

**DRAFT  
ENVIRONMENTAL ASSESSMENT/  
INITIAL STUDY**

**AMERICAN RIVER COMMON FEATURES  
WRDA 96 REMAINING SITES  
SITE R10**



**US Army Corps  
of Engineers.**



**Sacramento District  
South Pacific Division**

**June 2012**



**DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO  
CORPS OF ENGINEERS  
1325 J STREET  
SACRAMENTO, CALIFORNIA 95814-2922**

Environmental Resources Branch

**DRAFT FINDING OF NO SIGNIFICANT IMPACT  
American River Watershed Common Features  
WRDA 96 Remaining Sites Site R10**

I have reviewed and evaluated the information presented in this Environmental Assessment/Initial Study (EA/IS) prepared for the American River Watershed Common Features, WRDA 96 Remaining Sites, Site R10. Site R10 is located near River Mile 9.0 on the right (north) bank of the American River at the Watt Avenue Bridge, and extends for approximately 400 linear feet under the bridge. The project would close a gap remaining from previous slurry wall construction performed in the levee between 2000 and 2002.

The possible consequences of the work described in the EA/IS have been studied with consideration given to environmental, socioeconomic, cultural, and engineering feasibility. I have also considered the views of other interested agencies, organizations, and individuals. The environmental effects have been coordinated with the U.S. Fish and Wildlife Service, California State Historic Preservation Officer, the California Department of Fish and Game, the Department of Water Resources, the Central Valley Flood Protection Board, and the Sacramento Area Flood Control Agency.

Construction of site R10 is anticipated to take place in the summer of 2013. Construction-related activities would take place for approximately three months, including approximately eight weeks for the construction of the cutoff wall across the Watt Avenue Bridge. Temporary, progressive lane closures of the Watt Avenue Bridge and adjoining recreational trail would occur during cutoff wall construction. Impacts to recreation and traffic would be minimized through night construction, and noise impacts due to the night construction would be mitigated through the distribution of hotel vouchers to the residents immediately adjacent to the construction area as requested. Public meetings would be scheduled with affected residents to ensure they are informed of the project schedule, its potential effects, and policies regarding vouchers. Material hauling and other construction that does not involve the Watt Avenue Bridge would be conducted during regular work hours. Detour routes, public coordination, and best management practices would further reduce impacts to traffic and recreation. Avoidance measures would be used to reduce potential impacts to less than significant on sensitive species. Best management practices, avoidance protocols, and minimization and mitigation measures would be utilized during construction to reduce effects related to sensitive biological resources, air quality, water quality, cultural resources, noise, and utility systems. All areas disturbed by construction would be restored to pre-construction conditions.

Based on my review of the EA/IS and my knowledge of the project area, I have determined that the proposed levee repair work, including access routes and staging areas, would have no significant, long-term effects on environmental or cultural resources. Based on these considerations, I am convinced that there is no need to prepare an environmental impact statement. Therefore, an EA and Finding of No Significant Impact provide adequate environmental documentation for the proposed action.

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Date

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William J. Leady, P.E.  
Colonel, U.S. Army  
District Engineer

**PROPOSED MITIGATED NEGATIVE DECLARATION  
AMERICAN RIVER WATERSHED COMMON FEATURES PROJECT IN  
SACRAMENTO, CALIFORNIA  
LOWER AMERICAN RIVER COMMON FEATURES AS MODIFIED BY  
WATER RESOURCES DEVELOPMENT ACT OF 1996  
REMAINING SITES  
SITE R10**

Project Background

In 1998, the U.S. Army Corps of Engineers (Corps), the Central Valley Flood Protection Board (Board) (at the time named the Reclamation Board) and Sacramento Area Flood Control Agency (SAFCA) began work on features to strengthen the existing levees along the lower American River as authorized by Water Resources Development Act (WRDA) of 1996. Slurry walls were constructed to prevent through- and under-seepage of the levees in 2000-2002.

