediate Sacramento vicinity. Obsidian hydration age estimates on artifacts suggest use of the site during 3000–8000 before present[2] (B.P.) Three radiocarbon assays yielded conventional dates of 5870, 6690, and 6700 B.P. The radiocarbon assays were taken between 9.8 feet (ft) and 11.5 ft below ground surface. (Tremaine 2008:99–101)

Later periods of prehistory are better understood because of their more abundant representation in the archaeological record. Fredrickson (1973) identified three general patterns of cultural manifestations for the period between 4500 and 100 B.P.: the Windmiller, Berkeley, and Augustine Patterns.

The Windmiller Pattern (4500–2800 B.P.) shows evidence of a mixed economy consisting of the generalized hunting of game, fishing, and use of wild plant foods. Settlement strategies during the Windmiller period reflect seasonal occupation of valleys during the winter and of foothills during the summer (Moratto 1984:201, 206).

Cultural changes are manifested in the Berkeley Pattern (3500–2500 B.P.). Technological changes in groundstone from handstones and milling slabs to the mortar and pestle indicate a greater dependence on acorns, and the presence of a wide variety of projectile points and atlatls indicates hunting was still an important activity (Fredrickson 1973).

[1] CA-SAC-38 is a number referred to as a trinomial, assigned by the California Historical Resources Information System. CA-SAC-38 is the 38th archaeological site recorded with the California Historical Resources Information System in Sacramento County, California.

[2] By convention, "present" is A.D. 1950. A date of 100 B.P. corresponds to a calendar date of A.D. 1850.

The Berkeley Pattern was superseded by the Augustine Pattern around 1450 B.P., reflecting a change in subsistence and land use patterns similar to those of the ethnographically known people of the proto-historic era (such as the Plains Miwok). This pattern exhibits a great elaboration of ceremonial and social organization, including the development of social stratification. Complex exchange systems, further reliance on acorns, and a wide variety of artifacts (flanged tubular smoking pipes, harpoons, clamshell disc beads, and an especially elaborate baked clay industry, which included figurines and pottery vessels called *Cosumnes Brownware*) are associated with the Augustine Pattern. Increased village sedentism, population growth, and an incipient monetary economy are also hallmarks of this pattern (Moratto 1984:211, 213).

The Plains Miwok are part of the larger Eastern Miwok group that forms one of the two major divisions of the Miwokan subgroup of the Utian speakers and possessed a material culture similar to the Berkeley Pattern described in the previous paragraph. The Plains Miwok lived along the Sacramento, Cosumnes, and Mokelumne Rivers. Like their Nisenan neighbors to the north, the Plains Miwok built their homes on high ground above the flood zone, with major villages concentrated along the larger waterways. Conical homes were constructed with poles and thatching of brush, grass, or tule, and semisubterranean earth-covered homes were built as well. Major villages contained an assembly house, which was a semisubterranean structure with a diameter of 40 to 50 ft, as well as a sweathouse, which was a scaled-down version of the assembly house. (Levy 1978:408–409, Figure 1.)

The Plains Miwok gathered food resources as the seasons varied. As with most California tribes, the Plains Miwok relied heavily on the acorn for subsistence. Other gathered foods included nuts, seeds, roots, greens, berries, and mushrooms. Animal foods included tule elk, pronghorn antelope, jackrabbits, squirrels, beaver, quail, and waterfowl. Salmon was the dominant animal food resource, ranking above other river resources, such as sturgeon. Salt, nuts, basketry, and obsidian were obtained through trade with the Sierra Miwok to the east, for shells, basketry, and bows obtained in turn through trade from the west. (Levy 1978:402–405, 411–412.)

Technological items of the Plains Miwok are similar to those of the Valley Nisenan (see below). Wooden digging sticks, poles, and baskets were used for gathering vegetal resources, and stone mortars, pestles, and cooking stones were used for processing. Items used for obtaining animal resources included nets, snares, seines, bows, and arrows. Arrow points were made primarily of basalt and obsidian. (Levy 1978:405–406)

Based on this review of Native American archaeology and ethnography, four types of prehistoric archaeological resource have the potential to occur in the project area: midden sites, isolated burials and features, lithic scatters, and isolated artifacts. Midden sites usually are distinguished by a high organic content resulting from human occupation and food discard that causes soil to be noticeably darker, and they can vary greatly in size. They are often the most complex site type in the project vicinity. Lithic scatters are collections of flaked- and/or ground-stone debris, including tools and debitage that relate to post-quarry reduction and tool-manufacturing efforts. Burial sites and isolated artifacts require no explanation, although it should be pointed out that Native American burial sites frequently are not marked as a result of age and past vandalism. Any of these resource types might be observable on the ground surface or buried by recent flood deposits or fill dirt.

Historical Setting

The dominant historical context pertaining to this impact analysis is flood control, as the only cultural resource identified in the project area is a flood control feature (Unionhouse Creek).

Historically, much of the Sacramento Valley was marsh and swampland, and there was seasonal flooding and periodic inundation of usually dry areas. Starting in the nineteenth century, flood control and land reclamation projects were undertaken to make the area habitable for larger populations and to expand acreage for agriculture.

In 1861, the legislature created the State Board of Reclamation Commissioners and authorized the formation of reclamation districts to protect the American and Yolo basins, and lower Sacramento County from flooding. Improvements began in 1863 and by 1865 resulting in the construction of 41 kilometers (km) of levees and 32 km of drainage canals. These efforts, however, were never completed and flooding in the area continued (Thompson 1958). Additionally, early flood control efforts often conflicted with one another, as in the case of the 1862 east-bank Sacramento River Levee, which removed the natural outlet for Unionhouse and Morrison Creeks. The result was exacerbation of local flooding in southern Sacramento County. (JRP Historical Consulting Services 2003:8.)

In 1911, the California established the State Reclamation Board that had jurisdiction over reclamation districts and levee plans. That same year, with approval from the state, the Sacramento Flood Control Plan was implemented. which proposed the construction of levees, weirs, and bypasses along the river. Under this plan, the state created new reclamation districts and placed existing districts under the jurisdiction of the State Reclamation Board. Currently, the greater Sacramento area flood control measures are made up of a series of levees and dams with drainage facilitated by a system of canals and laterals that carry water to various pumping plants and ultimately the Sacramento River. (Jones & Stokes 2006:30.)

Unionhouse Creek and other creeks in the South Sacramento River Streams Group were channelized between 1937 and 1953 and were further modified from the 1950s onward as the expansion of residential subdivisions into south Sacramento gave additional urgency to local flood control (JRP Historical Consulting Services 2003:8).

3.5.1.2 Methods

The methods employed in this impact analysis consisted solely of a records search and literature review because the entire project area has been surveyed for cultural resources within the last 10 years, obviating the need for additional survey (see discussion below).

ICF International (ICF) conducted a records search at the North Central Information Center (NCIC) of the California Historical Resources Information System (CHRIS) on March 7, 2012. The NCIC maintains the CHRIS's official records of previous cultural resource studies and known cultural resources in a six-county area that includes Sacramento County. ICF staff reviewed the NCIC's base maps of previous studies and known cultural resources for the area of potential effects (APE) and a 0.75-mile (mi) buffer surrounding the project area. ICF also consulted the following sources at the NCIC and ICF's cultural resources library.

- *California Inventory of Historic Resources* (Department of Parks and Recreation 1976 and updates).
- *California Points of Historical Interest* (Department of Parks and Recreation 1992 and updates).
- *California Historical Landmarks* (Department of Parks and Recreation 1996 and updates).
- *Historic Spots in California* (Hoover et al. 1966; Hoover et al. 1990, 2002).

- *California Place Names* (Gudde 1998).
- *History Happened Here* (Pinkerton 2002).
- Ethnographic sources (Kroeber 1976; Levy 1978; Wilson and Towne 1978).
- *A Geoarchaeological Overview and Assessment of Caltrans District 3* (Meyer and Rosenthal 2008).
- Directory of Properties in the Historic Property Data File for Sacramento County.
- Archeological Determinations of Eligibility for Sacramento County.
- The National Register of Historic Places (listings on file at the NCIC).
- California Register of Historical Resources (CRHR) (listings on file at the NCIC).
- California Department of Transportation (Caltrans) Local Agency Bridges and State Bridges Inventories (1987 and 2000)
- Historic maps (United States Department of the Interior Geological Survey 1947, 1980).

The records search and literature review indicate that 10 cultural resource studies have been conducted in the APE, resulting in complete survey coverage of the APE within the last 10 years (Derr 1997; Jones & Stokes 2006; JRP Historical Consulting Services 2003; Syda et al. 1995; U.S. Army Corps of Engineers 1998, 2004a, 2004b; U.S. Army Corps of Engineers et al. 2008; Waechter 2003, 2005).

One cultural resource has been identified in the APE: P-34-1363[3] (Channelized Beacon/Union House and Morrison Creeks) (Jones & Stokes 2006:50; JRP Historical Consulting Services 2003:18). It is described below. Within 0.75 mi of the APE, other previously recorded cultural resources consist of historic (modified) roadways, the Western Pacific Railroad, three middle–twentieth century residences, and seven historic residential and ranching sites comprising structural remnants (Derr 1997; EDAW 2003; Jones & Stokes 2006; JRP Historical Consulting Services 2003; Syda et al. 1995; Waechter 2003, 2005).

To assess the potential for buried archaeological properties to exist within the APE, ICF also examined a regional geoarchaeological overview, geotechnical documents, geologic maps, and soil surveys (Cole et al. 1954; Kleinfelder 2007; Meyer and Rosenthal 2008; Strand and Koenig 1966; Tugel 1993).

P-34-1363 (Channelized Beacon/Union House and Morrison Creeks)

P-34-1363, which includes Unionhouse Creek, was a natural waterway channelized between 1937 and 1953. Unionhouse Creek is tributary to Morrison Creek and winds southwestward to Beach and Stone Lakes. The stream's access to the Sacramento River has been hindered since construction of the Sacramento River east levee in 1862. Subsequent to channelization, further modifications to the creek, such as the addition of levees and concrete surfaces, were done. Regarding the historical significance of P-34-1363, Webb (2002) writes:

> This segment of levees along Morrison and Union House creeks do not appear to be eligible for inclusion in the National Register of Historic Places. Under Criterion A, these resources do not appear

[3] P-34-1363 is a Primary Number that the CHRIS assigned to this resource. Sacramento is alphabetically the 34th county in California and 1363 represents the 1,363rd cultural resource to be assigned a primary number in this county.

> to have important associates with significant events, especially within the context of 20th century flood control in the Sacramento Valley. The structures do not appear to have important associations with historically significant individuals (Criterion B), nor do the channels and levees appear to be significant for their design or construction (Criterion C). The engineering technology used in the construction of the levees with in [sic] the study area is otherwise well documented, and therefore, would not qualify for listing under Criterion D.

Webb (2002), Jones & Stokes (2006:50), and the State Historic Preservation Officer (SHPO) (Donaldson 2006) all concluded that P-34-1363 is not eligible for listing in the National Register of Historic Places (NRHP) and does not qualify as a historical resource for the purposes of CEQA.

3.5.2 Regulatory Setting

3.5.2.1 California Environmental Quality Act

CEQA requires public agencies that finance or approve public or private projects to assess the effects of the proposed project on cultural resources. Cultural resources are defined as buildings, sites, structures, or objects that might have historical, architectural, archaeological, cultural, or scientific importance. CEQA requires that, if a project results in significant effects on important cultural resources, alternative plans or mitigation measures be considered; however, only significant cultural resources need to be addressed. Therefore, prior to the development of mitigation measures, the importance of cultural resources must be determined. The steps that normally are taken in a cultural resources investigation for CEQA compliance are as follows.

1. Identify cultural resources.
2. Evaluate the significance of resources.
3. Evaluate the effects of a project on all significant (historical and unique archaeological) resources.
4. Develop and implement measures to mitigate the effects of the project only on historical and unique archaeological resources.

CEQA defines three ways that a cultural resource may qualify as a historical resource for the purposes of CEQA review.

- The resource is listed in or determined eligible for listing in the CRHR.
- The resource is included in a local register of historical resources, as defined in Public Resources Code (PRC) 5020.1 [k].
- The resource is identified as significant in a historical resource survey meeting the requirements of PRC 5024.1 (g) unless the preponderance of evidence demonstrates that it is not historically or culturally significant. The lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record (14 California Code of Regulations [CCR] 15064.5[a]).

The CEQA statutes define a historical resource as “a resource listed or eligible for listing on the California Register of Historical Resources (CRHR)” (PRC 5024.1). A historical resource may be eligible for inclusion in the CRHR if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.

2. Is associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, CEQA distinguishes between two classes of archaeological resources: archaeological sites that meet the definition of a historical resource as defined above, and "unique archaeological resources." An archaeological resource is considered unique if it:

- Is directly associated with an event or person of recognized significance in California or American history or recognized scientific importance in prehistory.
- Can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions.
- Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind. (PRC 21083.2)

3.5.2.2 Section 106 of the National Historic Preservation Act

SAFCA is seeking authorization from the U.S. Army Corps of Engineers (USACE) for the proposed project under Section 404 of the Clean Water Act. As such, the USACE is responsible for considering the effects that the proposed project might engender on significant cultural resources (termed *historic properties*) under Section 106 of the National Historic Preservation Act and its implementing regulation, 36 CFR 800. Section 106 requires that, before beginning any undertaking, a federal agency must take into account the effects of the undertaking on historic properties and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on these actions. The Section 106 process has five steps.

- Initiate the Section 106 process.
- Identify and evaluate historic properties.
- Assess effects of the proposed project on historic properties within the APE.
- If historic properties are subject to adverse effects, the federal agency, SHPO, and any other consulting parties (including Indian tribes) continue consultation to seek ways to avoid, minimize, or mitigate the adverse effect. A memorandum of agreement (MOA) is usually developed to document the measures agreed upon to resolve the adverse effects.
- Proceed in accordance with the terms of the MOA.

Specific regulations regarding compliance with Section 106 state that, although the tasks necessary to comply with Section 106 may be delegated to others, the federal agency (in this case, USACE) is ultimately responsible for ensuring that the Section 106 process is completed according to statute.

Properties eligible for inclusion in the NRHP must meet one of the registration criteria defined below:

- **Criterion A:** Properties associated with events that have made a significant contribution to the broad patterns of history.
- **Criterion B:** Properties associated with persons significant in our past.

- **Criterion C:** Properties that embody distinctive characteristics of a type, period, or method of construction, or are the work of a master a master, or possess high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction.
- **Criterion D:** Properties that yield or may yield information important to history.

In addition to meeting one of the above criteria, a property must retain integrity. The NRHP evaluates integrity based on seven aspects:

- **Location:** The place where the historic property was constructed or the place where the historic event occurred.
- **Design:** The combination of elements that crate the form, plan, space, structure, and style of a property.
- **Materials:** The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
- **Workmanship:** The physical evidence of the crafts of a particular culture of people during any given period in history or prehistory.
- **Setting:** The physical environment of a historic property.
- **Feeling:** A property's expression of the aesthetic or historic sense of a particular period of time.
- **Association:** The direct link between an important historic event or person and a historic property.

3.5.3 Environmental Effects

As stated above, the entire project area has been surveyed for cultural resources in the last 10 years. One cultural resource has been identified in the APE: P-34-1363 (Channelized Beacon/Union House and Morrison Creeks) (Jones & Stokes 2006:50; JRP Historical Consulting Services 2003:18). P-34-1363 was evaluated for eligibility to the NRHP and for significance under CEQA. It was determined ineligible for listing on the NRHP and is not considered a historical resource for the purposes of CEQA (Donaldson 2006:3; Jones & Stokes 2006:50).

Assessments for buried archaeological site potential in the project area have varied. Syda et al. (1995) did not recommend monitoring or archaeological prospection in the project area. Waechter (2003:29, Figure 3, 2005:5, Figure 3) recommended that professional archaeologists monitor excavation between Center Parkway and Bruceville Road because about 60% of this area contains well-drained San Joaquin silt loam covered by pavement and therefore could not be surveyed. USACE archaeologists have not regarded the project area as being sensitive for the presence of cultural resources (U.S. Army Corps of Engineers 1998, 2004a, 2004b; U.S. Army Corps of Engineers et al. 2008). Meyer and Rosenthal (2008:Figure 54) map the project vicinity as overlying latest Holocene (2000–150 years) and late Holocene (4000–150 years) buried soils. However, no archaeological discoveries or buried soils were reported along the Freeport Regional Water Project during construction of that project, which parallels the present project area on the same land formation 80 ft to the south (Chotkowski 2010:2; ICF International 2011:3; ICF Jones & Stokes 2008:3, 2009:3; Leigh 2011). On the whole, given the number of pedestrian surveys in the project area and nearby construction observations, the archaeological sensitivity of the project area is low.

a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

The proposed project would not result in a substantial adverse change in the significance of a historical resource. No historical resources have been identified in the project area and the preceding analysis shows that the likelihood of encountering buried archaeological resources in the project area is low. Nonetheless, there is a very small chance that construction of the proposed project would encounter buried cultural resources that qualify as historical resources. See Impact CUL-1 below.

Impact CUL-1: Inadvertent Damage of Buried Cultural Resources during Ground Disturbance

Ground-disturbing activities such as excavation to widen the Unionhouse Creek channel or preparing the ground surface for staging and access may result in inadvertent damage to buried cultural resources, which may qualify as historical or unique archaeological resources as defined in Section 15064.5. Although the potential for this impact to occur is slight, such an occurrence likely would result in the removal of archaeological features and artifacts from their context and damage individual objects as well. This loss of scientific information would constitute a substantial adverse change in resource significance because most archaeological resources derive their significance mainly from their capacity to yield information bearing on important research questions. Implementation of Mitigation Measure CUL-MM-1 below would reduce this impact to a less-than-significant level.

Mitigation Measure CUL-MM-1: Stop Work, Assess Resource Significance, and Mitigate If Needed

In the event of an inadvertent cultural resources discovery, construction is to halt near the find. Excavation work or any other earth-moving activities within 100 ft, or greater, if deemed necessary by a qualified archaeologist to protect the resource, will be halted or redirected. Because the proposed project requires permitting from the USACE, SAFCA must ensure that treatment of inadvertently discovered cultural resources complies with 36 CFR 800.13. To do so, the contractor or construction manager will immediately notify the USACE permit manager of the discovery by telephone. SAFCA also will retain a qualified cultural resource specialist to examine the discovery.

If the USACE does not delegate authority for treating the discovery to SAFCA, the agency's cultural resource specialist will prepare a memorandum documenting the discovery and the circumstances leading to its identification, as well as significance recommendations (if possible to make on the basis of field observations). SAFCA will forward the memorandum to USACE within 24 hours of the discovery. If the resource appears to meet the appropriate eligibility criteria, the resource may be assumed to be eligible, and efforts can subsequently focus on the resolution of adverse effects (mitigation) pursuant to 36 CFR 800.13(c).

USACE has 48 hours from the time of the discovery in which to review the memorandum, make any necessary clarifications and revisions, and provide the memorandum to the SHPO and SAFCA. In the event the discovery appears to meet the NRHP criteria, USACE also will transmit the memorandum to the ACHP.

The SHPO, SAFCA, and ACHP have 48 hours from the receipt of the memorandum to present comments to USACE; USACE may regard lack of comment within 48 hours as concurrence with

its recommendation (36 CFR 800.13[b][3]). Once these consultations have occurred and if USACE makes a determination of non-significance, construction may resume in the discovery area upon the receipt of USACE's express authorization to proceed and under the direction of a qualified cultural resources specialist. If the discovery was determined to be NRHP- and CRHR-eligible, the aforementioned parties will agree on measures to test excavate and mitigate construction impacts on the resource. Construction work will not be permitted within 100 ft of the discovery until the USACE confirms that the measures agreed upon have been completed satisfactorily.

In the event that the USACE declines to comment on the discovery or authorizes SAFCA to handle the discovery, a qualified cultural resources specialist will be retained to provide SAFCA with a recommendation on the eligibility of the find for the CRHR. SAFCA makes the final determination.

If the find is not eligible for the CRHR, the cultural resource specialist will complete document the find and, upon SAFCA's approval of the documentation, approve the resumption of construction in the area of the find.

If the find is eligible, SAFCA and the cultural resources specialist will devise and implement an avoidance plan or an appropriate mitigation plan. If the find includes human remains, those remains are to be treated under the protocol for treatment of human remains (see Impact CUL-2). SAFCA will continue to treat the portion of the find not subject to Health and Safety Code and (HSC) 7050.5 and PRC 5097.98 under this mitigation measure.

b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?

No unique archaeological resources have been identified in the project area, and the cultural resources sensitivity analysis provided in the introduction to this environmental effects section indicates low potential for inadvertent discoveries of unique archaeological discoveries during construction. See Impact CUL-1 and Mitigation Measure CUL-MM-1 above.

c. Disturb any human remains, including those interred outside of formal cemeteries?

As discussed in this environmental effects section, the likelihood of unearthing human remains in the project area is low. Nevertheless, there is some potential, however remote, that ground disturbance in the project area would disturb human remains. See Impact CUL-2 below.

Impact CUL-2: Inadvertent Damage of Human Remains during Construction

The willful damage or other disturbance of human remains is prohibited under the California Health and Safety Code and PRC. Human remains often are found in the midst of other archaeological remains, so such discoveries have the potential to compromise scientific values as well as cultural ones held by descendant communities. This impact would be significant under CEQA. Implementation of Mitigation Measure CUL-MM-2 below would reduce this impact to a less-than-significant level.

Mitigation Measure CUL-MM-2: Stop Work and Treat Remains in Accordance with State Laws

If the human remains are discovered during construction activities, SAFCA and its contractors must comply with HSC 7050.5 and PRC 5097.98. All excavation activities within 100 feet immediately will stop, and the area will be protected with flagging or by posting a monitor or construction worker to ensure that no additional disturbance occurs. If the discovery occurs at the end of the work day, the area must be secured by posting a guard, covering with heavy metal plates (if the human remains are found below grade), covering with other impervious material, or making other provisions to prevent damage to the remains.

SAFCA or its authorized representative will contact the Sacramento County Coroner at (916) 874-9320. The coroner will notify the Native American Heritage Commission (NAHC), while SAFCA notifies the USACE.

The coroner will have 2 working days to examine the remains after being notified in accordance with HSC 7050.5. If the coroner determines that the remains are Native American and are not subject to the coroner's authority, the coroner has 24 hours to notify the NAHC of the discovery.

The NAHC immediately will assign and notify a most likely descendant (MLD) of the remains, who will have 48 hours after inspecting the remains to make recommendations for treatment of them. Work will be suspended in the area of the find until the USACE (if participating) and SAFCA approves the proposed treatment of the human remains.

3.6 Geology and Soils

3.6.1 Existing Conditions

The project area is located in the southern portion of the Sacramento Valley in the northern portion of California's Great Valley Geomorphic Province. The Great Valley is a narrow, elongated topographic depression that is approximately 450 miles long and 40 to 70 miles wide. The basin is bordered by the Sierra Nevada plutonic complex to the east and the California Coast Ranges to the west, and the Klamath and Cascade Mountains to the north. The Sacramento Valley contains thousands of feet of accumulated fluvial, overbank, and fan deposits resulting from erosion of these surrounding ranges (Hackel 1966).

The project area is situated on vast alluvial deposits that have slowly accumulated over the last 100 million years. The materials have been derived from igneous, metamorphic, and sedimentary parent rock materials from the Sierra Nevada to the east, transported by major streams and deposited in successive clay, silt, sand, and gravel layers on the valley floor. The geologic formations underlying the southern portion of the Sacramento Valley range in age from pre-cretaceous to recent.

Dominant soils in the project area are the Clear Lake Clay and Galt Clay soils, formed in alluvium derived from mixed rock sources. Slopes in this series range from 0 to 2%. These soils are moderately deep and consist of a silt loam at the surface with a subsoil of claypan underlain by cement hardpan.

The closest known active seismic fault is the Dunnigan Hills fault located approximately 20 miles northwest of the city of Sacramento. Inactive faults in the vicinity include the Midland fault located approximately 20 miles west of the city of Sacramento and the Bear Mountain fault zone located east of Sacramento County.

3.6.2 Regulatory Setting

3.6.2.1 Federal

The following federal regulations related to geology, seismicity, and soils may apply to implementation of the project.

Section 402 of the Federal Clean Water Act

Section 402 of the Clean Water Act (CWA) mandates that certain types of construction activity comply with the requirements of the EPA's National Pollutant Discharge Elimination System (NPDES)program. The EPA has delegated to the State Water Board the authority for the NPDES program in California, where it is implemented by the state's nine Regional Water Quality Control Boards (Regional Water Boards). Construction activity disturbing 1 acre or more must obtain coverage under the state's General Permit for control of stormwater both during and after project implementation.

The Central Valley Regional Water Board administers the NPDES stormwater permit program in Sacramento County. Obtaining coverage under the General Permit requires that the project applicant:

- File a notice of intent (NOI) to obtain coverage under the General Permit before construction begins.
- Prepare and implement a stormwater pollution prevention plan (SWPPP).
- File a notice of termination with the State Water Board when construction is complete and the construction area has been permanently stabilized.

The SWPPP describes proposed construction activities, receiving waters, stormwater discharge locations, and BMPs that will be used to reduce project construction effects on receiving water quality. The components of the SWPPP most relevant to geology and soils are erosion and sediment control measures. More information on the NPDES and SWPPP is provided in Section 3.9, Hydrology and Water Quality.

3.6.2.2 State

The following state regulations related to geology, seismicity, soils, and mineral resources may apply to implementation of the project.

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (Public Resources Code [PRC] Section 2621 *et seq.*), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as *active*, and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

Under the Alquist-Priolo Act, faults are zoned, and construction along or across faults is strictly regulated if they are sufficiently active and well defined. A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during the Holocene Epoch (considered present time and defined for purposes of the act as approximately the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface using standard professional techniques, criteria, and judgment. (Hart and Bryant 1997.)

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped seismic hazard zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within seismic hazard zones until appropriate site-specific geologic and geotechnical investigations have been carried out and measures to reduce potential damage incorporated into the development plans.

3.6.2.3 Local

The following local regulation related to geology, seismicity, and soils may apply to implementation of the project.

City of Sacramento Grading, Erosion, and Sediment Control Ordinance

The City of Sacramento Grading Ordinance sets forth rules and regulations to control land disturbances, landfill, soil storage, pollution, and erosion and sedimentation resulting from construction activities. The ordinance requires that the proponents of projects that involve land grading prepare and implement an erosion and sediment control plan to control accelerated erosion and sedimentation during preconstruction- and construction-related grading, and a post-construction erosion and sediment control plan to address similar issues once grading is complete.

3.6.3 Environmental Effects

a(i). Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving the 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?

There are no known faults located in the immediate vicinity of the project area. Therefore, there would be no impact.

a(ii). Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

The seismic ground shaking hazard in the project area is low to moderate, and the only permanent structures that would be constructed as part of the proposed project would be the concrete-lined channel itself, replacement sump pump and outlet structure and relocation of an antenna tower. The proposed project would not involve the construction of habitable structures and would not change the susceptibility of the channel to seismic shaking. Therefore, there would be no impact.

a(iii). Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

The soils and sediments at the project area are potentially susceptible to liquefaction because of their composition of silts and sands and the potential presence of groundwater within 50 feet of the surface. However, as described above, the project would not result in construction of any structures and would not change the susceptibility of the channel to liquefaction. Therefore, there would be no impact.

a(iv). Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

There are no landslide hazards associated with the project area. The proposed project would not result in any substantial alterations to the existing topography or landslide hazard. There would be no impact.

b. Result in substantial soil erosion or the loss of topsoil?

Impact GEO-1: Accelerated Erosion and Sedimentation

Ground disturbance caused by project construction activities and stockpiling of soil material has the potential to increase erosion and sedimentation rates above preconstruction levels. However, SAFCA would prepare and implement a SWPPP to address erosion, stormwater runoff, sedimentation, and other construction-related pollutants during project construction until all areas disturbed during construction have been permanently stabilized. The preparation and implementation of the SWPPP is necessary to comply with the requirements of the county's erosion control ordinance and the state's NPDES general construction activity stormwater permit. The specific BMPs that would be incorporated into the SWPPP would be determined during the final design phase and would be prepared in accordance with the Regional Water Board field manual. However, the plan likely would include, but not be limited to, one or more of the following standard erosion and sediment control BMPs:

- ***Timing of construction.*** The construction contractor would conduct all construction activities prior to October 31 to avoid ground disturbance during the rainy season.
- ***Staging of construction equipment and materials.*** To the extent possible, equipment and materials would be staged in areas that have already been disturbed.
- ***Minimize soil and vegetation disturbance.*** The construction contractor would minimize ground disturbance and the disturbance/destruction of existing vegetation. This would be accomplished in part through the establishment of designated equipment staging areas, ingress and egress corridors, and equipment exclusion zones prior to the commencement of any grading operations.
- ***Stabilize spoils.*** Spoils generated during construction would be stockpiled in staging areas located away from Unionhouse Creek. Silt fences, fiber rolls, or similar devices would be installed around the base of the temporary stockpiles to intercept runoff and sediment during storm events. If necessary, temporary stockpiles may be covered with an appropriate geotextile to increase protection from wind and water erosion.
- ***Install sediment barriers.*** The project proponent may install silt fences, fiber rolls, or similar devices to prevent sediment-laden runoff from leaving the construction area.
- ***Stormwater drain inlet protection.*** The project proponent may install silt fences, drop inlet sediment traps, sandbag barriers, and/or other similar devices.
- ***Permanent site stabilization***. The construction contractor will install structural and vegetative methods to permanently stabilize all graded or otherwise disturbed areas once construction is complete, excluding the soil stockpiles, which would have their own erosion control measures that would be specified in the SWPPP. Structural methods may include the installation of biodegradable fiber rolls and erosion control blankets. Vegetative methods may involve the application of organic mulch and tackifier and/or the application of an erosion control seed mix.

Implementation of a SWPPP would substantially minimize the potential for project-related erosion and sedimentation and associated adverse effects on water quality. Because all project-related soil disturbance would occur in the channel or in the open space between the creek and Cosumnes River Boulevard, the project would not result in the loss of topsoil resources. Therefore, this impact is considered less than significant.

c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

The proposed project would not result in the instability of soil or geologic units and would maintain the same slope ratios that currently exist in the channel. Weep holes in the concrete lining would avoid the buildup of excessive soil water pore pressure behind the concrete. Therefore, there would be no impact.

d. 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?

The proposed project would not involve the construction or placement of structures on expansive soils, as there are no expansive soils in the project area. There would be no impact.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

The proposed project would not generate wastewater. There would be no impact.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No unique geologic features that could be adversely affected by project construction are known to exist near the project. There would be no impact.

3.7 Greenhouse Gas Emissions

This section provides an analysis of climate change impacts resulting from the proposed project. It describes greenhouse gas (GHG) emissions commonly generated, discusses recent GHG inventories, and summarizes the current regulatory framework related to GHG emissions and climate change. Environmental impacts related to climate change, as well as mitigation measures to reduce or eliminate potential impacts, also are discussed.

3.7.1 Existing Conditions

The principal GHGs contributing to global warming are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluoridated compounds. Because construction equipment and heavy duty trucks generate primarily GHG emissions consisting of CO_2 CH_4, and N_2O, the following discussion focuses on these pollutants.

CO_2 is the most important anthropogenic GHG, followed by CH_4 and N_2O. It is estimated that CO_2 accounts for more than 75% of all anthropogenic GHG emissions. Three quarters of anthropogenic CO_2 emissions are the result of fossil fuel burning (and to a very small extent, cement production), and approximately one quarter of emissions is the result of land-use change (Intergovernmental Panel on Climate Change 2007). CH_4 is the second largest contributor of anthropogenic GHG emissions and is the result of growing rice, raising cattle, fuel combustion, and mining coal (National Oceanic and Atmospheric Administration 2005). N_2O, while not as abundant as CO_2 or CH_4, is a powerful GHG. Sources of N_2O include agricultural processes, nylon production, fuel-fired power plants, nitric acid production, and fuel combustion.

In order to simplify reporting and analysis, methods have been set forth to describe emissions of GHGs in terms of a single gas. The most commonly accepted method to compare GHG emissions is the global warming potential (GWP) method defined in the Intergovernmental Panel on Climate Change (IPCC) reference documents (Intergovernmental Panel on Climate Change 1996, 2001). The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2 equivalents (CO_2e), which compares the gas in question to that of the same mass of CO_2 (CO_2 has a GWP of 1 by definition). Table 3.7-1 lists the GWP of CO_2, CH_4, and N_2O; their lifetimes; and abundances in the atmosphere in parts per million (ppm) and parts per trillion (ppt).

Table 3.7-1. Lifetimes and Global Warming Potentials of Principal Greenhouse Gases

Greenhouse Gas	Global Warming Potential (100 years)	Lifetime (years)	2005 Atmospheric Abundance
Carbon dioxide (ppm)	1	50–200	379
Methane (ppt)	21	9–15	1.7
Nitrous oxide (ppt)	310	120	0.32
Sources: Intergovernmental Panel on Climate Change 1996, 2001, 2007.			

3.7.2 Regulatory Setting

Climate change only recently has been widely recognized as an imminent threat to the global climate, economy, and population. Thus, the climate change regulatory setting—nationally, statewide, and locally—is complex and evolving. The following section identifies key legislation, executive orders, and seminal court cases relevant to the environmental assessment of project GHG emissions.

3.7.2.1 Federal

Endangerment Finding

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act (CAA).

1. **Endangerment Finding:** that the current and projected concentrations of the greenhouse gases in the atmosphere threaten the public health and welfare of current and future generations.
2. **Cause or Contribute Finding:** that the combined emissions of greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

Although the Endangerment Finding in itself does not place requirements on industry, it is an important step in the EPA's process to develop regulation of GHGs. This action is a prerequisite to finalizing the EPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009.

President's Council on Environmental Quality Draft Guidance

On February 18, 2010, Nancy Sutley, chair of the President's Council on Environmental Quality (CEQ), issued a memorandum (Draft Guidance) providing guidance on consideration of the effects of climate change and GHG emissions under NEPA (Council on Environmental Quality 2010). The Draft Guidance suggests that the effects of projects directly emitting GHGs in excess of 25,000 tons annually be considered in a qualitative and quantitative manner. The CEQ does not propose this reference as a threshold for determining significance but as "a minimum standard for reporting emissions under the CAA." The Draft Guidance also recommends that the cumulative effects of climate change on the proposed project be evaluated. The Draft Guidance is undergoing public comments and is not effective until issued in final form (Council on Environmental Quality 2010).

National Tailpipe Standards

On April 1, 2010, the EPA and the National Highway Traffic Safety Administration announced the first national tailpipe standards for new cars and trucks sold in the United States. The program applies to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016, and requires these vehicles to meet combined average fuel economy of 35.5 miles per gallon. It is estimated that these standards will cut GHG emissions by 960 million metric tons over the lifetime of the vehicles (U.S. Environmental Protection Agency 2010).

3.7.2.2 State

The State of California has adopted legislation, and regulatory agencies have enacted policies, addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation and policy activity is not directed at citizens or jurisdictions but rather establishes a broad framework for the state's long-term GHG mitigation and climate change adaptation program. The following key legislation is applicable to the proposed project.

Executive Order S-3-05

Under this Executive Order S-3-05, state agencies ordered to reduce California's GHG emissions to: (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80% below the 1990 levels by 2050.

Assembly Bill 32: Global Warming Solutions Act of 2006

Assembly Bill (AB) 32 sets the same overall year 2020 GHG emissions reduction goals as Executive Order S-3-05, while further mandating that the ARB create a plan that includes market mechanisms) and implement rules to achieve "real, quantifiable, cost-effective reductions" of GHGs. AB 32 further directs state agencies and the newly created state Climate Action Team to identify discrete early-action GHG reduction measures. These actions were adopted in early 2010 and relate to truck efficiency, port electrification, tire inflation, and reduction of perfluorocarbons, propellants, and sulfur hexafluoride.

Climate Change Scoping Plan

The ARB's Climate Change Scoping Plan prepared pursuant to AB 32 contains the main strategies California will use to reduce GHGs from business-as-usual emissions projected for 2020 back to 1990 levels (California Air Resources Board 2008). As part of the scoping plan, the ARB and other agencies are undertaking regulatory rule making, culminating in rule adoption by January 1, 2011, for reducing GHG emissions to achieve the emissions cap by 2020, although official adoption has not yet occurred at the time of this writing.

In March 2011, a San Francisco Superior Court enjoined the implementation of ARB's Scoping Plan, finding the alternatives analysis and public review process violated both CEQA and the ARB's certified regulatory program (*Association of Irritated Residents, et al. v. California Air Resources Board*. Case No. CPF-09-509562, March 18, 2011). In response to this litigation, the ARB is revising and updating the Scoping Plan alternatives, including the preparation of a new CEQA document.

Executive Order S-01-07: Low Carbon Fuel Standard

Executive Order S-01-07 requires a 10% or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by the ARB.

Assembly Bill 1493 (Pavely): Greenhouse Gases, Chapter 200, Statutes of 2002

AB 1493 requires the ARB to adopt regulations to reduce GHG emissions from noncommercial passenger vehicles and light-duty trucks of model years 2009 and later. The regulations were adopted September 24, 2009.