This work left gaps in the slurry wall because of various infrastructure complications. These have been compiled into nineteen sites divided into four phases. The Environmental Assessment/Initial Study (EA/IS) for the Lower American River Common Features as Modified by Water Resources Development Act (WRDA) of 1996, Site R10 (Project) discusses the environmental issues and potential project impacts of the project, and provides mitigation measures to reduce impacts to a less than significant level. The potential impacts and mitigation measures are incorporated into this Mitigated Negative Declaration.

Previous environmental documentation includes the 1996 American River Watershed Supplemental Information Report and Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/SEIR), and Environmental Assessments/Initial Studies with Findings of No Significant Impact and Mitigated Negative Declarations for the separate stages of the 2000-2002 slurry wall construction.

In 2002, USACE completed an inventory of "gaps" in the original slurry wall project and reduced the inventory to 19 individual sites on the American and Sacramento rivers. One site is located near RM 62 on the east bank of the Sacramento River, and the remaining 18 sites are located from RM 3 to RM 10 on the north bank of the American River and from RM 0.1 to RM 10 on the south bank of the American River. Although the sites were already evaluated in the 1996 SEIS/SEIR, they were compiled under the title of the Lower American River Common Features WRDA 96 Remaining Sites Project. These sites were initially separated into phases based on initial geotechnical evaluations regarding risk of levee failure, with the Phase 1 sites having the highest risk. Construction of Phase 1 (four sites) began in 2009 and is scheduled to be completed in 2012; Phase 2A (two sites) was completed in 2010. The scheduling and implementation of the remaining sites is based on considerations including

obtaining additional geotechnical data, complexity of design (based on original reasons for excluding the site), real estate issues, and the availability of funding. These sites are currently in the design stage and are proposed to be constructed in 2013 and 2014. This document focuses on Site R10, which is scheduled for construction in the summer of 2013.

### Project Location

The Project is located near RM 9.0 on the right (north) bank of the American River at the Watt Avenue Bridge. The Project extends 400 linear feet.

### Project Description

The project would involve constructing multiple jet-grout columns to create a cutoff wall to a depth of approximately 50 feet. The cutoff wall will extend 15 feet beyond existing slurry walls to provide overlap.

### Potential Impacts

#### *Recreation*

Construction would involve progressive closures of the Watt Avenue Bridge. As a result, recreationists crossing the American River at Watt Avenue Bridge would be directed to the side of the bridge away from construction. Informational and detour signs would be posted upstream and downstream of the access points, as well as at the Guy West Bridge access, the Howe Avenue Bridge access, the recreational bridge at River Bend Park access, and the Sunrise Bridge access.

These impacts will be mitigated by:

- Commencing construction related closures at night;
- Posting warning and restricted access signs before and during construction;
- Enclosing all construction areas, including staging areas with security fencing;
- Posting a security guard at the site during non-work hours for the duration of construction;
- Covering all trenches that remain open outside of work hours with steel plates lain across the top to prevent anyone from falling into a trench;

- Conducting public outreach through mailings, public meetings, and Internet sites; and
- Coordinating with the Sacramento Area Bicycle Advocates (SABA), local residents, businesses, and other interested groups to keep the public and local bicycle groups informed of the effects to the Watt Avenue Bridge and recreational trails, as well as the timing of the closure and proposed detour routes.

Implementation of these mitigation measures will reduce impacts to less than significant.

#### *Vegetation and Wildlife*

No trees or shrubs are expected to be removed as a part of this project. Trees and shrubs within the construction footprint would be protected in place with temporary fencing placed at one and a half times the distance of the dripline of each tree or shrub from its trunk, when possible. Any trees that require trimming would be trimmed under the observation of a qualified arborist. Any trees that must be removed would either be replaced with like species or with native tree species, such as valley oaks and sycamores, which would enhance the quality of the environment.