Senate Bill 375 (Steinberg): Statutes of 2008

Senate Bill (SB) 375 requires regional transportation plans developed by metropolitan planning organizations (MPOs) to incorporate a "sustainable communities strategy" that will achieve GHG emission reduction targets set by the ARB.

Senate Bills 1078/107 and Executive Order S-14-08—Renewable Portfolio Standard (2008)

SBs 1078 and 107, California's Renewable Portfolio Standard (RPS), obligate investor-owned utilities (IOUs), energy service providers (ESPs), and Community Choice Aggregations (CCAs) to procure an additional 1% of retail sales per year from eligible renewable sources until 20% is reached, no later than 2010. The CPUC and CEC are jointly responsible for implementing the program. EO S-14-08 set forth a longer-range target of procuring 33% of retail sales by 2020.

State CEQA Guidelines, As Amended in 2010

The State CEQA Guidelines require lead agencies to describe, calculate, or estimate the amount of GHG emissions resulting from a project. Moreover, the guidelines emphasize the necessity to determine potential climate change effects of the project and propose mitigation as necessary. The guidelines confirm the discretion of lead agencies to determine appropriate significance thresholds but require the preparation of an EIR if "there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with adopted regulations or requirements" (Section 15064.4).

California Cap-and-Trade (2011)

On December 16, 2010, ARB approved measures to enact a GHG Cap-and-Trade program for the state of California. The California Cap-and-Trade program will create a market-based system with an overall emissions limit for affected sectors. The program is currently proposed to regulate more than 85% of California's emissions and will stagger compliance requirements according to the following schedule: (1) electricity generation and large industrial sources (2012); (2) fuel combustion and transportation (2015). The ARB adopted Cap-and-Trade on October 20, 2011. The first compliance year when covered sources will have to turn in allowances is 2013 (California Air Resources Board 2011b).

3.7.2.3 Local

Appendix G of the CEQA Guidelines states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to determine the project's level of impact in terms of GHG emissions. The SMAQMD's Guide to Air Quality Assessment in Sacramento County establishes analysis expectations with regard to GHG emissions in CEQA documents such as EIRs (Sacramento Metropolitan Air Quality Management District 2009). The district recommends that an analysis of potential impacts of project-generated GHG emissions should include a description of GHGs, summary of existing regulations, and discussion of GHG emissions sources in the project area. The guidelines further state that the analysis quantifies the mass emissions associated with project construction and operation. Although the guidelines recommend that GHG emissions be quantified, they do not identify thresholds at which emissions are considered significant. Rather, they state that the lead agency should determine a threshold appropriate to the project using either thresholds adopted by other agencies or their own. Finally, the SMAQMD requires that CEQA documents make a conclusion about the significance of project-related GHG emissions and identify feasible mitigation measures to reduce those emissions.

3.7.3 Significance Criteria

Based on the State CEQA Guidelines Appendix G, an impact pertaining to climate change is considered significant if it would:

- Generate a significant amount of GHG emissions, either directly or indirectly.
- Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHGs.

As discussed above, the SMAQMD has not established thresholds to define a "significant amount" of GHGs. Within the state, the Bay Area Air Quality Management District (BAAQMD), South Coast Air Quality Management District (SCAQMD), Mojave Desert Air Quality Management District (MDAQMD), and San Joaquin Valley Air Pollution Control District (SJVAPCD) are among the agencies that have adopted GHG thresholds. Although unadopted, a per capita threshold for transportation projects has been proposed by Sacramento County (Table 3.7-2).

To evaluate significance, this analysis draws on the adopted GHG thresholds in Table 3.7-2 to evaluate GHG emissions, as well as the project's consistency with applicable climate action plans and regulations. In accordance with the SMAQMD CEQA guidelines and scientific consensus regarding the cumulative nature of GHGs[1], the analysis presented herein represents a cumulative, rather than project-level, evaluation of climate change impacts.

[1] Climate change is a global problem, and GHGs are global pollutants, unlike criteria air pollutants (such as ozone precursors), which are primarily pollutants of regional and local concern. Given their long atmospheric lifetimes (see Table 3.7-1), GHGs emitted by countless sources worldwide accumulate in the atmosphere. No single emitter of GHGs is large enough to trigger global climate change on its own. Rather, climate change is the result of the individual contributions of countless sources past, present, and future. Therefore, GHG impacts are inherently cumulative.

Table 3.7-2. Example Greenhouse Gas Thresholds in California

Agency	Threshold	Application
BAAQMD	1,100 (metric tons/year)	Development projects (operational emissions)
	Compliance with GHG reduction strategy	
	4.6 metric tons/service population/year	
	25,000 (metric tons/year)	Stationary source projects (operational emissions)
SCAQMD	10,000 (metric tons/year)	Stationary source projects (operational emissions)
SJVAPCD	Compliance with GHG reduction strategy	Development and stationary source projects (operational emissions)
	Implementation of best performance standards	
	29% reduction in GHG emissions relative to business-as-usual conditions[a]	
MDAQMD	100,000 (short tons/year) 548,000 (pounds/day)	Stationary source projects (operational emissions)
Sacramento County (Draft)	1.30 metric tons per capita	Residential Energy
	8.08 metric tons per capita	Commercial & Industrial Energy
	4.56 metric tons per capita	Transportation projects

Sources: Bay Area Air Quality Management District 2010; South Coast Air Quality Management District 2008; San Joaquin Valley Air Pollution Control District 2009; Mojave Desert Air Quality Management District 2011; Sacramento County 2010.

[a] Defined as emissions that would occur if no GHG mitigation measures were implemented.

BAAQMD = Bay Area Air Quality Management District.
SCAQMD = South Coast Air Quality Management District.
SJVAPCD = San Joaquin Valley Air Pollution Control District.
MDAQMD = Mojave Desert Air Quality Management District.

3.7.4 Environmental Effects

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact GHG-1: GHG Emissions during Construction and Operation of the Proposed Project

Implementation of the proposed project would involve construction activities that would result in short-term GHG emissions. Temporary construction-related GHG emissions would result from site clearing and grubbing, excavation, concrete removal and placement, compaction activities, and utility replacement. Construction-related emissions include direct exhaust emissions from off-road equipment (such as excavators) and on-road equipment (such as cement trucks and worker trucks). Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather. It should be noted that current operations and maintenance (O&M) activities that will cease upon project completion include mowing activities along the creekbed from Center Parkway to Bruceville Road, as the vegetated creek banks along this alignment will be replaced with concrete creek banks that no longer require mowing. Consequently, these emissions represent a net benefit, as they will no longer be emitted once the project is implemented.

Construction and mobile-source operational emissions were estimated using the URBEMIS2007, Version 9.2.4 emissions model. Information regarding project construction phasing, equipment number and types, worker numbers, and site disturbance, were obtained from the project engineers. Construction would consist of seven separate project elements, with multiple construction phases for each element. Construction information used in URBEMIS emissions modeling is summarized in Table 3.3-5 in Section 3.3, Air Quality.

Construction-related GHG emissions were estimated using the following methods: (1) the URBEMIS 2007 software was used to calculate CO_2 emissions, and (2) formulas provided in the Climate Registry's most recent emission factor update (The Climate Registry 2011) were used to calculate CH_4 and N_2O emissions. These emissions then were converted to CO_2e using the GWPs of each gas. Information regarding project construction phasing, equipment number and types, worker numbers, site disturbance, and acres paved were obtained from the project applicant. Construction would consist of seven separate project elements, with multiple construction phases for each element.

Table 3.7-3 summarizes GHG emissions associated with construction activities, as well as the existing emissions associated with O&M activities that will cease to occur upon project implementation.

Table 3.7-3. Summary of Unmitigated Project Greenhouse Gas Emissions

Phase	Tons/Year	Metric Tons/Year				
	CO_2	CO_2	CH_4	N_2O	Other	CO_2e
Clearing/Grubbing	3.75	3.40	0.0001933	0.0000866	–	3.43
Excavation	8.91	8.08	0.0004592	0.0002058	–	8.23
Concrete Removal	17.13	15.54	0.0008828	0.0003957	–	15.54
Compaction	3.43	3.11	0.0001768	0.0000792	–	3.11
Concrete Placement	15.74	14.28	0.0008112	0.0003636	–	14.28
Utility Relocation	7.30	6.62	0.0003762	0.0001686	–	6.62
Bypass Pumping	5.87	5.33	0.0003025	0.0001356	–	5.33
Crushed Rock	0.12	0.11	0.0000062	0.0000028	–	0.11
Employee Commutes	**0.61**	**0.55**	–	–	**0.03**	**0.58**
Construction Total	62.86	57.03	0.0032080	0.0014381	0.03	57.23
Mowing	-0.36	-0.33	-0.0000186	-0.0000083	–	-0.33

[1] Mowing activities will cease with project implementation, as vegetated creek banks will be replaced with concrete creek banks. Consequently, these emissions represent a net benefit, as they will no longer be emitted once the project is implemented.

As indicated in Table 3.7-3, project implementation is anticipated to result in 57.23 metric tons of CO_2e/year, which is the equivalent of 11 passenger vehicles (U.S. Environmental Protection Agency 2011). However, as further indicated in Table 3.7-3, the removal of O&M activities is anticipated to result in a net benefit, as these emissions will no longer be emitted throughout the anticipated lifespan of the proposed project. Consequently, this impact is considered less than significant. In addition, implementation of the following mitigation measures, while not mandatory, will further reduce construction-related GHG emissions.

Mitigation Measure GHG-MM-1 (Optional): Implement SMAQMD Best Management Practices for Reducing Construction-Related Greenhouse Gas Emissions

The project applicant will implement—through construction contract terms and specifications requiring the contractor to adheres to the mitigation —all applicable SMAQMD BMPs for reducing construction-related GHG emissions. Documentation will be provided to the project applicant on a weekly basis. The contract provisions and specifications will authorize the project applicant to sanction contractors for noncompliance. The project applicant will consult with SMAQMD prior to construction about the most current recommended construction BMPs and will adopt those practices. Practices include:

- Improve fuel efficiency from construction equipment:
  - Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (a 5-minute limit is required by the state airborne toxics control measure—13 CCR 2449[d][3], 2485). Provide clear signage that posts this requirement for workers at the entrances to the site.
  - Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.
  - Train equipment operators in proper use of equipment, including limiting idling time, minimizing warm-up time, performing routine maintenance, and optimizing equipment use.
  - Avoid using equipment that is larger than the job requires.
  - Use equipment with new technologies (e.g., repowered engines, electric drivetrains).
- Perform on-site material hauling with trucks equipped with on-road engines (if the air districts or ARB determine them to emit less than the off-road engines).
- Use alternative fuels for generators at construction sites, rather than gasoline or diesel (e.g., propane, solar), or use electrical power.
- Use an ARB-approved low-carbon fuel for construction equipment. (NO_x emissions from the use of low-carbon fuel must be reviewed and increases mitigated.)
- Encourage and provide carpools, shuttle vans, and transit passes for construction worker commutes.
- Reduce electricity use in the construction office by using compact fluorescent bulbs, powering off computers every day, and using the most efficient heating and cooling units available.
- Recycle or salvage non-hazardous construction and demolition debris (goal of at least 75% by weight) to avoid landfill disposal.

b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The State has adopted several polices and regulations for the purpose of reducing GHG emissions (discussed above). The most stringent of these is AB 32, which is designated to reduce statewide GHG emissions to 1990 levels by 2020. As discussed above, implementation of the project would

generate a less-than-significant level of GHG emissions, and implementation of Mitigation Measure GHG-MM-1 will further reduce construction-related GHG emissions. Thus, project-generated GHG emissions would not conflict with the State goals listed in AB 32 or in any preceding state policies adopted to reduce GHG emissions.

3.8 Hazards and Hazardous Materials

3.8.1 Introduction

This section analyzes the potential effects related to hazardous, toxic, and radiological wastes. Hazardous materials and wastes are those substances that, because of their physical, chemical, or other characteristics, may pose a risk of endangering human health or safety or of endangering the environment (California Health and Safety Code Section 25260). Types of hazardous materials include petroleum hydrocarbons, pesticides, and volatile organic compounds (VOCs). Hazardous materials that would be used during construction activities for the project include diesel fuel and other liquids in construction equipment.

3.8.2 Existing Conditions

The USACE completed two environmental site assessments for the South Sacramento County Streams Project Environmental Impact Statement/Environmental Impact Report (EIS/EIR) in 1998 and 2004 (U.S. Army Corps of Engineers 1998, 2004). The purpose of the site assessments was to identify the presence of past and existing releases, or significant threat of a future release, of any hazardous substances or petroleum products in or near the project area. The site assessments were developed by reviewing federal, state, and local databases containing records of hazardous material spills, use, storage, and disposal sites within a 1-mile corridor on each side of the Unionhouse Creek channel. None of the facilities or sources of potential contamination identified in the site assessments are in the vicinity of project construction. Additionally, there are no known hazardous materials sites listed on the California Department of Toxic Substances Control's (CDTSC's) Envirostor database or the State Water Resources Control Board's (State Water Board's) GeoTracker database (California Department of Toxic Substances Control 2007) (State Water Resources Control Board 2012).

Regulations governing the project area originate at both the federal and state levels, but many are implemented and enforced at the local or regional level. Most hazardous materials regulation and enforcement in Sacramento County are managed by its Environmental Management Department (SCEMD), which refers large cases of hazardous materials contamination or violations to the Regional Water Board and the CDTSC.

3.8.3 Regulatory Setting

3.8.3.1 Federal

The principal federal regulatory agency responsible for the safe use and handling of hazardous materials is the EPA. Two key federal regulations pertaining to hazardous wastes are described below. Other applicable federal regulations are contained primarily in CFR Titles 29, 40, and 49.

The following federal policies related to public health and environmental hazards may apply to the implementation of the project.

Resource Conservation and Recovery Act

The Federal Resource Conservation and Recovery Act enables the EPA to administer a regulatory process that extends from the manufacture of hazardous materials to their disposal, thus regulating the generation, transportation, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (also known as Superfund) was passed to facilitate the cleanup of the nation's toxic waste sites. In 1986, the act was amended by the Superfund Amendment and Reauthorization Act Title III (community right-to-know laws). Title III states that past and present owners of land contaminated with hazardous substances can be held liable for the entire cost of the cleanup, even if the material was dumped illegally when the property was under different ownership.

3.8.3.2 State

California regulations are equal to or more stringent than federal regulations. EPA has granted the State of California primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human and environmental health. Several key state laws pertaining to hazardous wastes are discussed below.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as unsafe raw or unused material that is part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the state hazardous waste management program, which is similar to but more stringent than the Federal Resource Conservation and Recovery Act program. The act is implemented by regulations contained in Title 26 CCR, which describes the following elements required for the proper management of hazardous waste.

- Identification and classification.
- Generation and transportation.
- Design and permitting of recycling, treatment, storage, and disposal facilities.
- Treatment standards.
- Operation of facilities and staff training.
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the CDTSC.

3.8.3.3 Local

The Sacramento County General Plan contains goals, objectives, and policies that guide growth and development in areas under County jurisdiction. Relevant policies contained in the plan are listed below.

Policy HM-4 The handling, storage, and transport of hazardous materials shall be conducted in a manner so as not to compromise public health and safety standards.

Policy HM-7 Encourage the implementation of workplace safety programs and to the best extent possible ensure that residents who live adjacent to industrial or commercials facilities are protected from accidents and the mishandling of hazardous materials.

Policy HM-8 Continue the effort to prevent ground water and soil contamination.

Policy HM–9 Continue the effort to prevent surface water contamination.

Policy HM-10 Reduce the occurrences of hazardous material accidents and the subsequent need for incident response by developing and implementing effective prevention strategies.

Policy HM-11 Protect residents and sensitive facilities from incidents which may occur during the transport of hazardous materials in the County.

Policy SA-23. The County shall require, unless it is deemed infeasible to do so, the use of mechanical vegetation control in lieu of burning or the use of chemicals in areas where hazards from natural cover must be eliminated, such as levees and vacant lots.

3.8.4 Environmental Effects

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Impact HAZ-1: Incidental Release of Hazardous Materials during Construction

Project implementation would require the use of hazardous materials such as fuels and lubricants to operate construction equipment and vehicles such as an excavator, a cement truck, and dump trucks. Construction contractors will be required to use, store, and transport hazardous materials in compliance with federal, state, and local regulations during project construction. However, fuels and lubricants could be accidentally released into the environment at the construction site and along haul routes, causing environmental or human exposure to these hazards.

Implementation of a SWPPP, as described under Impact GEO-1 in Section 3.6, Geology and Soils, and HAZ-MM-1 would ensure that the risk of accidental spills and releases into the environment would be minimal and that this impact would be less than significant.

Mitigation Measure HAZ-1: Implement a Spill Prevention, Control, and Countermeasure Plan

SAFCA or its contractor will develop and implement a spill prevention, control, and countermeasure plan (SPCCP) to minimize the potential for and effects from spills of hazardous, toxic, and petroleum substances during construction and operation activities, as well as minimize the effects of unearthing previously undocumented hazardous materials. The SPCCP will be completed before any construction activities begin. Implementation of this measure will comply with state and federal water quality regulations. The SPCCP will describe spill sources and spill pathways in addition to the actions that will be taken in the event of a spill (e.g., an oil spill from engine refueling will be cleaned up immediately with oil absorbents) or the exposure of an undocumented hazard. The SPCCP will outline descriptions of containment facilities and practices such as double-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures, and spill response kits. It also will describe how and when employees are trained in proper handling procedure and spill prevention and response procedures.

SAFCA will review and approve the SPCCP before onset of construction activities and routinely inspect the construction area to verify that the measures specified in the SPCCP are properly implemented and maintained. SAFCA will notify its contractors immediately if there is a non-compliance issue and will require compliance.

If a spill is reportable, the contractor's superintendent will notify SAFCA, and SAFCA will take action to contact the appropriate safety and cleanup crews to ensure that the SPCCP is followed. A written description of reportable releases must be submitted to the Central Valley RWQCB and DTSC. This submittal must contain a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases will be documented on a spill report form.

Impact HAZ-2: Potential Exposure to Hazardous Materials Encountered at Project Site

There is potential that known or previously undocumented hazardous materials could be encountered at the project site. Excavation and construction activities at or near areas of currently unrecorded soil or groundwater contamination could result in the exposure of construction workers, the general public, and the environment to hazardous materials such as petroleum hydrocarbons, contaminated debris, or elevated levels of other chemicals that could be hazardous. At this time, there are no known occurrences of hazardous materials at the project area. However, construction activities in the vicinity of potentially unknown recognized environmental concerns could result in public health hazards.