Vegetation removed due to construction activities would be restored through reseeded. Mitigation measures would follow with the recommendations provided by USFWS under the Fish and Wildlife Coordination Act. Coordination with USFWS is ongoing. The mitigation measures would be conducted near the areas that the vegetation was removed. Mitigation measures would reduce impacts to less than significant.

#### *Fisheries*

Construction is not expected to adversely affect fish species or their associated habitats; however, there is potential for fugitive dust and construction runoff to enter the American River. The effects to would be less than significant, however, mitigation measures for water quality would be implemented to avoid potential impacts.

The following BMPs will be employed to mitigate these impacts:  
Mitigation measures:

- No fill material, including bentonite, would be placed into any waters of the U.S., including wetlands;
- Should any accidental discharge of bentonite slurry occur, all excavation and filling activities would be halted immediately, -site clean up would

conducted and appropriate Federal, State, and local agencies would be notified immediately. The time, duration, length of contamination, river flow, and volume of slurry spill would be recorded and presented to the appropriate agencies in a report within 30 days of the discharge;

- Stockpiling of construction materials, vehicles, equipment, and any chemicals would be restricted to the designated construction areas and staging areas, exclusive of any riparian, waterside, or wetland area;
- Any spill of hazardous materials would be cleaned up immediately and reported to the resource agencies within 24 hours. Any such spills, and the success of the cleanup efforts to clean them, would be reported; and
- If requested by a resources agency during or upon completion of construction activities, the USACE biologist would accompany resource agency personnel on an on-site inspection tour to review project impacts and revegetation efforts.

With the BMPs in place, this project is expected to have no effect on fisheries, fish habitat or shaded riverine aquatic cover habitat; therefore, impacts would be considered less than significant.

#### *Special Status Species*

##### Valley Elderberry Longhorn Beetle (VELB)

No elderberry shrubs were found within 100 feet of the Site R10 construction footprint; however, there are elderberry shrubs within 100 feet of the haul route and staging areas. USFWS has recommended that a 100-foot buffer zone around elderberry shrubs be maintained to avoid indirect effects to the VELB.

The implementation of this mitigation measure will reduce any impact to VELB to less than significant.

#### *Sensitive Raptors*

**Swainson's hawk, white-tailed kite and Cooper's hawk may be present in the area and may nest near the construction site.** Prior to the onset of construction, biological surveys for the presence of nesting raptors (white-tailed kites, Swainson's hawks, and Cooper's hawks) would be conducted within one-half mile of the proposed construction area. If a survey determines that a nesting pair is present, USACE would coordinate with CDFG. To avoid potential effects to nesting raptors, CDFG typically requires the avoidance of nesting sites during construction activities and/or avoiding construction during the nesting season. If construction activities are determined to be necessary during the nesting season, then an on-site biologist/monitor experienced with raptor behavior would monitor the nest while construction-related activities are taking place. If raptors exhibit

agitated behavior in response to construction-related activities, the biological monitor would have the authority to stop work and would consult with CDFG to determine the best course of action necessary to avoid nest abandonment or take of individuals. The proposed mitigation measures would reduce the effects on white-tailed kites, Swainson's hawks, and Cooper's hawks to less than significant.

#### *Bank Swallow*

Bank Swallow. Prior to the onset of construction, biological surveys for the presence of bank swallows would be conducted within one-half mile of the proposed construction areas. Two weeks prior to the onset of construction, biological surveys would be conducted in order to confirm the results from the previous surveys. If a survey determines that a nesting colony is nearby, USACE would coordinate with CDFG and the proper avoidance and minimization measures would be implemented. With the implementation of CDFG's avoidance and minimization measures, there would be no effect on bank swallows.