Implementation of HAZ-MM-1, Implement a Spill Prevention, Control, and Countermeasure Plan, described above would ensure that the effect on public health and the environment would be less than significant.

c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Two schools are located within a 0.25-mile radius of the project— Cosumnes River College at 8401 Center Parkway and Valley High School at 6300 Ehrhardt Avenue, both south of the project. The project will not involve hazardous emissions or the handling of acutely hazardous materials, substances, or waste. However, small quantities of hazardous materials (fuel, engine oil, and hydraulic line oil) would be temporarily handled on site during construction. Potential health and safety hazards related to the proposed project include possible accidental spills involving these fuels and lubricants. Because construction activities are temporary in nature, the handling of minor amounts would be in compliance with applicable regulations, and the operation of the project would not generate industrial wastes or toxic substances. Additionally, implementation of HAZ-MM-1, Implement a Spill Prevention, Control, and Countermeasure Plan, described above, would ensure that the effect on public health and the environment would be avoided. The project effects associated with the emission of hazardous materials near an existing or proposed school would be less than significant.

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The project area is not located on a site included on any list of hazardous materials sites . Therefore, there would be no impact.

e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?

f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?

The project area is not located within an airport land use plan are or within 2 miles of a public airport, public use airport, or in the vicinity of a private airstrip. Therefore, there would be no impact.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Construction-related activities would not involve temporary or permanent obstruction of any major roadways within the city and would not otherwise interfere with emergency operations or evacuations. Therefore, there would be no impact.

h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Impact HAZ-3: Possible Temporary Exposure of People or Structures to Wildland Fires

The project is located within a low moderate to high fire hazard severity zone. Because of the dryness of channel and project area vegetation and the proximity of residential development, the construction-related risk of wildland fires is considered significant. During construction, equipment and vehicles may come in contact with vegetated areas within the creek channel and may

accidentally spark and ignite the vegetation. Therefore, potential effects related to wildland fires are considered significant**.** Implementation of Mitigation Measure HAZ-2 would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-2: Develop and Implement a Fire Management Plan

SAFCA's contractor will develop and implement a fire management plan. The plan will include fire precaution, presuppression, and suppression measures consistent with the policies and standards in the city of Sacramento.

3.9 Hydrology and Water Quality

3.9.1 Existing Conditions

Surface Water

Unionhouse Creek is a perennial stream in the Morrison Creek watershed that generally runs east to west through the project area, and its confluence with Strawberry Creek is located at the eastern end of the project area. Unionhouse Creek is tributary to Morrison Creek to the west, which drains into the Sacramento River. The Morrison Creek watershed drains a large urban and agricultural area, and urban runoff has the potential to introduce commercial and industrial sources of pollutants to the watershed. However, Unionhouse Creek and Morrison Creek are not listed on the 2006 CWA Section 303(d) list of water quality–limited segments for impaired waters.

Unionhouse Creek and Morrison Creek are a primary water source for the Beach and Stone Lakes area. Summer flows and low stormwater flows are diverted from Morrison Creek into the Sacramento River by a pump maintained by the City, which prevents pollutants in urban runoff from reaching the lakes. However, the pump's limited capacity prevents full diversion of local runoff during moderate to high storm events, which allows some runoff to drain into the Beach and Stone Lakes area.

Unionhouse Creek has a concrete-lined bottom and receives urban runoff from municipal storm drains during the dry season. It is highly channelized with a relatively flat gradient. The City of Sacramento maintains the channel by keeping it clear of debris and by mowing vegetation that grows on the banks. The south bank of the creek has a small earthen berm that prevents sheet flow from the adjacent area between the creek and Cosumnes River Boulevard from entering the waterway. The adjacent area south of the creek has a slight slope downward from Cosumnes River Boulevard toward Unionhouse Creek.

Existing conditions modeling of Unionhouse Creek has indicated that the USACE's embankment-lowering completed downstream of Franklin Boulevard has reduced flooding along Unionhouse Creek downstream of Strawberry Creek. However, 100-year flows exceed the channel capacity in a portion of the channel upstream of Franklin Boulevard in the project area (City of Sacramento 2012).

Groundwater

The project area has two saturated water-bearing zones. The first zone is approximately 20 to 50 feet below the ground surface and is referred to as the *shallow saturated zone*. The second zone is approximately 50 to 80 feet below the ground surface and is referred to as the *first aquifer*. Groundwater wells at the Sacramento Regional Wastewater Treatment Plant show seasonal elevation changes of approximately 5 feet. The groundwater system in the project area has very little exchange with the Sacramento River and is hydraulically independent. Groundwater recharge is mostly a result of infiltration from streams in the watershed. It is assumed that groundwater in the project area has similar characteristics to the groundwater below the treatment plant, as they share the same groundwater basin.

Groundwater monitoring has been conducted since 1982 in order to identify potential releases from the treatment plant's solids disposal facility and any associated impacts these leaks would have on local groundwater. More extensive monitoring was implemented in 1990 to comply with the Central Valley Regional Water Board's waste discharge requirements (WDRs). Additional studies of the local groundwater established up-gradient groundwater conditions for the two water-bearing zones discussed above, meaning that groundwater in the project area moves toward the treatment plant (Sacramento Regional County Sanitation District 1994).

Quarterly groundwater monitoring was performed at the treatment plant between 1990 and 1994 for specific conductance, pH, nitrate as elemental nitrogen, chloride, total dissolved solids, arsenic, and chromium. Monitoring results indicated that constituent concentrations varied between monitoring wells, and that concentrations varied greatly between the upper and lower groundwater saturation zones. Cadmium, copper, nickel, and zinc were tested on an annual basis, and the results were below detection limits (Sacramento Regional County Sanitation District 1994).

3.9.2 Regulatory Setting

3.9.2.1 Federal

The following federal regulations related to hydrology and water quality may apply to implementation of the project.

Clean Water Act Sections 404, 402, and 401

Section 404

Section 404 of the CWA requires that a permit be obtained from the USACE for the discharge of dredged or fill material into "waters of the United States, including wetlands."

Section 402

Section 402 of the CWA mandates that certain types of construction activity comply with the requirements of the EPA's NPDES program. The EPA has delegated to the State Water Board the authority for the NPDES program in California, where it is implemented by the state's nine Regional Water Boards. Construction activity disturbing 1 acre or more must obtain coverage under the state's General Permit for control of stormwater both during and after project implementation.

The Central Valley Water Board administers the NPDES stormwater permit program in Sacramento County. Obtaining coverage under the General Permit requires that the project applicant:

- File a notice of intent to obtain coverage under the General Permit before construction begins.
- Prepare and implement a SWPPP.
- File a notice of termination with the State Water Board when construction is complete and the construction area has been permanently stabilized.

The SWPPP describes proposed construction activities, receiving waters, stormwater discharge locations, and BMPs that will be used to reduce project construction effects on receiving water quality.

Section 401

Under federal CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval [such as issuance of a Section 404 permit]) also must comply with CWA Section 401. In California, the authority to grant water quality certification has been delegated to the State Water Board, and applications for water quality certification under CWA Section 401 typically are processed by the Regional Water Boards with local jurisdiction. Water quality certification requires evaluation of potential impacts in light of water quality standards and CWA Section 404 criteria governing discharge of dredged and fill materials into waters of the United States.

3.9.2.2 State

The following state regulation related to hydrology and water quality may apply to implementation of the project.

Porter-Cologne Water Quality Control Act of 1969

In 1967, the Porter-Cologne Act established the State Water Board and nine Regional Water Boards as the primary state agencies with regulatory authority over California water quality and appropriative surface water rights allocations. Under this act (and the CWA), the state is required to adopt a water quality control policy and WDRs to be implemented by the State Water Board and nine Regional Water Boards. The State Water Board also establishes Water Quality Control Plans (Basin Plans) and statewide plans. The Regional Water Boards carry out State Water Board policies and procedures throughout the state. Basin Plans designate beneficial uses for specific surface water and groundwater resources and establish water quality objectives to protect those uses.

3.9.2.3 Local

City of Sacramento Grading, Erosion, and Sediment Control Ordinance

The City of Sacramento Grading Ordinance sets forth rules and regulations to control land disturbances, landfill, soil storage, pollution, and erosion and sedimentation resulting from construction activities. The ordinance requires that the proponents of projects that involve land grading prepare and implement an erosion and sediment control plan to control accelerated erosion and sedimentation during preconstruction- and construction-related grading, and a post-construction erosion and sediment control plan to address similar issues once grading is complete.

3.9.3 Environmental Effects

a. Violate any water quality standards or waste discharge requirements?

Excavation and equipment staging that would occur during the construction of the proposed project would result in substantial ground disturbance in the project area, and heavy machinery would be used within the confines of the creek. Excavated soil would be left in loose piles adjacent to the creek for use in a separate project following the rainy season.

Impact HYD-1: Introduction of Pollutants to Surface Waters

Contamination of channel soils could result from construction activities as heavy machinery would be used within the creek. Spills of petroleum products and other pollutants related to machinery could occur during vehicle operation, refueling, parking, and maintenance. Improper handling, storage, or disposal of these materials in the vicinity of Unionhouse Creek could cause degradation of surface water quality if they eventually are washed into the creek. However, flows in the creek would be minimal, as construction would occur near the end of the dry season. Also, cofferdams would be used in the creek during construction to route water out of the construction zone, thereby minimizing the potential for direct impacts on water quality.

In addition to the potential for construction-related pollutants to enter the waterway, soil that is left loosely stockpiled after the completion of construction activities could be washed away and introduced to surface waters during the rainy season. Local hydrology would prevent it from washing directly into creek, but there would be potential for loose soils to enter storm drains and be carried into the creek.

However, SAFCA would prepare and implement a SWPPP to address erosion, stormwater runoff, sedimentation, and other construction-related pollutants during project construction until all areas disturbed during construction have been permanently stabilized. The preparation and implementation of the SWPPP is necessary to comply with the requirements of the county's erosion control ordinance and the state's NPDES general construction activity stormwater permit. The specific BMPs that would be incorporated into the SWPPP would be determined during the final design phase and prepared in accordance with the Regional Water Board field manual, and would prevent violation of water quality standards or WDRs. BMPs that likely would be included are described in Section 3.6, Geology and Soils. Additionally, a spill prevention response plan would be implemented to control any spills that would occur during construction, and is described in Section 3.8, Hazards and Hazardous Materials. Therefore, this impact is considered less than significant.

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

Impact HYD-2: Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge

There is low potential for substantial depletion of groundwater supplies or interference with groundwater recharge, as the project is not likely to reach the depth at which groundwater normally occurs in the project area. The proposed project activities would not involve groundwater extraction or the lowering of the local groundwater table. In addition, lining the creek banks is not likely to interfere substantially with groundwater recharge because of the clay soils in the vicinity, and because construction would occur during the dry season. Therefore, this impact is considered less than significant.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?

Ground-disturbing activities that would occur during the construction of the proposed project would result in minor alterations to Unionhouse Creek and temporary alterations to the drainage pattern adjacent to the creek.

Impact HYD-3: Increased Sedimentation

The creek would be widened between Center Parkway and Franklin Boulevard, but the relative shape of the channel would be maintained, and no erosion or siltation would occur. Between Bruceville Road and Center Parkway the bed and banks of the channel would be lined with concrete, which would prevent erosion and siltation. However, the stockpiling of excavated material adjacent to the creek would create the potential for material to be washed into storm drains and increase siltation in local waterways. The implementation of a SWPPP, as described in Impact HYD-1 and Section 3.6, Geology and Soils, would prevent the stockpiled soil from washing away and resulting in substantial erosion or siltation. Additionally, the applicant will obtain approval for a Section 401 Water Quality Certification from the Central Valley RWQCB, which will provide terms and conditions for protecting water quality in Unionhouse Creek. Therefore, this impact is considered less than significant.

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site?

The ground-disturbing activities that would occur during construction of the proposed channel modifications would result in very minor alterations to local drainage patterns in the project area. The widening of the channel between Center Parkway and Franklin Road would not increase the rate or amount of surface runoff. The concrete lining to be constructed on the segment between Bruceville Road and Center Parkway would prevent the infiltration of surface water into the banks of the channel, but this increased area of impermeable surfaces would not substantially increase the rate or amount of surface runoff and therefore would not result in flooding on site or off site. The modifications instead would increase the flood capacity of the channel. Therefore, this effect is considered beneficial.

e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The channel modifications would result in a decrease of the 100- and 200-year flood profiles by up to 2 feet compared to existing conditions. As discussed in Impacts GEO-1, HYD-1, and HYD-3, implementation of a SWPPP and following the terms and conditions of a Section 401 Water Quality Certification would substantially reduce the potential of providing additional sources of polluted runoff that could adversely affect water quality in Unionhouse Creek.

f. Otherwise substantially degrade water quality?

As discussed in Impacts GEO-1, HYD-1, and HYD-3, implementation of a SWPPP and following the terms and conditions of a Section 401 Water Quality Certification would substantially reduce the potential for construction-related erosion and sedimentation to adversely affect water quality in Unionhouse Creek.

g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The proposed project does not involve the construction of houses. The proposed project is intended to reduce the risk of flooding to houses that are already in a mapped floodplain. Therefore, there would be no impact.

h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?

There will be no new structures associated with the proposed project. The purpose of the project is to increase the flood capacity of Unionhouse Creek, and thereby removing the surrounding residential area from the 100-year floodplain. Therefore, there would be no impact.

i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

The proposed project is not located near a levee or dam and would not result in the failure of any levee or dam. No people or structures would be exposed to a significant risk of loss, injury, or death involving flooding. Therefore, there would be no impact.

j. Contribute to inundation by seiche, tsunami, or mudflow?

The proposed project would slightly alter the size and capacity of Unionhouse Creek but would not involve alterations that would increase susceptibility of surrounding communities to inundation by seiches, tsunamis, or mudflows. Therefore, there would be no impact.

3.10 Noise

This section presents a discussion of existing noise and vibration conditions in the project area in a regional and site-specific context. Potential impacts of the proposed project related to noise and vibration also are considered, and applicable mitigation is proposed.

3.10.1 Existing Conditions

3.10.1.1 Noise Terminology

Below are brief definitions of noise terminology used in this section.

- **Sound.** Sound is caused by vibration that produces pressure waves that travel outward from the source of the disturbance. The human perception of sound varies according to the characteristics of the sound waves (e.g., period, amplitude, frequency, speed, and wavelength) and the characteristics of the media through which the sound travels (e.g., air, water, and solids).
- **Noise.** Noise is defined as unwanted sound that adversely affects any given receiver location. In general, sound waves travel away from a ground level noise source in a hemispherical pattern. As a result, the energy contained in a sound wave is spread over an increasing area as it travels away from the source. This results in a decrease in loudness at greater distances from the noise source.
- **Decibel (dB).** Sound level meters measure the air pressure fluctuations caused by sound waves, with separate measurements made for different sound frequency ranges. The dB scale used to describe sound is a logarithmic scale, which accounts for the large range of audible sound intensities.
- **A-Weighted Decibel (dBA).** Most sounds consist of a broad range of sound frequencies. The dBA scale is a measure of sound intensity that is weighted to take into account the human perception of different frequencies of sound. Typical A-weighted noise levels for various types of sound sources are summarized in Table N-1.
- **Equivalent Sound Level (L_{eq}).** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level that would contain the same acoustical energy as the time-varying sound that actually occurs during the monitoring period. The 1-hour A-weighted equivalent sound level (L_{eq} 1h) is the energy average of A-weighted sound levels occurring during a 1-hour period.
- **Percentile-Exceeded Sound Level (L_{xx}).** The sound level exceeded some percentage of the time during a monitoring period. For example L_{90} is the sound level exceeded 90% of the time, and L_{10} is the sound level exceeded 10% of the time.
- **Maximum and Minimum Sound Levels (L_{max}, L_{min}).** The maximum (L_{max}) and minimum (L_{min}) sound levels measured during a monitoring period.
- **Day-Night Level (L_{dn}).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with a 10-dB penalty added to sound levels between 10:00 p.m. and 7:00 a.m.

Table 3.10-1. Typical A-Weighted Sound Levels

Sound Source	dBA	Typical Response
Carrier deck jet operation	140	
Limit of amplified speech	130	Painfully loud
Jet takeoff (200 feet) Auto horn (3 feet)	120	Threshold of feeling and pain
Riveting machine Jet takeoff (2,000 feet)	110	
Shout (0.5 foot) New York subway station	100	Very annoying
Heavy truck (50 feet) Pneumatic drill (50 feet)	90	Hearing damage (8-hour exposure)
Passenger train (100 feet) Helicopter (in flight, 500 feet) Freight train (50 feet)	80	Annoying
Freeway traffic (50 feet)	70	Intrusive
Air conditioning unit (20 feet) Light auto traffic (50 feet)	60	
Normal speech (15 feet)	50	Quiet
Living room Bedroom Library	40	
Soft whisper (15 feet)	30	Very quiet
Broadcasting studio	20	
	10	Just audible
	0	Threshold of hearing

Because of the logarithmic decibel scale, sound levels from different noise sources cannot be added directly to give a combined noise level. Instead, the combined noise level produced by multiple sources is calculated logarithmically. For example, if one bulldozer produces a noise level of 80 dBA, two bulldozers would generate a combined noise level of 83 dBA, not 160 dBA. For another example, if a steady stream of cars on a roadway causes an L_{eq} noise level of 60 dBA at the nearest home and occasional trucks (by themselves) cause 50 dBA, the noise caused by the combined traffic (cars plus trucks) would be 60.4 dBA.

People generally perceive a 10-dBA increase in a noise source as a doubling of loudness. For example, an average person would perceive a 70 dBA sound level as being twice as loud as a 60 dBA sound. People generally cannot detect differences of 1 to 2 dBA between noise levels of a similar nature (e.g., an increase in traffic noise compared to existing traffic noise). However, under ideal listening conditions, some people can detect differences of 2 or 3 dBA. Under normal listening conditions, most people would likely perceive a 5 dBA change in sounds of a similar nature. When the new sound is of a different nature than the background sound (e.g., backup alarms compared to quiet residential sounds), most people can discern the new noise even if it increases the overall L_{eq} noise by less than 1 dBA.

When distance is the only factor considered, sound levels from isolated point sources of noise typically decrease by about 6 dBA for every doubling of distance from the noise source. When the noise source is a continuous line (e.g., vehicle traffic on a highway), sound levels decrease by about 3 dBA for every doubling of distance. Attenuation rate is used to describe the rate at which the intensity of a sound signal declines as it travels outward from its source. For traffic noise studies, an attenuation rate of 4.5 dBA per doubling of distance is often used when the roadway is at ground level and the intervening ground is effective in absorbing sound (e.g., ground vegetation, scattered trees, clumps of bushes). When the roadway is elevated, 3 dBA of noise attenuation per doubling of distance is used because the sound-absorbing effects of the intervening ground are limited.

Noise levels also can be affected by several factors other than the distance from the noise source. Topographic features and structural barriers that absorb, reflect, or scatter sound waves can affect the reduction of noise levels. Atmospheric conditions (e.g., wind speed and direction, humidity levels, temperatures) can affect the degree to which sound is attenuated over distance.

Echoes off topographical features or buildings can sometimes result in higher sound levels (lower sound attenuation rates) than normally expected. Temperature inversions and altitudinal changes in wind conditions can refract and focus sound waves toward a location at considerable distance from the noise source. These effects are usually noticeable only for very intense noise sources, such as blasting operations. As a result, the existing noise environment can be highly variable depending on local conditions.

3.10.1.2 Ambient Noise Environment

The primary sources of noise in and near the project area are traffic on area roadways, occasional planes and helicopters, residential and recreational activities, and natural sounds such as wind and wildlife. However, the overall ambient noise level is defined mainly by traffic, especially on Franklin Boulevard and Center Parkway.

3.10.1.3 Noise-Sensitive Land Uses

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Noise-sensitive land uses typically include residences, hospitals, schools, guest lodgings, libraries, and certain types of passive recreational uses, such as parks to be used for reading, conversation, meditation, etc. (Federal Transit Administration 2006). The nearest sensitive receptors include residential subdivisions located immediately adjacent to the northern and southern boundaries of the project impact area along most of the project alignment. In addition, Cosumnes River College is located south of the project impact area between Center Parkway and Bruceville Road, and the Sunny Creek Infant Care is located immediately adjacent to the northern boundary of the project impact area across from Cosumnes River College. These noise-sensitive land uses are generally 50 to 100 feet from the project area. However, in some cases, residences are as close as 25 feet from the creek and potential project construction activities.

3.10.2 Regulatory Setting

3.10.2.1 City of Sacramento General Plan Noise Element

The Health and Safety Element of the City General Plan establishes specific policies for noise sources. The applicable policies include:

- **Policy EC 3.1.1** The City shall require noise mitigation for all development where the projected exterior noise levels exceed the highest level of noise exposure that is regarded as "Normally Acceptable," to the extent feasible.
- **Policy EC 3.1.5** The City shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby residential and commercial uses based on the current City or Federal Transit Administration (FTA) criteria.

According to the General Plan Noise Element, *Normally Acceptable* means that the "specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements." The highest level of noise exposure in the project area that is regarded as Normally Acceptable is 65 dBA.

3.10.2.2 City of Sacramento Noise Ordinance

The City's Noise Control Ordinance sets limits for exterior noise levels on designated agricultural and residential property. The ordinance is concerned primarily with regulating noise other than noise generated by transportation noise sources such as passing cars or aircraft flyovers. The ordinance limits the duration of sound based on many factors, including the type of source, ambient noise levels, and time of day, by using a system of noise criteria not to be exceeded based on the duration of noise over any given hour. The City's exterior noise standards that would apply to the project are described below.

A. The following noise standards unless otherwise specifically indicated in this article shall apply to all agricultural and residential properties.

    1. From 7:00 a.m. to 10:00 p.m. the exterior noise standard shall be 55 dBA.

    2. From 10:00 p.m. to 7:00 a.m. the exterior noise standard shall be 50 dBA.

B. It is unlawful for any person at any location to create any noise which causes the noise levels when measured on agricultural or residential property to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by:

Cumulative Duration of the Intrusive Sound	Allowance Decibels
Cumulative period of 30 minutes per hour	0
Cumulative period of 15 minutes per hour	+5
Cumulative period of 5 minutes per hour	+10
Cumulative period of 1 minute per hour	+15
Level not to be exceeded for any time per hour	20

The City's noise standards also include exemptions for the following activities: Noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure between the hours of 7:00 a.m. and 6:00 p.m. on Monday, Tuesday, Wednesday, Thursday, Friday and Saturday and between 9:00 a.m. and 6:00 p.m. on Sunday, provided, however, that the operation of an internal combustion engine shall not be exempt pursuant to this subsection if such engine is not equipped with suitable exhaust and intake silencers that are in good working order.

3.10.3 Environmental Effects

3.10.3.1 Significance Criteria

In accordance with CEQA requirements, City of Sacramento plans and policies, and professional standards, a project noise impact would be considered significant if the project would:

- Result in construction noise levels in excess of the City of Sacramento noise ordinance limits outside of exempted hours.
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels.

a. Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?

Impact NOI-1: Exceed City of Sacramento Noise Standards

Construction activities associated with implementation of the project could result in temporary increases in noise in the vicinity of the site-specific activity. Where those increases result in noise in excess of adopted standards, the impact would be considered significant. The severity of construction noise impacts would depend on:

- Types of construction activity in the given area.
- Types of land uses in the area and their proximity to construction activity.
- Construction phasing and equipment type.
- Duration of proposed construction activities.
- Distance between the noise source and receptors.
- Presence or absence of barriers between noise source and receptor.

Table 3.10-2 summarizes typical construction noise levels for various phases of typical construction projects using vibratory hammers and pile driving equipment, bulldozers, cranes, backhoes and graders, pumps, dump trucks, rollers and graders, asphalt/concrete trucks, paving machines, grinders, and similar construction equipment described in Chapter 2.

Table 3.10-2. Construction Equipment Noise Levels

Equipment	Typical Noise Level at 50 feet from Source (dBA)
Air compressor	81
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, derrick	88
Crane, mobile	83
Dozer	85
Generator	81
Grader	85
Jackhammer	88
Loader	85
Paver	89
Pneumatic tool	85
Pump	76
Roller/sheep's foot	74
Saw	76
Scraper	89
Shovel	82
Truck	88

Source: Federal Transit Administration 2006.

As indicated in Chapter 2, "Project Description," construction activities are anticipated to occur between the hours of 7:00 a.m. and 6:00 p.m., Monday through Saturday, with no nighttime work expected. These hours of construction activities are consistent with the City's exemption for construction activities, and any construction activities outside of these hours could result in construction noise impacts at adjacent noise-sensitive land uses. Noise from construction activity attenuates at a rate of about 6 dB per doubling of distance. This means that land uses located within about 1,000 feet of site-specific construction sites could be exposed to construction noise in excess of City of Sacramento construction noise standards. Because of the potential for noise to exceed applicable local City of Sacramento noise standards, this impact is considered significant.

To reduce construction noise at these residential properties, the Mitigation Measures NOI-MM-1 and NOI-MM-2 will be incorporated into construction plans and contractor specifications. With the incorporation of Mitigation Measures NOI-MM-1 and NOI-MM-2, the noise impact resulting from project construction would be considered less than significant.

Mitigation Measure NOI-MM-1: Limit Hours of Construction Activities

The project applicant will ensure the construction specifications limit activities to the hours between 7:00 a.m. and 6:00 p.m., on Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday.

Mitigation Measure NOI-MM-2: Implement a Noise Control Plan

Prior to construction, the project applicant will prepare a Noise Control Plan. The plan will incorporate the following noise abatement measures into construction plans and contractor specifications to reduce the impact of temporary construction-related noise on nearby residences.

- Comply with manufacturers' muffler requirements on all construction equipment engines.
- Turn off construction equipment when not in use, where applicable.
- Locate stationary equipment as far as practical from receiving properties.
- Use temporary sound barriers or sound curtain around loud stationary equipment if the other noise reduction methods are not effective or possible.
- Temporarily relocate residents where practicable.
- Provide advance written notification of construction activities to residences around the construction site. Notification will include a brief overview of the proposed project and its purpose, as well as the proposed construction activities and schedule. It also will include the name and contact information of the project manager or representative responsible for resolving any noise concerns.

b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?

Impact NOI-2: Generate Excessive Groundborne Vibration or Groundborne Noise

For the vibration analysis, vibration levels associated with the proposed construction activities were evaluated using FTA (2006) guidance and methodology. There are no commonly accepted thresholds for levels of ground vibration. However, the U.S. Department of Transportation (USDOT) suggests vibration damage thresholds of 0.20 inch per second for non-engineered timber and masonry buildings and 0.12 inch per second for buildings extremely susceptible to vibration damage. Vibration annoyance thresholds are expressed as vibration noise levels (L_V), which are measured in vibration decibels (VdB). FTA thresholds are categorized by land use and frequency of events. Construction activities such as bulldozing and grading would be considered frequent events (more than 70 vibration events per day). FTA's annoyance threshold for frequent events for Category 2 land uses (residences and buildings where people normally sleep, such as homes, hospitals, and hotels) is 72 VdB, and its threshold for Category 3 land uses (institutional land uses such as schools, libraries, and churches) is 75 VdB (Federal Transit Administration 2006). For the purposes of this assessment, exposure of non-engineered timber and masonry buildings to ground vibration in excess of 0.20 inch per second, exposure of buildings extremely susceptible to vibration damage in excess of 0.12 inch per second, or violation of the annoyance thresholds discussed above would result in a significant impact (Federal Transit Administration 2006).

Because of noise-sensitive land uses are located within approximately 25 feet from the creek and potential project construction activities, excavation and other construction activities could create seismic waves that radiate along the ground surface and downward into the earth. These surface waves can be felt as ground vibration. Varying geology and distance will result in different vibration levels containing different frequencies and displacements. In all cases, vibration amplitudes will decrease with increasing distance.

As seismic waves travel outward from a source, they excite the particles of rock and soil through which they pass and cause them to oscillate. The actual distance that these particles move is usually only a few ten-thousandths to a few thousandths of an inch. The peak rate or velocity (in inches per second) at which these particles move is the commonly accepted descriptor of the vibration amplitude and is referred to as the peak particle velocity (PPV).

Project-specific data regarding particular equipment that would be used during excavation are not available at this time. Therefore, it was assumed that activities using the excavator would generate vibration levels similar to a bulldozer, which has a base PPV of 0.089 inch per second at 25 feet and an L_V of 87 VdB at 25 feet (Federal Transit Administration 2006). The construction-related PPV is below the USDOT's suggested vibration damage threshold of 0.12 inch per second for extremely fragile historic buildings; therefore, the construction-related vibration is not expected to damage building structures adjacent to the construction site. However, the vibration noise levels exceed the FTA annoyance vibration criterion of 72 VdB for a Category 2 land use. The groundborne vibration impact related to human annoyance is considered potentially significant. Implementation of Mitigation Measure NOI-MM-3 would reduce this impact to a less-than-significant level.

Mitigation Measure NOI-MM-3. Limit Timing of Construction Activities That Cause Vibration, Inform Adjacent Residents, Designate a Complaint Coordinator, and Temporarily Relocate Residents If Necessary

The applicant and construction contractor will ensure that construction scheduling identifies the times and duration of vibration-causing effects due to construction activities. These construction activities will be limited to a specified period during the day, as determined by the applicant and construction contractor with approval from the City of Sacramento, with advance notice given to adjacent residents.

Notice to adjacent residents will include contact information for a SAFCA-designated complaint coordinator responsible for handling and responding to any complaints received during such periods of construction. A reporting program will be required that documents complaints received, actions taken, and the effectiveness of these actions in resolving disputes. The complaint coordinator will be authorized to offer residents who complain of exposure to vibration levels exceeding threshold levels temporary relocation off site (i.e., providing hotel vouchers) during construction activities. These requirements will be included in all relevant construction contracts and shown on construction plans.

c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

The project would not result in additional long-term operational activities beyond those currently ongoing. In addition, it should be noted that current operations and maintenance (O&M) activities that will cease upon project implementation include mowing activities along the creek bed from Center Parkway to Bruceville Road, as the vegetated creek banks along this alignment will be replaced with concrete creek banks that no longer require O&M activities. Consequently, this would result in a long-term net benefit to surrounding noise-sensitive land uses, as project implementation would remove this noise-generating activity.

d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Impact NOI-1: Exceed City of Sacramento Noise Standards

The discussion of construction noise under question "a" above indicates that construction activity will result in a temporary increase in noise during the construction period. However, with implementation of Mitigation Measures NOI-MM-1 and NOI-MM-2, this impact would be less than significant.

Mitigation Measure NOI-MM-1: Limit Hours of Construction Activities

Mitigation Measure NOI-MM-2: Implement a Noise Control Plan

e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?

The project is not located within 2 miles of a public airport. Therefore, no impacts would be expected.

f. Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?

The proposed project is not in the vicinity of a private airstrip. No impacts related to noise generated from private airstrips would occur on the project site.

3.11 Transportation and Traffic

3.11.1 Existing Conditions

3.11.1.1 Project Area Transportation Network

Freeways/Roadways

The project site is located in the southern portion of the city of Sacramento. SR-99 and Cosumnes River Boulevard provide primary access to the project area. Franklin Boulevard, Center Parkway, and Bruceville Road also provide access.

SR-99 runs north/south and is located east of the project area. SR-99 is a multi-lane, interstate freeway that provides regional access to the project area.

Cosumnes River Boulevard is a two-lane arterial road that runs primarily east/west from SR-99 to Franklin Road, and forms the southern boundary of the project area as it runs parallel to the south bank of Unionhouse Creek. Cosumnes River Boulevard provides primary access to the project area. Cosumnes River Boulevard widens to six lanes between Bruceville Road and CA-99.

Franklin Road is a divided four-lane arterial road that runs primarily north/south and intersects Unionhouse Creek at the west end of the project area. Franklin Boulevard primarily serves local residences and is adjacent to open space and residential areas near the project area.

Center Parkway is a divided four-lane arterial road that runs northwest/southeast and intersects Unionhouse Creek near the middle of the project area. Near the project area, Center Parkway serves mainly residential and some commercial uses.

Bruceville Road is an arterial road that runs north/south and is located just east of the confluence of Unionhouse Creek and Strawberry Creek. Bruceville Road is a four-lane road north of Cosumnes River Boulevard and a six-lane road south of Cosumnes River Boulevard.

Cosumnes River Boulevard would be the sole surface street used to access the project site. The most recent traffic counts at intersections along the route used to access the project area are provided in Table 3-11.1.

Table 3-11.1. Average Daily Traffic

Street Name	Intersects with	Average Daily Traffic	Count Date
Cosumnes River Boulevard	CA-99	43,594	
Cosumnes River Boulevard	Bruceville Road	22,788	9/21/2011
Cosumnes River Boulevard	Center Parkway	22,788	9/21/2011
Cosumnes River Boulevard	Franklin Boulevard	16,242	9/21/2011
Source: City of Sacramento 2011.			

Transit

Sacramento Regional Transit provides public transportation in the city of Sacramento, operating bus and light rail systems. Bus routes 54, 55, 56, and 65 either intersect or run adjacent to the project area. Routes 54, 55, and 56 intersect Cosumnes River Boulevard as it runs along Bruceville Road, and route 65 intersects Cosumnes River Boulevard as it runs along Franklin Boulevard. No bus routes run along Cosumnes River Boulevard, and there are no light rail stations near the project area. (Sacramento Regional Transit 2012.)

Bicycle/Pedestrian Facilities

The project area is located adjacent to suburban neighborhood, and near Cosumnes River College and a shopping center at Bruceville Road and Cosumnes River Boulevard. The project vicinity is accessed primarily by automobiles, with bus routes intersecting the project area. There are no sidewalks along the northern (westbound) side of Cosumnes River Boulevard, which forms the southern boundary of the project area. The only pedestrian sidewalks within or adjacent to the project area are on Franklin Boulevard, Center Parkway, Bruceville Road, and along the southern (eastbound) side of Cosumnes River Boulevard. Bike lanes run along Cosumnes River Boulevard, Franklin Boulevard, Center Parkway, and Bruceville Road.

3.11.2 Regulatory Setting

3.11.2.1 City of Sacramento General Plan

The quality of service provided by a roadway is quantified in terms of level of service (LOS). This method uses a letter rating to describe the peak period driving conditions for a particular facility. The letters A–F represent progressively worse driving conditions—generally, LOS A indicates a free-flowing operation with little or no delay, and LOS F denotes jammed flow with substantial delay. City of Sacramento roadway LOS thresholds for roadways to be used as haul routes are provided in Table 3.11-2.

Table 3-11.2. Roadway Level of Service Thresholds

Facility Type	A	B	C	D	E
2–lane arterial with high access control	12,000	14,000	16,000	18,000	20,000
6–lane arterial with high access control	36,000	43,000	48,000	54,000	60,000

Source: City of Sacramento 2009a.

City of Sacramento policy, as defined within the General Plan, requires maintenance of operations on all roadways and intersections at LOS A-D at all times, including peak travel times, unless maintaining this LOS would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals. LOS E or F conditions may be accepted, provided that provisions are made to improve the overall system and/or promote nonvehicular transportation as part of a development project or a City-initiated project (City of Sacramento 2009b).

3.11.3 Environmental Effects

a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

During construction, the movement of crew, equipment, and material would result in temporary increases in traffic. Locally, vehicles associated with construction activities are anticipated to travel on SR-99 and Cosumnes River Boulevard. Construction-related traffic impacts are expected to be temporary, and the additional traffic would be minor, requiring no more than 64 total vehicle trips per day during construction. These additional trips are negligible compared with current conditions; the project would not generate enough trips to degrade traffic further than current conditions, and does not conflict with any applicable plans, ordinances, or policies.

Impact TRA-1: Temporary Impact on Localized Traffic Patterns

While it is anticipated that construction activities would not worsen LOS on the city's local street system, localized traffic patterns could be negatively affected. Implementation of Mitigation Measures TRA-MM-1 and TRA-MM-2 would reduce this impact to a less-than-significant level.

Mitigation Measure TRA-MM-1: Coordinate Truck Routes

The project contractor will coordinate truck routes and construction activities with the appropriate City departments and restore roadways damaged by construction activities to pre-project conditions.

Mitigation Measure TRA-MM-2: Develop and Implement a Traffic Control Plan

SAFCA, in coordination with relevant City and County public works departments, will develop and implement traffic control plan(s) for the proposed project.

A traffic control plan describes the methods of traffic control to be used during construction. All on-street construction traffic will be required to comply with the local jurisdiction's standard construction specifications. The plan will reduce the effects of construction on the roadway system in the project area throughout the construction period. Construction contractors will follow the standard construction specifications of affected jurisdictions and obtain the appropriate encroachment permits, if required. Measures to be included in the traffic control plan will include the following measures:

- Construction vehicles would not be permitted to block any roadways or driveways.
- Signs and flagmen will be used as needed to alert motorists, bicyclists, and pedestrians to the presence of haul trucks and construction vehicles at all access points.
- Vehicles would be required to obey all speed limits, traffic laws, and transportation regulations during construction.
- Construction workers would be encouraged to carpool and park in designated staging areas.
- The contractor would be required to repair any roads damaged by construction activities.

At least one lane of traffic will be maintained at all times along major streets. Safe pedestrian and bicyclist access, if any, will be maintained in or around the construction areas at all times. Construction areas will be secured as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and all stationary equipment will be located as far away as possible from areas where bicyclists and pedestrians are present. SAFCA will notify and consult with emergency service providers to maintain emergency access and facilitate the passage of emergency vehicles on city streets.

b. Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?