#### *Central Valley Steelhead*

Central Valley Steelhead, Central Valley Spring-run Chinook Salmon, and Sacramento River Winter-Run Chinook Salmon. Construction of levee improvements may potentially indirectly affect the Central Valley steelhead, the Central Valley winter-run Chinook salmon, or their associated critical habitats from fugitive dust and construction runoff to the American River. No in-water work would occur. No riparian habitat or SRA would be removed. No trees at, or near, the banks of the river would be removed. The potential for fugitive dust and construction runoff to enter the water would be minimized through mitigation measures proposed under Air Quality (Section 3.2.5) and Water Quality and Resources (Section 3.2.7) through sediment control, erosion control, and dust abatement. The contractor would be required to develop and submit a SWPPP to minimize the potential for soil or other contaminants to enter the river. The contractor would also be required to develop and submit a SPCP prior to initiating construction activities. The SWPPP and SPCP must be approved by USACE. The proposed mitigation measures would reduce the effects on the Central Valley steelhead, the Central Valley spring-run Chinook salmon, and the Sacramento River winter-run Chinook salmon to less than significant.

Prior to ground disturbance, all on-site construction personnel would be given instruction regarding the presence of sensitive species and the importance of avoiding these species and their habitats. Mitigation measures would follow with the recommendations provided by USFWS and CDFG. These mitigation measures, as a requirement of ESA compliance, would reduce the effects on sensitive species to less than significant.

#### *Air Quality*

Combustion emissions would result from the use of construction equipment, truck haul trips to and from the borrow sites, and worker vehicle trips to and from the

construction site. The contractor would submit a list of vehicles to be used in the construction project for approval by USACE and SMAQMD. SMAQMD would approve the list only if the total fleet emissions would meet a 20% reduction in NO<sub>x</sub> and a 45% reduction in PM<sub>10</sub> in comparison to the state fleet emissions average. In order to achieve the required reductions in emissions, the following construction mitigation procedures would be followed, in accordance to the SMAQMD Recommended Mitigation for Reducing Emissions from Heavy-Duty Construction Vehicles (Appendix B):

- Maintain properly functioning emission control devices on all vehicles and equipment;
- Use diesel-fueled equipment manufactured in 2003 or later, or retrofit equipment manufactured prior to 2003 with diesel oxidation catalysts; use low-emission diesel products, alternative fuels, after-treatment products, and/or other options as they become available;
- Repair immediately, any equipment found to exceed 40 percent opacity (or Ringelmann 2.0), USACE and SMAQMD would be notified within 48 hours of identification of non-compliant equipment; and
- Reduce to zero, any remaining emissions over the NO<sub>x</sub> threshold through the payment of a mitigation fee. The cost of reducing one ton of NO<sub>x</sub> as of September 1, 2011 is \$16,640 (\$8.32/lb) (SMAQMD, 2011). On March 30, 2012, CARB announced its revised rate, which is \$17,080 (\$8.54/lb). This revised rate would apply to all environmental documents released for Public Review on or after July 1, 2012. The contractor would be responsible for payment of any required mitigation and administrative fees.
- At least 48 hours prior to the use of subject heavy-duty off-road equipment, the contractor would provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Full mitigation program language is located in Appendix B of attached EA/IS.

Implementation of the BMPs listed below would reduce air quality degradation caused by dust and other contaminants:

- Implement all appropriate dust control measures, such as tarps or covers on dirt piles, in a timely and effective manner during construction;
- Periodically water all construction areas having vehicle traffic, including unpaved areas, to reduce generation of dust. Application of water would not be excessive or result in runoff into storm drains;

- Sweep paved streets adjacent to construction sites, as necessary, at the end of each day to remove excessive accumulations of soil or dust;
- Cover all trucks hauling dirt, sand, soil, or other loose material, or maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114. This provision would be enforced by local law enforcement agencies; and
- Revegetate or pave areas cleared by construction in a timely manner to control fugitive dust.

Any effects to air quality would be temporary, and mitigation measures would reduce impacts to less than significant.

### *Climate Change*

There would be no increase of long-term emissions (permanent sources) of greenhouse gases from this project. Long-term emissions would be the same with or without the project; maintenance emissions would be the same, and the slurry wall itself has no net long-term emissions. This project does not conflict with any statewide or local goals with regard to reduction of GHG.

BMPs and implementation of the standard construction mitigation measures as recommended by SMAQMD (Appendix B of EA/IS) would reduce greenhouse gas emissions through the same processes that reduce total NO<sub>x</sub> and PM<sub>10</sub> emissions.

### *Water Resources and Quality*

To prevent sediments from escaping the site and entering the American River, k-rails draped with visqueen would serve as the primary sediment control measure at the top of the levee in the work areas, and silt fences would be installed at the toe of the levee to serve as a secondary sediment control measure. There are two staging areas proposed for the construction of Site R10: one in a landside parking lot and the other on the waterside bench. All jet-grout components (cement/bentonite) would be stored in the landside parking lot, and cuttings would be transported away from the project area to holding areas in the landside parking lot. No liquids would be disposed into the American River.

The contractor would be required to obtain a National Pollution Discharge Elimination System permit from the Regional Water Quality Control Board (RWQCB), Central Valley Region. As part of the permit, the contractor would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP) and a Spill Preventions and Countermeasure Plan (SPCP) prior to initiating

construction activities, identifying BMPs to be used to avoid or minimize any adverse effects during construction to surface waters.

The following BMPs would be incorporated into the project:

- Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on haul roads, construction areas, and stockpiles;
- Properly dispose of oil or other liquids;
- Fuel and maintain vehicles in a specified area that is designed to capture spills. This area cannot be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water.
- Fuels and hazardous materials would not be stored on site;
- Inspect and maintain vehicles and equipment to prevent the dripping of oil or other fluids;
- Schedule construction to avoid the rainy season as much as possible. Ground disturbance activities are expected to begin in the summer of 2013. If rains are forecasted during construction, additional erosion and sedimentation control measures would be implemented;
- Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event;
- Train construction workers in storm water pollution prevention practices; and
- Revegetate disturbed areas in a timely manner to control erosion.

Since no significant adverse affects to groundwater or surface water resources are anticipated, no additional mitigation measures are required. Any effects to water quality would be temporary, and BMPs and proposed mitigation measures would reduce impacts to less than significant.

#### *Traffic and circulation*

Construction would require partial closures of some lanes of the Watt Avenue Bridge. In order to reduce the impact of construction on traffic, construction would only be performed at night. Between the hours of 10:00 pm to 11:00 pm, a minimum of two lanes would remain open on north and south bound sides of the bridge. Between the hours of 11:00 pm to 5:00 am, at least one lane would

remain open on north and south bound sides of the bridge. All lanes would remain open and unrestricted between the hours of 5:00 am and 10:00 pm. Although construction work impacting traffic on Watt Avenue would only occur during the hours of 10:00 pm and 5:00 am, site mobilization, preparatory work, and material hauling would occur between the hours of 7:00 a.m. to 4:00 p.m. All roadways would be restored to preconstruction conditions upon completion of the project; therefore, no significant deterioration of the roadways would occur.

In order to reduce the impacts of the project construction on traffic, mitigation measures have been incorporated into the design of the project. Coordination with the Sacramento County Department of Transportation (SACDOT) is ongoing. SACDOT mitigation measures include but are not limited to the following requirements:

- Notify the public with changeable message signs at a minimum of 7 days prior to the lane restrictions, and notify the media 14 days prior to the lane restrictions. Other requirements will be further evaluated during the traffic control plan review period;
- Working hour lane restrictions for maintaining a minimum of 2 lanes in each direction between the hours of 10:00 pm to 11:00 pm and a minimum of 1 lane open in each direction between the hours of 11:00 pm to 5:00 am. All lanes would remain open and unrestricted between the hours of 5:00 am and 10:00 pm;
- Structural details for repair of the approach slab and bridge appurtenances shall be submitted to SACDOT for review and approval as part of the encroachment permit;
- The existing overlay material over the slab is composed of rubberized asphalt. The material shall be replaced in kind with rubberized asphalt. To reduce visual color contrast between the new and old rubberized asphalt, it is required to slurry seal longitudinally on either side of the trench line and for full width of Watt Avenue. The longitudinal length on each side of the trench will be determined by SACDOT during the structural plan review;
- Replacement concrete will match the existing colors of concrete sidewalk, curb and barriers as closely as possible to minimize visual color contrast between the new and old concrete; and
- Mechanical rebar splicing systems shall be used in place of lap splicing systems to restore the load path continuity of the structural reinforcement in the slab.