As indicated above for "a," construction-related traffic impacts are expected to be temporary, and the additional traffic would be minor (64 trips per day or fewer) compared to existing daily and peak-hour traffic volumes on local roadways. Under the City of Sacramento's LOS standards, Cosumnes River Boulevard is currently operating at LOS F at Bruceville Road and Center Parkway, and LOS D at Franklin Boulevard. The amount of traffic generated during the construction phase is minor compared to existing daily and peak-hour traffic volumes, and would not change the current level-of-service. However the additional traffic would contribute to already congested roadways.

Impact TRA-1: Temporary Impact on Localized Traffic Patterns

While it is anticipated that construction activities would not worsen LOS on the city's local street system, localized traffic patterns could be negatively affected. Implementation of Mitigation Measures TRA-MM-1 and TRA-MM-2, described above, would reduce this impact to a less-than-significant level.

c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The proposed project would not affect air traffic patterns or cause any air traffic safety risks. There would be no impact.

d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The proposed project does not have any design features or incompatible uses that would result in hazardous traffic conditions. Design features would not increase hazards for motorists, bicyclists, or pedestrians. Therefore, there would be no impact.

e. Result in inadequate emergency access?

Impact TRA-2: Temporary Construction-Related Blockage of Emergency Access

While there would be no lane closures involved with the project, construction of the proposed project could result in reduced emergency access as a result of slow-moving construction and haul vehicles entering and departing the construction site. Implementation of Mitigation Measure TRA-MM-2, described above, would reduce this impact to a less-than-significant level.

f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Construction of the proposed project would be temporary and would not conflict with any adopted policies, plans, or programs supporting alternative transportation. There would be no impact.

3.12 Utilities and Service Systems

3.12.1 Existing Conditions

Natural gas service is provided to the project vicinity by The Pacific Gas and Electric Company (PG&E). Electric service is provided by the Sacramento Municipal Utility District. The City of Sacramento Department of Utilities provides and maintains water, sewer, solid waste, storm collection, and storm drainage services.

3.12.2 Regulatory Setting

3.12.2.1 State

The following state regulations related to utilities and public services may apply to implementation of the project.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies in the state. CPUC is responsible for ensuring that California utility customers have safe, reliable utility service at reasonable rates, protecting utility customers from fraud, and promoting the health of California's economy. CPUC establishes service standards and safety rules and authorizes utility rate changes. CPUC enforces CEQA compliance for utility construction. CPUC also regulates the relocation of power lines by public utilities under its jurisdiction, such as PG&E. CPUC works with other state and federal agencies in promoting water quality, environmental protection, and safety.

California Integrated Waste Management Act

In 1989, Assembly Bill 939 (AB 939), known as the Integrated Waste Management Act, was passed into law. Enactment of AB 939 established the California Integrated Waste Management Board and set forth aggressive solid waste diversion requirements. Under AB 939, every city and county in California is required to reduce the volume of waste sent to landfills by 50% through recycling, reuse, composting, and other means. AB 939 requires counties to prepare a countywide integrated waste management plan (CIWMP). An adequate CIWMP contains a summary plan that includes goals and objectives, a summary of waste management issues and problems identified in the incorporated and unincorporated areas of the county, a summary of waste management programs and infrastructure, existing and proposed solid waste facilities, and an overview of specific steps that would be taken to achieve the goals outlined in the components of the CIWMP.

3.12.2.2 Local

The Sacramento County General Plan contains goals, objectives, and policies that address public facilities, utilities, and emergency services concerns in Sacramento County, including those following.

Utilities Goal: Safe, efficient, and environmentally sound operation of solid waste facilities in Sacramento County.

Utilities Policy PF-24: Transportation of solid waste shall utilize the safest practical means and routes of transport.

3.12.3 Environmental Effects

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The project would not exceed wastewater requirements, nor would it necessitate expansion of any wastewater treatment facilities. There would be no impact.

c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The project requires modifying the Unionhouse Creek channel and relocating an existing sump pump and associated infrastructure. Project construction consists of the widening and concrete-lining the channel of the creek and the relocation of a sump pump approximately 8 feet south of its current location, between Franklin Boulevard and Center Parkway, outside the future Regional Transit light rail access road. Construction would occur during the dry season, early August through the end of October, and require temporarily accessing the existing potable water supply, sanitary sewer, or storm sewer systems during these months, but no public utility outages are expected to occur during the project. Because of the timing of construction, it is anticipated that only a minor amount of runoff and storm flows during the dry season would contribute to flow to the channel. This flow would be intercepted by a cofferdam at the upstream boundary of the project just downstream of the confluence with Strawberry Creek and pumped to the downstream end of the project. These stormwater drainage infrastructure modifications would not cause significant environmental effects and would improve stormwater conveyance capacity to the area. Therefore, the effects of the project would be less than significant.

d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?

e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The project would not result in the expansion of water supply entitlement, nor produce wastewater; therefore, the proposed project would not result in an impact on wastewater treatment capacity.

f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Solid waste generated by the project would be minimal and would be limited to construction debris, including excavated material from the creek that is not used for backfill purposes and concrete removed from the channel lining. Solid waste would be disposed of at permitted landfills. Therefore, the proposed project would not generate the need for new solid waste facility and effects of the project would be less than significant.

g. Comply with federal, state, and local statutes and regulations related to solid waste?

Solid waste disposal would occur at permitted landfills. Therefore, there would be no impact.

3.13 Mandatory Findings of Significance

With the mitigation measures described in Chapter 3, all environmental impacts would be reduced to a less-than-significant level. Please refer to individual resource sections in Chapter 3 for a complete discussion of the environmental impacts and associated mitigation.

Chapter 4
Cumulative Impacts

4.1 Cumulative Impacts

The following projects are planned or proposed in the vicinity of the proposed project. These projects have been through environmental review, and mitigation or compensation measures have been developed to avoid or reduce any adverse impacts to a less-than-significant level.

Cosumnes River Boulevard Extension (City of Sacramento). The I-5/Cosumnes River Boulevard Interchange Project involves extending Cosumnes River Boulevard from its western end at Franklin Boulevard to a new interchange at I-5. The Cosumnes River Boulevard alignment would extend north and then west from Franklin Boulevard until it reaches the interchange location. The Sacramento Regional Transit proposed Phase 2 light rail transit alignment would be located north of the extension and would generally parallel the new roadway. The City of Sacramento, in cooperation with the State of California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA), completed a Draft EIS/EIR for the project in February 2006 (SCH# 2002022072). A Final EIS/EIR was completed in April 2007 and a Notice of Determination was issued in May 2007. FHWA issued its Record of Decision on October 26, 2007 (FR No. 20070442). Construction is scheduled to begin in summer 2012 or 2013 (City of Sacramento 2006).

South Sacramento Corridor Phase 2. Sacramento Regional Transit (RT) has proposed to extend their light rail transit service approximately 4.3 miles from the terminus of the South Sacramento Corridor Phase 1 terminus at Meadowview Road. The proposed alignment would travel south along the Union Pacific Railroad (UPRR) right-of-way and then turn east across the UPRR tracks and Unionhouse Creek. It then would cross Franklin Boulevard and run parallel to Cosumnes River Boulevard before turning south at Bruceville Road and terminating at Cosumnes River College. The Federal Transit Authority and RT completed a Supplemental Draft EIS /Subsequent EIR in January 2007 (Sacramento Regional Transit 2007) to supplement the 1994 South Sacramento Corridor Alternative Analysis DEIS/DEIR. The final EIS/EIR was issued in September 2008 and the ROD was signed in February 2009. Construction is scheduled to begin in spring 2013.

South Sacramento County Streams Morrison Creek–Union Pacific Railroad. USACE has proposed to construct 3,000 feet of floodwall, 100 feet of levee, and 900 feet of retaining wall on the east side of Morrison Creek along the UPRR tracks between the railroad bridge and Unionhouse Creek below Mack Road. USACE and SAFCA completed a Final EA/IS in July 2011, and a Notice of Determination was issued in August 2011 (SCH# 1997102056). Construction is scheduled to begin in spring 2012 and be completed by October 1, 2012.

The projects listed above are required to evaluate the impacts of the proposed project features on environmental resources in the area. In addition, mitigation and/or compensation measures must be developed to avoid or reduce any significant impacts to a less-than-significant level based on state and local agency criteria. Those impacts that cannot be avoided or reduced to less than significant are more likely to contribute to cumulative effects in the area.

The State CEQA guidelines define cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental

impacts" (Section 15355). The following analysis focuses on considering the potential for impacts identified in Chapter 3 to make a considerable contribution to significant cumulative impacts. The Unionhouse Creek Channel Improvements Project would not cause long-term significant impacts on the resources discussed in Chapter 3. However, some of the resources have the potential to incur temporary, short-term impacts during the construction period. As construction of the South Sacramento Corridor Phase 2 Project and the Unionhouse Creek Channel Improvements Project would not overlap in their construction period or impacts, the Sacramento Corridor Phase 2 Project is not considered further in this chapter. An initial assessment of potential cumulative impacts indicated that impacts on air quality, GHGs, transportation and traffic, biological resources, and hydrology and water quality have the potential to contribute to cumulative impacts. The potential cumulatively considerable impacts on these resources, in combination with potential impacts from the local projects described above, are discussed below.

4.1.1 Air Quality

According to the SMAQMD, a project is considered to have a significant cumulative impact if:

- The project requires a change in the existing land use designation (general plan amendment or rezone).Projected emissions (ROG or NO_x) or emission concentrations (criteria pollutants) of the proposed project are greater than the emissions anticipated for the site if developed under the existing land use designation.
- The project individually would result in a significant impact on air quality.

Construction of the proposed project is not expected to have any long-term impacts on air quality because the operational activities are expected to be similar to existing conditions. However, construction would result in short-term, construction-related impacts on air quality mainly related to the use of combustion emissions and dust emissions. Implementation of mitigation measures during construction would reduce these emissions to the extent possible. The proposed project would not require a change in the existing land use designations, and therefore long-term projected emissions of criteria pollutants would be the same with or without the project. Also, the proposed project would not result in a significant impact on air quality.

However, construction of the Unionhouse Creek Channel Improvements Project has the potential to overlap construction of the Cosumnes River Boulevard Extension Project, as well as the Morrison Creek–UPRR Floodwall Project. These concurrent construction activities could have a significant cumulative impact on air quality. It is expected that impacts from these project would be similar to the current project in that impacts would be due primarily to construction activities. Therefore, construction of these projects would increase emissions of criteria pollutants, including volatile organic compound (VOC), NO_x, CO, SO_2, and PM emissions.

Individually, these projects would mitigate their emissions below significance threshold levels. If these construction projects are implemented concurrently, the combined cumulative impacts could be above CEQA thresholds for air quality emissions and de minimis thresholds. However, all air quality impacts are cumulative, and the thresholds used by SMAQMD assume cumulative existing ongoing and future development.

4.1.2 Biological Resources

Construction of the Unionhouse Creek Channel Improvements Project, the Morrison Creek–UPRR Floodwall Project, and the Cosumnes River Boulevard Extension Project would directly and indirectly affect giant garter snake, western pond turtle, burrowing owl, and Sanford's arrowhead. Mitigation measures for these projects have been prescribed to offset potential impacts on these species. Therefore, there would be no significant cumulative impact on special-status species as a result of the proposed project.

The proposed project could also result in direct and indirect impacts on nesting raptors and other migratory birds, including Swainson's hawk. Mitigation measures in this IS/MND have been prescribed to offset potential impacts on nesting raptors and other migratory birds. As a result, cumulative impacts are not anticipated for nesting raptors and migratory birds. The Cosumnes River Boulevard Extension Project and the Morrison Creek–UPRR Floodwall Project are located in the vicinity and would result in short-term disturbances of wildlife habitat. In addition, some permanent loss of wildlife habitat would occur at each of the project sites. However, suitable high-quality habitat that could support temporary and permanent relocation of displaced wildlife species is available near each of these projects .

All projects would produce temporary impacts on vegetation and habitat associated with clearing and grubbing the existing surfaces. The new transportation corridors created by the Cosumnes River Boulevard Extension Project and the Morrison Creek–UPRR Floodwall Project would result in permanent loss of habitat. These projects have completed environmental documents that provide mitigation for this loss of habitat. To compensate for the loss of this vegetation, mitigation sites would be replanted with native plants and grasses. Disturbed areas in the Unionhouse Creek Channel Improvements Project area would be restored following construction, with the exception of areas of new concrete, and it is anticipated that wildlife species would be able to return to the project area upon completion of restoration activities. The vegetation loss associated with the seasonal swale and annual grassland would not have a significant cumulative impact on vegetation in the region.

4.1.3 Greenhouse Gases

It is unlikely that a single project would have a significant impact on the environment with respect to GHGs. However, the cumulative impact of human activities has been clearly linked to quantifiable changes in the composition of the atmosphere, which in turn has been shown to be the primary cause of global climate change (Intergovernmental Panel on Climate Change 2007). While the emissions of a single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact on global climate change.

CO_2 is tracked as a contributor to GHG emissions. SMAQMD emission models calculate air emissions based on construction phase and duration, type of equipment and machinery, project area, and other input criteria. The air quality analysis in Section 3.3 includes CO_2 emissions.

GHG impacts are inherently cumulative and are analyzed as such in Section 3.7. Impacts related to GHG emissions were determined to be less than significant.

4.1.4 Hydrology and Water Quality

Implementation of the proposed project would alter water surface elevations in the Morrison Creek watershed, especially during higher flows, and could have a cumulative impact on hydrology if other concurrent flood control projects did not take the proposed project into account. The Morrison Creek–UPRR Floodwall Project area is located just upstream of the confluence of Unionhouse Creek and Morrison Creek, and water surface elevations in this area potentially could be affected by changes incurred from the proposed project. However, the Morrison Creek–UPRR Floodwall Project involves only increasing the freeboard along that section of the creek to increase flood protection, and does not involve altering the existing channel or flow elevations. Therefore, the Morrison Creek–UPRR Floodwall Project would not have additional cumulative impacts related to flows and hydrology. All subsequent flood control projects in the watershed would be required to analyze and take into account the changes in hydrology resulting from the proposed project in order to avoid future cumulative impacts.

4.1.5 Transportation and Traffic

Construction associated with the proposed project would cause a temporary increase in traffic volumes on the existing roadway network on a localized and temporary basis only. The project would likely overlap the Cosumnes River Boulevard Extension Project, as well as the Morrison Creek–UPRR Floodwall Project. All three projects have the potential to use the same local roadways and major transportation corridors for construction traffic. These roads include SR 99 and Cosumnes River Boulevard.

The proposed construction activities would have short-term impacts on traffic levels on local and regional roadways, which would temporarily decrease their LOS. While construction of the projects would temporarily increase traffic counts on roadways within the vicinity of the project, the volume of trucks associated with these projects would not be enough to reduce the existing LOS, although parts of Cosumnes River Boulevard currently operate at LOS F. SAFCA would coordinate the scheduling and sequencing of construction activities with the City of Sacramento and the USACE to reduce significant impacts on traffic and circulation. Following the completion of construction activities, the proposed project would not contribute to cumulative regional traffic and transportation impacts associated with other projects in the region. Minimization measures at all construction sites and the relative distances between multiple projects would reduce cumulative impacts on local transportation networks to less-than-significant levels.

Chapter 5
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Chapter 6
List of Preparers

This chapter lists the people who contributed to the preparation of this IS/MND. This list is consistent with the requirements set forth in CEQA (Public Resources Code §15129).

6.1 ICF International

Name	Education/Experience	Project Role
Chris Elliott	B.S. Landscape Architecture, California Licensed Landscape Architect, Certified Arborist; 17 years' experience	Project Director
Megan Smith	B.A. English, J.D.; 10 years' experience	Project Manager
Susan Swift	Master of Planning and Development Studies, B.A. Psychology (Environmental Emphasis); 20 years' experience	Aesthetics, Agriculture and Forestry Resources, Land Use and Planning
Andrew Humphrey	B.A. History; 4 years' experience	Hydrology and Water Quality, Public Services, Transportation and Traffic
Laurel Armer	B.S. Environmental Horticulture and Urban Forestry; 9 years' experience	Geology and Soils, Hazards and Hazardous Materials, Mineral Resources, Recreation, Utilities
Shannon Hatcher	B.S. Environmental Science, B.S. Environmental Health and Safety; 12 years' experience	Air Quality, Greenhouse Gases, Noise
Lisa Webber	B.S. Biology, M.S. Botany; 22 years' experience	Biological Resources
John Howe	B.S. Biology, M.S. Environmental Biology; 15 years' experience	Biological Resources
Gabriel Roark	B.A. Anthropology; 10 years' experience	Cultural Resources
Darle Tilly	B.A. English Literature; 25+ years' experience	Lead Editor
Corrine Ortega	A.A. Communications; 19 years' experience	Publications Specialist
Edward Douglas	B.A. Geography; 6 years' experience	GIS Analyst

6.2 Sacramento Area Flood Control Agency

Name, Title	Project Role
Peter Ghelfi, Director of Engineering	Lead Agency Reviewer
Mick Klassen, Environmental Planner	Lead Agency Reviewer

6.3 Other Contributors

Name, Title	Project Role
Jesse Patchett, PE, CFM (Peterson Brustad Inc.)	Technical Reviewer
Karl Brustad, PE, MBA (Peterson Brustad Inc.)	Technical Reviewer

Appendix A

Environmental Checklist

Appendix A
Environmental Checklist

1. **Project Title:** Unionhouse Creek Channel Improvements Project
2. **Lead Agency Name and Address:** Sacramento Area Flood Control Agency
3. **Contact Person and Phone Number:** Peter Ghelfi (916/874-7606)
4. **Project Location:** Sacramento, CA
5. **Project Sponsor's Name and Address:** Sacramento Area Flood Control Agency
6. **General Plan Designation:** Suburban Neighborhood, Public/Quasi-Public,
7. **Zoning:** Single and Multi-Family Residential, Agriculture
8. **Description of Project:**

   The proposed project consists of modifying the channel of Unionhouse Creek for approximately 1.6 miles, from immediately downstream (west) of Bruceville Road to upstream (east) of Franklin Boulevard. The primary purpose of this effort is to increase the creek channel's capacity to contain 100-year storm flows within the proposed banks of the channel. Unionhouse Creek is a trapezoidal channel that has a 12-foot-wide concrete bottom, steep unlined side slopes, and a top width of approximately 61 feet. The proposed project includes flood risk-reduction measures in two segments of the creek: re-lining the channel bottom and side slopes with concrete from Bruceville Road downstream to the crossing of Center Parkway, and widening the channel by an additional 8 feet, to a total width of 20 feet, from Center Parkway downstream to Franklin Boulevard.

9. **Surrounding Land Uses and Setting:**

   Areas to the north and south of the project area are residential. The area to the east is residential and commercial, and the area to the west is open land.