In addition to the SACDOT requirements, the contractor would be required to develop a Traffic Control Plan, which would be reviewed and approved by the City of Sacramento, Sacramento County, SACDOT, and USACE prior to construction. This plan would include the following measures:

- Construction vehicles must not block any roadways or private driveways;
- Access will be provided for emergency vehicles at all times;
- Haul routes will be selected to avoid schools, parks, and high pedestrian use areas when possible. Crossing guards provided by the contractor would be used when truck trips coincide with schools hours and when haul routes cross student travel path;
- All speed limits, traffic laws, and transportation regulations will be obeyed during construction. If speed limits are not posted, construction vehicles would not exceed 15 miles per hour on unpaved levee roads;
- Signs and flagmen will be used, as needed, to alert motorists, bicyclists, and pedestrians to avoid conflict with construction vehicles or equipment;
- Flagmen would be used at each roadway that crosses the levee to safely circulate traffic through the construction site;
- Separate entrances and exits to the construction site will be used when possible;
- Construction employee parking would be restricted to the designated staging areas;
- Closure of levee roads, construction sites, and public access areas for construction use would be clearly fenced and delineated with appropriate closure signage; and
- Use traffic barricades with flashing lights where pedestrian and driver safety is endangered in the area of removal work, Anchor barricades in a manner to prevent displacement by wind. Notify the Contracting Officer prior to beginning such work.

Conduct public outreach (including public meetings) to inform the local residents, businesses, and media of the type of construction, the duration of construction, and expected impacts at least two weeks prior to mobilization for construction. Hours of construction would be clearly marked with signs prior to construction, and detour routes would be clearly marked. The proposed mitigation measures would reduce the effects on traffic and circulation to less than significant.

## *Noise and Vibration*

Construction activity noise levels at and near the construction areas would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used.

The following measures would be implemented to reduce the adverse effects on noise as much as possible:

- Minimize construction equipment noise would be by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by shrouding or shielding impact tools;
- Turn off all equipment, haul trucks, and worker vehicles when not in use for more than 30 minutes;
- Notify residences and businesses about the type and schedule of construction at least two weeks prior to mobilization; and
- Conduct site mobilization, preparatory work, and material hauling during regular work hours, between the hours of 7:00 a.m. to 4:00 p.m.

Noise impacts due to night construction would be mitigated through the distribution of hotel vouchers to the residents adjacent to the construction area. Public meetings would be scheduled with affected residents prior to construction to ensure they are informed of the project schedule, its potential effects, and policies regarding vouchers. Discussions with Sacramento County on noise variances are ongoing.

Construction is scheduled to be completed within eight weeks. Due to the short nature of the construction and the proposed mitigation measures, the impact after mitigation is less than significant

## *Light*

In order to reduce the effects of light and glare due to the night construction, BMPs would be implemented including, but not limited to:

- Floodlights would be shielded to reduce "spillage" of light to unintended areas; and
- Lights would be utilized only in those areas required for construction and worker safety.

After completion of construction, the site would be restored to preconstruction conditions. The reconstructed levee would remain consistent with the preconstruction visual resources of the project area and therefore would not significantly change the existing visual characteristics of the area. All areas impacted by the project would be revegetated and restored to remain consistent with preconstruction conditions. Any effects to visual resources would be temporary, and the BMPs and the mitigation measures listed in the EA/IS would reduce impacts to less than significant.