10. **Other Public Agencies Whose Approval is Required:**

    U.S. Army Corps of Engineers
    U.S. Fish and Wildlife Service
    Central Valley Regional Water Quality Control Board
    California Department of Fish and Game
    Central Valley Flood Protection Board
    California State Historic Preservation Officer
    County of Sacramento
    City of Sacramento

A.1 Environmental Factors Potentially Affected

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural and Forestry	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance

A.2 Aesthetics

I. Aesthetics	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	☐	☐	☐	☒
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.3 Agricultural and Forestry Resources

II. Agricultural and Forestry Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.4 Air Quality

III. Air Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.5 Biological Resources

IV. Biological Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.6 Cultural Resources

V. Cultural Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.7 Geology and Soils

VI. Geology and Soils	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. 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.	☐	☐	☐	☒
2. Strong seismic ground shaking?	☐	☐	☐	☒
3. Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
4. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d. 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?	☐	☐	☐	☒
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.8 Greenhouse Gas Emissions

VII. Greenhouse Gas Emissions	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☒	☐	☐
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.9 Hazards and Hazardous Materials

VIII. Hazards and Hazardous Materials	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒	☐	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.10 Hydrology and Water Quality

IX. Hydrology and Water Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?	☐	☐	☒	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	☐	☐	☐	☒
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f. Otherwise substantially degrade water quality?	☐	☐	☒	☐
g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	☐	☐	☐	☒
i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j. Contribute to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.11 Land Use and Planning

X. Land Use and Planning		Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Physically divide an established community?	☐	☐	☐	☒
b.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c.	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.12 Mineral Resources

XI. Mineral Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.13 Noise

XII. Noise	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☒	☐	☐
b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f. Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.14 Population and Housing

XIII. Population and Housing	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.15 Public Services

XIV. Public Services	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.16 Recreation

XV. Recreation	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.17 Transportation/Traffic

XVI. Transportation/Traffic	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b. Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?	☐	☒	☐	☐
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e. Result in inadequate emergency access?	☐	☒	☐	☐
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.18 Utilities and Service Systems

XVII. Utilities and Service Systems	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	☐	☐	☐	☒
e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.19 Mandatory Findings

XVIII. Mandatory Findings of Significance		Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b.	Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c.	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

Appendix B

Mitigation, Monitoring, and Reporting Plan

Appendix B
Mitigation, Monitoring, and Reporting Plan

Mitigation, Monitoring, and Reporting Plan for the Unionhouse Creek Channel Improvements Project

Description of Measure	Implementation Schedule	Responsible Party
Aesthetics		
No mitigation required.		
Agriculture and Forestry Resources		
No mitigation required.		
Air Quality		
AQ-MM-1: Implement Basic Construction Emission Control Practices Recommended by the SMAQMD	Prior to and during construction	SAFCA
Biological Resources		
BIO-MM-1: Conduct Preconstruction Surveys and Relocate Individual Western Pond Turtles If Necessary	24-hours prior to construction	SAFCA
BIO-MM-2: Compensate for the Loss of Giant Garter Snake Habitat	Prior to construction	SAFCA
BIO-MM-3: Follow USFWS Avoidance and Minimization Measures for Giant Garter Snake during Construction	Prior to and during construction	SAFCA
BIO-MM-4: Conduct Preconstruction Surveys for Burrowing Owl and Implement CDFG Avoidance and Minimization Measures	Initiated no less than 14 days and again 24 hours prior to construction	SAFCA
BIO-MM-5: Conduct Preconstruction Surveys for Nesting Swainson's Hawks and Follow CDFG Guidance If They Are Detected	Between June 10 and July 30, and 5 days prior to construction	SAFCA
BIO-MM-6: Conduct Preconstruction Surveys for Nesting Birds and Raptors and Establish No-Disturbance Buffers If They Are Detected	Within 15 days and 5 days prior to construction	SAFCA
BIO-MM-7: Compensate for Loss of Seasonal Swale	Prior to construction	SAFCA
BIO-MM-8: Obtain Tree Permit and Compensate for Loss of Oak Tree	After construction	SAFCA
Cultural Resources		
CUL-MM-1: Stop Work, Assess Resource Significance, and Mitigate If Needed	During construction	SAFCA
CUL-MM-2: Stop Work and Treat Remains in Accordance with State Laws	During construction	SAFCA
Geology and Soils		
No mitigation required.		
Greenhouse Gas Emissions		
GHG-MM-1 (Optional): Implement SMAQMD Best Management Practices for Reducing Construction-Related Greenhouse Gas Emissions	Prior to and during construction	SAFCA

Description of Measure	Implementation Schedule	Responsible Party
Hazards		
HAZ-1: Implement a Spill Prevention, Control, and Countermeasure Plan	Prior to and during construction	SAFCA or Construction Contractor
HAZ-2: Develop and Implement a Fire Management Plan	Prior to and during construction	Construction Contractor
Hydrology and Water Quality		
No mitigation required.		
Land Use and Planning		
No mitigation required.		
Mineral Resources		
No mitigation required.		
Noise		
NOI-MM-1: Limit Hours of Construction Activities	During construction	SAFCA
NOI-MM-2: Implement a Noise Control Plan	Prior to construction	SAFCA
NOI-MM-3: Limit Timing of Construction Activities That Cause Vibration, Inform Adjacent Residents, Designate a Complaint Coordinator, and Temporarily Relocate Residents If Necessary	Prior to and during construction	SAFCA
Population and Housing		
No mitigation required.		
Public Services		
No mitigation required.		
Recreation		
No mitigation required.		
Transportation and Traffic		
TRA-MM-1: Coordinate Truck Routes	During and after construction	Construction Contractor
TRA-MM-2: Develop and Implement a Traffic Control Plan	Prior to and during construction	SAFCA
Utilities and Service Systems		
No mitigation required		
Growth-Inducement		
No mitigation required.		
Cumulative		
No mitigation required.		

Appendix C

California Natural Diversity Database (CNDDB) Results

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Portrait
Florin, Clarksburg, Sacramento West, Sacramento East, Carmichael, Elk Grove, Galt, Bruceville, and Courtland Quadrangles

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Accipiter cooperii Cooper's hawk	ABNKC12040			G5	S3	
2	Agelaius tricolor tricolored blackbird	ABPBXB0020			G2G3	S2	SC
3	Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
4	Aquila chrysaetos golden eagle	ABNKC22010			G5	S3	
5	Archoplites interruptus Sacramento perch	AFCQB07010			G3	S1	SC
6	Ardea alba great egret	ABNGA04040			G5	S4	
7	Ardea herodias great blue heron	ABNGA04010			G5	S4	
8	Athene cunicularia burrowing owl	ABNSB10010			G4	S2	SC
9	Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened		G3	S2S3	
10	Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150			G2	S2	
11	Brasenia schreberi watershield	PDCAB01010			G5	S2	2.3
12	Buteo regalis ferruginous hawk	ABNKC19120			G4	S3S4	
13	Buteo swainsoni Swainson's hawk	ABNKC19070		Threatened	G5	S2	
14	Carex comosa bristly sedge	PMCYP032Y0			G5	S2	2.1
15	Cicuta maculata var. bolanderi Bolander's water-hemlock	PDAPI0M051			G5T3T4	S2	2.1
16	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
17	Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Candidate	Endangered	G5T3Q	S1	
18	Cuscuta obtusiflora var. glandulosa Peruvian dodder	PDCUS01111			G5T4T5	SH	2.2
19	Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened		G3T2	S2	
20	Downingia pusilla dwarf downingia	PDCAM060C0			G2	S2	2.2
21	Dumontia oregonensis hairy water flea	ICBRA23010			G1G3	S1	
22	Elanus leucurus white-tailed kite	ABNKC06010			G5	S3	
23	Elderberry Savanna	CTT63440CA			G2	S2.1	
24	Emys marmorata western pond turtle	ARAAD02030			G3G4	S3	SC

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Falco columbarius merlin	ABNKD06030			G5	S3	
26	Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060		Endangered	G2	S2	1B.2
27	Great Valley Cottonwood Riparian Forest	CTT61410CA			G2	S2.1	
28	Great Valley Mixed Riparian Forest	CTT61420CA			G2	S2.2	
29	Great Valley Valley Oak Riparian Forest	CTT61430CA			G1	S1.1	
30	Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3			G4	S2.2	1B.2
31	Hydrochara ricksecker Ricksecker's water scavenger beetle	IICOL5V010			G1G2	S1S2	
32	Juglans hindsii Northern California black walnut	PDJUG02040			G1	S1.1	1B.1
33	Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1			G2T1	S1.2	1B.2
34	Lasiurus cinereus hoary bat	AMACC05030			G5	S4?	
35	Lathyrus jepsonii var. jepsonii Delta tule pea	PDFAB250D2			G5T2	S2.2	1B.2
36	Legenere limosa legenere	PDCAM0C010			G2	S2.2	1B.1
37	Lepidium latipes var. heckardii Heckard's pepper-grass	PDBRA1M0K1			G4T1	S1.2	1B.2
38	Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered		G3	S2S3	
39	Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030		Rare	G2	S2	1B.1
40	Linderiella occidentalis California linderiella	ICBRA06010			G3	S2S3	
41	Northern Hardpan Vernal Pool	CTT44110CA			G3	S3.1	
42	Nycticorax nycticorax black-crowned night heron	ABNGA11010			G5	S3	
43	Oncorhynchus tshawytscha chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	G5	S1	
44	Oncorhynchus tshawytscha chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5	S1	
45	Orcuttia tenuis slender Orcutt grass	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
46	Orcuttia viscida Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	G1	S1.1	1B.1
47	Phalacrocorax auritus double-crested cormorant	ABNFD01020			G5	S3	
48	Plagiobothrys hystriculus bearded popcorn-flower	PDBOR0V0H0			G1G2	S1S2	1B.1

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
49	Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020			G2	S2	SC
50	Progne subis purple martin	ABPAU01010			G5	S3	SC
51	Riparia riparia bank swallow	ABPAU08010		Threatened	G5	S2S3	
52	Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0			G3	S3	1B.2
53	Scutellaria galericulata marsh skullcap	PDLAM1U0J0			G5	S2	2.2
54	Scutellaria lateriflora side-flowering skullcap	PDLAM1U0Q0			G5	S1	2.2
55	Spea hammondii western spadefoot	AAABF02020			G3	S3	SC
56	Symphyotrichum lentum Suisun Marsh aster	PDASTE8470			G2	S2	1B.2
57	Taxidea taxus American badger	AMAJF04010			G5	S4	SC
58	Thamnophis gigas giant garter snake	ARADB36150	Threatened	Threatened	G2G3	S2S3	
59	Trifolium hydrophilum saline clover	PDFAB400R5			G2	S2	1B.2
60	Valley Oak Woodland	CTT71130CA			G3	S2.1	
61	Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
62	Xanthocephalus xanthocephalus yellow-headed blackbird	ABPBXB3010			G5	S3S4	SC

Appendix D

U.S. Fish and Wildlife (USFWS) Species

These buttons will not appear on your list.

Revise Selection

Print this page

Print species list before going on to letter.

Make Official Letter

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 120305015451

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

- Branchinecta lynchi
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)
- Lepidurus packardi
  - vernal pool tadpole shrimp (E)

Fish

- Acipenser medirostris
  - green sturgeon (T) (NMFS)
- Hypomesus transpacificus
  - Critical habitat, delta smelt (X)
  - delta smelt (T)
- Oncorhynchus mykiss
  - Central Valley steelhead (T) (NMFS)

- Oncorhynchus tshawytscha
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- Ambystoma californiense
  - California tiger salamander, central population (T)

- Rana draytonii
  - California red-legged frog (T)

Reptiles

- Thamnophis gigas
  - giant garter snake (T)

Quads Containing Listed, Proposed or Candidate Species:

FLORIN (496B)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to

their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.
See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be June 03, 2012.

Appendix E

California Native Plant Society's (CNPS) Inventory Search

Inventory of Rare and Endangered Plants

v7-12mar 3-28-12

Status: Home Page - Wed, Mar. 28, 2012 19:12 c

Basic Tools:
- All CNPS-listed plants
- Checkbox and Preset search
- Getting Started guide

Tech Tools:
- Query Builder
- Query by list of names
- Nine-quad search

Database indexes
- CNPS List
- State Status
- Federal Status
- Family
- County
- Life Form
- Topo Quad
- Common Name

Members and Friends:
- Request assistance
- Submit survey data
- Show your Plant Press

other things:
- Documentation and Resources
- Looking for common plants?
- Home of CNPS

Quick Search Form:

Search

- **more**

8th EDITION interface now available online!.....
Same data, but now includes GIS and many improvements. Not all 7th Edition features have been added yet - you can continue to use them here. To simplify access to the new features, such as GIS, each record in the 7th Edition now has a link to the corresponding details page in the 8th Edition.

INTRODUCTION to the 7th EDITION

The CNPS Inventory of Rare and Endangered Plants is now published on-line and updated quarterly. Along with the latest Inventory data from CNPS, you will find a variety of search tools, maps, thumbnail illustrations, and links to additional information.

CalPhotos archive
What rare plant is this?
(Click on image.)

The statewide CNPS website has extensive • **background information** about the Inventory. Since the publication of the last hardcopy 6th Edition in 2001, the review process and revisions have been ongoing. Stay informed and get involved!

Users of the Inventory may find it helpful to read the • **FAQ**.
example: "Which search method should I use?" (answer)
New users might want to consult the • **Getting Started** guide.

The last hardcopy edition was August 2001, but much of the front matter remains useful and informative:

Rarity in Vascular Plants - Peggy L. Fiedler
Rare Bryophytes in California - James R. Shevock
Bibliography for Biology and Conservation of Rare Plants - Peggy L. Fiedler and James P. Smith, Jr.
Conserving Plants with Laws and Programs under the California Department of Fish and Game - Sandra Morey and Diane Ikeda
The California Natural Diversity Database- Roxanne L. Bittman
The Natural Communities Program - Todd Keeler-Wolf

CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 21 items - Wed, Mar. 28, 2012 19:13 c

Reformat list as: DEFAULT

ECOLOGICAL REPORT

scientific	family	life form	blooming	communities	elevation	CNPS
Brasenia schreberi	Cabombaceae	perennial rhizomatous herb aquatic		•Marshes and swamps (MshSw)/ freshwater	30 - meters	List 2.3
Carex comosa	Cyperaceae	perennial rhizomatous herb		•Coastal prairie (CoPrr) •Marshes and swamps (MshSw)(lake margins) •Valley and foothill grassland (VFGrs)	0 - meters	List 2.1
Cicuta maculata var. bolanderi	Apiaceae	perennial herb		•Marshes and swamps (MshSw) Coastal, fresh or brackish water	0 - meters	List 2.1
Downingia pusilla	Campanulaceae	annual herb		•Valley and foothill grassland (VFGrs)(mesic) •Vernal pools (VnPls)	1 - meters	List 2.2
Gratiola heterosepala	Plantaginaceae	annual herb		•Marshes and swamps (MshSw)(lake margins) •Vernal pools (VnPls)/clay	10 - meters	List 1B.2
Hibiscus lasiocarpos var. occidentalis	Malvaceae	perennial rhizomatous herb emergent		•Marshes and swamps (MshSw) (freshwater)	0 - meters	List 1B.2
Juglans hindsii	Juglandaceae	perennial deciduous tree		•Riparian forest (RpFrs) •Riparian woodland (RpWld)	0 - meters	List 1B.1

Juncus leiospermus var. ahartii	Juncaceae	annual herb		•Valley and foothill grassland (VFGrs)(mesic)	30 - meters	List 1B.2
Lathyrus jepsonii var. jepsonii	Fabaceae	perennial herb	Months in parentheses are uncommon.	•Marshes and swamps (MshSw) (freshwater and brackish)	0 - meters	List 1B.2
Legenere limosa	Campanulaceae	annual herb		•Vernal pools (VnPls)	1 - meters	List 1B.1
Lepidium latipes var. heckardii	Brassicaceae	annual herb		•Valley and foothill grassland (VFGrs) (alkaline flats)	2 - meters	List 1B.2
Lilaeopsis masonii	Apiaceae	perennial rhizomatous herb		•Marshes and swamps (MshSw) (brackish or freshwater) •Riparian scrub (RpScr)	0 - meters	List 1B.1
Limosella subulata	Scrophulariaceae	perennial stoloniferous herb		•Marshes and swamps (MshSw)	0 - meters	List 2.1
Orcuttia tenuis	Poaceae	annual herb	Months in parentheses are uncommon.	•Vernal pools (VnPls)	35 - meters	List 1B.1
Orcuttia viscida	Poaceae	annual herb		•Vernal pools (VnPls)	30 - meters	List 1B.1
Plagiobothrys hystriculus	Boraginaceae	annual herb		•Valley and foothill grassland (VFGrs)(mesic) •Vernal pools (VnPls)margins/ often vernal swales	0 - meters	List 1B.1
Sagittaria sanfordii	Alismataceae	perennial rhizomatous herb emergent		•Marshes and swamps (MshSw) (assorted shallow freshwater)	0 - meters	List 1B.2

Scutellaria galericulata	Lamiaceae	perennial rhizomatous herb		•Lower montane coniferous forest (LCFrs) •Meadows and seeps (Medws) (mesic) •Marshes and swamps (MshSw)	0 - meters	List 2.2
Scutellaria lateriflora	Lamiaceae	perennial rhizomatous herb		•Meadows and seeps (Medws) (mesic) •Marshes and swamps (MshSw)	0 - meters	List 2.2
Symphyotrichum lentum	Asteraceae	perennial rhizomatous herb		•Marshes and swamps (MshSw) (brackish and freshwater)	0 - meters	List 1B.2
Trifolium hydrophilum	Fabaceae	annual herb		•Marshes and swamps (MshSw) •Valley and foothill grassland (VFGrs)(mesic, alkaline) •Vernal pools (VnPls)	0 - meters	List 1B.2

Appendix F

Study Area Plant Species

Appendix F
Study Area Plant Species

Table F-1. List of Plant Species Identified in the Unionhouse Creek Study Area during March, 2012 Surveys

Common Name	Scientific Name	Indicator Status*
Common fiddleneck	*Amsinckia intermedia*	–
Slender wild oat	*Avena barbata*	–
Black mustard	*Brassica nigra*	–
Field mustard	*Brassica rapa*	–
Ripgut brome	*Bromus diandrus*	NI
Yellow star-thistle	*Centaurea solstitialis*	–
Bindweed	*Convolvulus arvensis*	–
Bermuda grass	*Cynodon dactylon*	FAC
Nutsedge	*Cyperus eragrostis*	FACW
Long beaked filaree	*Erodium botrys*	–
Redstem filaree	*Erodium cicutarium*	–
Italian ryegrass	*Festuca perennis* [*Lolium multiflorum*]	FAC
Sweet fennel	*Foeniculum vulgare*	FACU
Narrowleaf cottonrose	*Logfia gallica* [*Filago gallica*]	–
Mediterranean barley	*Hordeum marinum* ssp. *gussoneanum*	FAC
Hare barley	*Hordeum murinum* ssp. *leporinum*	NI
Common rush	*Juncus effusus*	OBL
Prickly lettuce	*Lactuca serriola*	FAC
Italian ryegrass	*Lolium multiflorum*	FAC
Floating water primrose	*Ludwigia peploides*	OBL
Common mallow	*Malva neglecta*	–
Bur clover	*Medicago polymorpha*	–
Olive	*Olea europaea*	–
Interior live oak	*Quercus wislizeni*	–
Flowering plum	*Pyrus calleryana*	–
Wild radish	*Raphanus sativus*	–
Curly dock	*Rumex crispus*	FACW-
Russian thistle	*Salsola tragus*	FACU+
Old man of spring	*Senecio vulgaris*	NI
Hedge mustard	*Sisymbrium* sp.	–
Dandelion	*Taraxacum officinale*	FACU
Spring vetch	*Vicia sativa*	FACU
Cocklebur	*Xanthium strumarium*	FAC+

Sources: Reed 1988; Hickman 1993.

* Indicator status:

FACW = facultative wetland plant.
FAC = facultative plant.
FACU = facultative upland plant.
NI = no indicator.
– = not listed in Reed 1988.

EXHIBIT B

Appendix B
Mitigation, Monitoring, and Reporting Plan

Mitigation, Monitoring, and Reporting Plan for the Unionhouse Creek Channel Improvements Project

Description of Measure	Implementation Schedule	Responsible Party
Aesthetics		
No mitigation required.		
Agriculture and Forestry Resources		
No mitigation required.		
Air Quality		
AQ-MM-1: Implement Basic Construction Emission Control Practices Recommended by the SMAQMD	Prior to and during construction	SAFCA
Biological Resources		
BIO-MM-1: Conduct Preconstruction Surveys and Relocate Individual Western Pond Turtles If Necessary	24-hours prior to construction	SAFCA
BIO-MM-2: Compensate for the Loss of Giant Garter Snake Habitat	Prior to construction	SAFCA
BIO-MM-3: Follow USFWS Avoidance and Minimization Measures for Giant Garter Snake during Construction	Prior to and during construction	SAFCA
BIO-MM-4: Conduct Preconstruction Surveys for Burrowing Owl and Implement CDFG Avoidance and Minimization Measures	Initiated no less than 14 days and again 24 hours prior to construction	SAFCA
BIO-MM-5: Conduct Preconstruction Surveys for Nesting Swainson's Hawks and Follow CDFG Guidance If They Are Detected	Between June 10 and July 30, and 5 days prior to construction	SAFCA
BIO-MM-6: Conduct Preconstruction Surveys for Nesting Birds and Raptors and Establish No-Disturbance Buffers If They Are Detected	Within 15 days and 5 days prior to construction	SAFCA
BIO-MM-7: Compensate for Loss of Seasonal Swale	Prior to construction	SAFCA
BIO-MM-8: Obtain Tree Permit and Compensate for Loss of Oak Tree	After construction	SAFCA
Cultural Resources		
CUL-MM-1: Stop Work, Assess Resource Significance, and Mitigate If Needed	During construction	SAFCA
CUL-MM-2: Stop Work and Treat Remains in Accordance with State Laws	During construction	SAFCA
Geology and Soils		
No mitigation required.		
Greenhouse Gas Emissions		
GHG-MM-1 (Optional): Implement SMAQMD Best Management Practices for Reducing Construction-Related Greenhouse Gas Emissions	Prior to and during construction	SAFCA

Description of Measure	Implementation Schedule	Responsible Party
Hazards		
HAZ-1: Implement a Spill Prevention, Control, and Countermeasure Plan	Prior to and during construction	SAFCA or Construction Contractor
HAZ-2: Develop and Implement a Fire Management Plan	Prior to and during construction	Construction Contractor
Hydrology and Water Quality		
No mitigation required.		
Land Use and Planning		
No mitigation required.		
Mineral Resources		
No mitigation required.		
Noise		
NOI-MM-1: Limit Hours of Construction Activities	During construction	SAFCA
NOI-MM-2: Implement a Noise Control Plan	Prior to construction	SAFCA
NOI-MM-3: Limit Timing of Construction Activities That Cause Vibration, Inform Adjacent Residents, Designate a Complaint Coordinator, and Temporarily Relocate Residents If Necessary	Prior to and during construction	SAFCA
Population and Housing		
No mitigation required.		
Public Services		
No mitigation required.		
Recreation		
No mitigation required.		
Transportation and Traffic		
TRA-MM-1: Coordinate Truck Routes	During and after construction	Construction Contractor
TRA-MM-2: Develop and Implement a Traffic Control Plan	Prior to and during construction	SAFCA
Utilities and Service Systems		
No mitigation required		
Growth-Inducement		
No mitigation required.		
Cumulative		
No mitigation required.		

ITEM 16

Agenda of June 21, 2012

TO: **Sacramento Area Flood Control Agency**
Board of Directors

FROM: **Pete Ghelfi, Director of Engineering**
(916) 874-8733

SUBJECT: **RESOLUTION – ADOPTION OF THE MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SOUTH SACRAMENTO COUNTY STREAMS GROUP UNIONHOUSE CREEK CHANNEL IMPROVEMENTS PROJECT**

OVERVIEW:
To address potential flooding hazards along Unionhouse Creek, SAFCA has proposed channel improvements along Unionhouse Creek from Franklin Boulevard to Bruceville Road. The proposed improvements, once complete, will provide greater than 100-year level of flood protection to the surrounding area.

The attached Resolution No. 2012-072 adopts the Mitigated Negative Declaration for the Unionhouse Channel Improvements adopts, the Mitigation Monitoring and Reporting Program, and approves the Project. The MND was circulated for public review and comments from May 15, 2012 to June 13, 2012. The Project, to be constructed by SAFCA, involves widening the channel by 8-feet between Franklin Boulevard and Center Parkway and concrete lining the channel between Center Parkway and Bruceville Road. This Project is scheduled to be constructed in the fall of 2012.

RECOMMENDATION:
Staff recommends that the Board approve Resolution No. 2012-072 adopting the Mitigated Negative Declaration based on the analysis and conclusions contained in the MND for the Unionhouse Channel Improvements and adopting the Mitigation Monitoring and Reporting Program. Staff also recommends approval of the Project.

MEASURES/EVALUATION:
This is a discrete action, and it will not be subject to long-term evaluation to measure success.

FISCAL IMPACT:
While there is no direct fiscal impact associated with this action, a result of this action will allow the project to be constructed. The construction cost is estimated to be $1,600,000. Costs will be shared by SAFCA and the City of Sacramento per a previously approved cost share agreement and SAFCA has received a grant from the State Department of Water Resources for 50 percent of eligible costs up to $976,773. Funds for construction and implementation are accounted for in the proposed FY 2012-13 Consolidated Capital Assessment District Budget.

ENVIRONMENTAL IMPACT:
SAFCA's environmental consultant has concluded that there is no substantial evidence that the proposed Project, as revised by mitigation measures incorporated into the Project, may have a significant effect on the environment. This conclusion is based on the available Project information and the environmental analysis presented in the Mitigated Negative Declaration.

BACKGROUND

The South Sacramento Streams Group (SSSG) Program is a federally authorized project to provide an increased level of flood protection to the south part of the City of Sacramento (City) from the Delta and for urban streams – Unionhouse Creek, Elder Creek, Florin Creek, and Morrison Creek. Flood control improvements started in approximately 2005 and continued on until 2009. At that point, all the improvements were in place downstream (west) of Franklin Boulevard except for approximately 3,000 feet of floodwall which is currently under construction by the U.S. Army Corps of Engineers (USACE).

Upstream of Franklin Boulevard, the USACE has not yet begun work. The USACE's initial design and cost estimate made it apparent that the USACE's proposed improvements to Unionhouse Creek would exceed the financial authority given to the USACE for the SSSG program.

SAFCA and the City looked into various alternatives that would allow a local effort to provide a 100-year minimum level of flood protection to the areas along Unionhouse Creek between Franklin Boulevard and the confluence of Strawberry Creek. Through past Board Actions (Resolution 2012-004, Resolution 2012-005, and Resolution 2012-040), SAFCA selected a consultant team for design, environmental compliance, and construction management; entered into an agreement with the City relating to cost sharing responsibility; and entered into a grant agreement with the State Department of Water Resources. Design of this project began in earnest in February and the plans are ready to advertise for bid.

DISCUSSION

In order to construct the Unionhouse Creek Channel Improvements, SAFCA, as the lead agency, has to make certain findings that the proposed project is non-damaging to the environment and if significant project impacts can be mitigated to less than a significant level. Impacts were deemed to be minimal and the Mitigated Negative Declaration (MND) addresses all impacts. The Initial Study/Mitigated Negative Declaration (MND) was circulated for 30 days and we received no comments from private individuals and standard comments from public agencies. The MND: (1) describes the existing environmental resources in the Project area; (2) evaluates the environmental effects of the proposed action on these resources; and (3) identifies measures to avoid or reduce any effects to less than significant.

The proposed actions are to consider and adopt a MND under CEQA based on the findings included in the MND, adopt the Mitigation, Monitoring and Reporting Program (MMRP), and approve the project. SAFCA is the lead agency for CEQA compliance.

FINANCIAL IMPLICATIONS

There is no direct fiscal impact associated with this action. However, the engineer's opinion of probable construction cost for the contract is approximately $1,600,000. Costs associated with the Unionhouse Creek Improvement project will be shared by a grant from the State of California under the Proposition 1E Stormwater Flood Management Grant. The State is expected to reimburse up to 50 percent of the project costs pursuant to the Grant Program. In addition, the City per the agreement with SAFCA will fund the remaining costs except for $200,000 that will be provided by SAFCA. If costs exceed what was originally estimated in the agreement, SAFCA and the City will negotiate a solution to be brought before the Board.

POLICY IMPLICATIONS

Adoption of Resolution No. 2012-072 is consistent with the Board's previous policy of implementing flood protection projects in the south part of the City of Sacramento.

RECOMMENDATIONS

Staff recommends that the Board approve of Resolution No. 2012-072 adopting the Mitigated Negative Declaration based on the analysis and conclusions contained in the Initial Study/Mitigated Negative Declaration for the Unionhouse Creek Channel Improvements and adopting the Mitigation Monitoring and Reporting Program. Staff also recommends approval of the Project.

PGlr/SSG UH Creek env doc June 2012.bd.doc
Attachment(s)

RESOLUTION NO. 2012-072
Adopted by the Sacramento Area Flood Control Agency

ADOPTION OF THE MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SOUTH SACRAMENTO COUNTY STREAMS GROUP UNIONHOUSE CREEK CHANNEL IMPROVEMENTS PROJECT

WHEREAS, the Sacramento Area Flood Control Agency (SAFCA) is the lead agency for the Unionhouse Creek Channel improvements; and

WHEREAS, the Initial Study/Mitigated Negative Declaration (MND) was circulated for comment and comments were addressed in the final MND; and

WHEREAS, the Final Mitigated Negative Declaration shall be retained at the SAFCA offices.

NOW, THEREFORE, BE IT RESOLVED BY THE SACRAMENTO AREA FLOOD CONTROL AGENCY BOARD OF DIRECTORS THAT:

1. The Board of Directors hereby finds that the Final Mitigated Negative Declaration was prepared, published, circulated and reviewed in accordance with the requirements of CEQA and the State CEQA Guidelines, and constitutes an adequate, accurate, objective and complete Final Mitigated Negative Declaration in accordance with the requirements of CEQA and the State CEQA Guidelines.

2. The Board of Directors has reviewed the Mitigated Negative Declaration and considered the information contained therein prior to acting on the proposed Project and hereby certifies that the Final Mitigated Negative Declaration reflects the independent judgment and analysis of the Board of Directors.

3. The Board of Directors hereby approves and adopts the Mitigated Negative Declaration for the Unionhouse Creek Channel Improvements based on the analysis and conclusions contained in the Final Mitigated Negative Declaration, attached hereto as Exhibit A.

4. The Board of Directors finds that the Mitigation Monitoring and Reporting Program document entitled "Unionhouse Creek Channel Improvements", attached hereto as Exhibit B, is hereby adopted and approved.

5. The Board of Directors hereby adopts and approves the Project.

ON A MOTION BY Director Pannell, seconded by Director Yee, the foregoing resolution was passed and adopted by the Board of Directors of the Sacramento Area Flood Control Agency, this 21st day of June 2012, by the following vote, to wit:

AYES: Directors: Cohn, Serna, Ashby, Christophel, Gallagher, Holloway, MacGlashan, Nottoli, Pannell, Peters, Shah, Smith & Yee
NOES: Directors: (None)
ABSTAIN: Directors: (None)
ABSENT: Directors: (None)

Chair of the Board of Directors of the
Sacramento Area Flood Control Agency

(Seal)

ATTEST:

Clerk of the Board of Directors

PGlr/SSG UH Creek env.doc.Jun2012.reso
Attachment(s)

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☒ County Clerk
County of: Sacramento
Address: P.O. Box 839
Sacramento, CA 95812-0839

From:
Public Agency: Sac. Area Flood Control Agency
Address: 1001 7th Street, 7th Floor
Sacramento, CA 95814
Contact: Pete Ghelfi
Phone: 916.874.7606

Lead Agency (if different from above):
Address:
Contact:
Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2012052043

Project Title: Unionhouse Creek Channel Improvements Project

Project Applicant: Sacramento Area Flood Control Agency

Project Location (include county): Sacramento, CA (Sacramento County)

Project Description:
The proposed project consists of modifying the channel of Unionhouse Creek for approximately 1.6 miles, from immediately downstream (west) of Bruceville Road to upstream (east) of Franklin Boulevard in the city of Sacramento, California. The actions include flood risk-reduction measures in two segments of the creek: relining the channel bottom and side slopes with concrete from Bruceville Road to Center Parkway, and widening the channel bottom by an additional 8 feet, to a total width of 20 feet, from Center Parkway downstream to Franklin Boulevard. The primary purpose of this effort is to increase the creek channel's capacity to contain 100-year storm flows within its banks.

This is to advise that the Sacramento Area Flood Control Agency (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on June 21, 2012 (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☐ were ☒ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
SAFCA, 1001 7th Street, 7th Floor, Sacramento, CA 95814

Signature (Public Agency): [signature] Title: EXECUTIVE DIRECTOR

Date: June 21, 2012 Date Received for filing at OPR:

RECEIVED
JUN 22 2012
STATE CLEARING HOUSE

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 201

ENDORSED
SACRAMENTO COUNTY

JUN 22 2012

CRAIG A. KRAMER, CLERK RECORDER
BY palmison DEPUTY

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

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(☒ Lead Agency or ☐ Responsible Agency)

described project on June 21, 2012 (date) and has made the following determinations regarding the above described project.

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   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
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4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☐ were ☒ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
SAFCA, 1001 7th Street, 7th Floor, Sacramento, CA 95814

Signature (Public Agency): [signature] Title: EXECUTIVE DIRECTOR

Date: June 21, 2012 Date Received for filing at OPR:

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2011

~~Proposed~~ Mitigated Negative Declaration
Unionhouse Creek Channel Improvements Project

The Sacramento Area Flood Control Agency (SAFCA), acting as the California Environmental Quality Act (CEQA) lead agency and project proponent, has reviewed the proposed project described below to determine whether it could have a significant effect on the environment as a result of project completion. "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in the any of the physical conditions within the area affected by the project, including land use, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Name of Project: Unionhouse Creek Channel Improvements Project

Project Description: The proposed project consists of modifying the channel of Unionhouse Creek for approximately 1.6 miles, from immediately downstream (west) of Bruceville Road to upstream (east) of Franklin Boulevard in the city of Sacramento, California. The proposed project includes flood risk-reduction measures in two segments of the creek: lining the side slopes with concrete and re-lining the channel bottom ~~and side slopes~~ with concrete from Bruceville Road ~~downstream to~~ to the downstream (west) side of the crossing of Center Parkway; and widening the channel by an additional 8 feet, to a total width of 20 feet, from immediately west of Center Parkway downstream to Franklin Boulevard. The primary purpose of this effort is to increase the creek channel's capacity to contain 100-year storm flows within the proposed banks of the channel.

Construction of the proposed project would occur between August and October, 2012. No known hazardous waste sites exist in the project area.

Project Location: The project is located in the southern portion of the city of Sacramento, along Unionhouse Creek, from immediately downstream (west) of Bruceville Road to upstream (east) of Franklin Boulevard.

Contact Information of Lead Agency Representative: Ms. Megan Smith, Project Manager, ICF International, 630 K Street, Suite 400, Sacramento, CA 95814. (916) 231-7677, **msmith3@icfi.com**.

Findings: SAFCA finds the project described above will not have a significant effect on the environment. The attached Final Initial Study identifies one or more potentially significant effects on the environment for which the project proponent, before public release of this proposed Mitigated Negative Declaration, has made or agrees to make project revisions that clearly mitigate the effects to a less-than-significant level. SAFCA further finds that there is no substantial evidence that this project may have a significant effect on the environment.

Public Review Period: The Unionhouse Creek Channel Improvements Project Initial Study and proposed Mitigated Negative Declaration (IS/MND) ~~is~~ was available for review and comment from May 15, 2012, to June 13, 2012. The IS/MND ~~may be viewed~~ was available for public review at the following locations:

- SAFCA: 1007 7th Street, 7th Floor Sacramento, CA 95814
- Sacramento Public Library – Valley Hi-North Laguna Branch: 7400 Imagination Parkway, Sacramento, CA 95823
- online at **http://www.safca.org/Programs_SoSacStreams.html**.

Digital or physical copies ~~may also be~~ could be requested from Ms. Megan Smith by email at **msmith3@icfi.com**, at the above address or at **(916) 231-7677**.

No later than **June 13, 2012**, any person ~~may~~ could:

(1) Review the IS/MND; and

(2) Submit written comments regarding the information, analysis, and mitigation measures in the IS/MND to the contact person above by mail or email.

Public Comment: In response to public comment and additional lead agency review, the following minor clarifications were made to finalize the Initial Study:

- Page 1-3: Future additional flood risk-reduction projects in the area are not precluded by this project. This clarification will not result in any new or undisclosed impacts.
- Page 2-1: The project's upstream measure – concrete sideslope lining – will continue westward under the Center Parkway bridge, ending on the downstream side of the creek crossing. This clarification will not result in any new or undisclosed impacts.
- Page 2-3: Channel excavation would be conducted with disclosed equipment using both in-channel and channel-adjacent construction methods. This clarification will not result in any new or undisclosed impacts.
- Page 3.3-4: At the request of Sacramento Metropolitan Air Quality Management District (SMAQMD), the IS/MND has been revised to include SMAQMD rules that may relate to the project.

Name: [signature]

Title: EXECUTIVE DIRECTOR

Circulated on: May 15, 2012

Signed: RICHARD M. JOHNSON

Adopted on: June 21, 2012