Findings

Based on the information in the Environmental Assessment and Initial Study for the American River Watershed Common Features Project Lower American River Features as Modified by the Water Resources Development Act of 1996, Site R10 and the entire record, the Central Valley Flood Protection Board finds that although the Project could have a significant impact on the environment, mitigation measures have been incorporated into the Project that reduce these impacts to less than significant.

By: \_\_\_\_\_ Date: \_\_\_\_\_  
William Edgar  
President

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Jane Dolan  
Secretary

**DRAFT  
ENVIRONMENTAL ASSESSMENT/  
INITIAL STUDY**

**AMERICAN RIVER COMMON FEATURES  
WRDA 96 REMAINING SITES  
SITE R10**

**JUNE 2012**

**U.S ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT**

**THE CENTRAL VALLEY FLOOD PROTECTION BOARD  
STATE OF CALIFORNIA**

**SACRAMENTO AREA FLOOD CONTROL AGENCY  
SACRAMENTO, CALIFORNIA**

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3. Haul Route Map for Site R10
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- A. Correspondence Regarding Special Status Species
- B. Construction Emissions Estimates using the Road Construction Emissions Model, Version 6.3.2
- C. Correspondence Regarding Cultural Resources
- D. U.S. Fish and Wildlife Planning Aid Letter

## Acronyms and Abbreviations

AAQS	ambient air quality standards
APE	area of potential effects
ARFCD	American River Flood Control District
BMP	best management practice
CAR	Coordination Act Report
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNDDDB	California Natural Diversity Database
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalent
County Parks	Sacramento County Department of Regional Parks
CVFPB	Central Valley Flood Protection Board
cy	cubic yards
dB	decibels
dBA	A-weighted decibels
DWR	Department of Water Resources
EA/IS	Environmental Assessment/Initial Study
EFH	essential fish habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EM	Engineer Memorandum
EPA	Environmental Protection Agency
ESA	Endangered Species Act
°F	degrees Fahrenheit
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
GHG	greenhouse gas
HTRW	hazardous, toxic, and radioactive waste
Ldn	day-night sound level
NEMDC	Natomas East Main Drainage Canal
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO <sub>x</sub>	nitrogen oxide
OSHA	Occupational Safety and Health Administration
PM <sub>2.5</sub>	particulate matter less than 2.5 microns in diameter
PM <sub>10</sub>	particulate matter less than 10 microns in diameter
RM	river mile
ROD	Record of Decision
ROG	reactive organic gas

RWQCB	Regional Water Quality Control Board
SABA	Sacramento Area Bicycle Advocates
SAFCA	Sacramento Area Flood Control Agency
SEIS/EIR	Supplemental Environmental Impact Statement/Environmental Impact Report
SFNA	Sacramento Federal Ozone Nonattainment Area
SHPO	State Historic Preservation Officer
SIR	Supplemental Information Report
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Metropolitan Utility District
SO	sulfur oxides
SPCP	Spill Prevention and Countermeasure Plan
SRA	shaded riverine aquatic (Habitat)
SRBPP	Sacramento River Bank Protection Project
SWPPP	Storm Water Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VELB	valley elderberry longhorn beetle
WRDA	Water Resources Development Act

## **1.0 PURPOSE AND NEED FOR ACTION**

### **1.1 Proposed Action**

The U.S. Army Corps of Engineers (USACE) and the non-Federal sponsors, the State Central Valley Flood Protection Board (CVFPB) and the Sacramento Area Flood Control Agency (SAFCA), propose to construct slurry walls in order to strengthen the levees in the American River Watershed. The construction of slurry walls would prevent underseepage and through-seepage in the levee system along the American River in Sacramento, California. This action involves critical sites remaining from the Water Resources Development Act (WRDA) of 1996 congressional authorization for the American River Common Features Project.

At the time of original slurry wall construction between 2000 and 2002, conventional slurry wall construction techniques were complicated by appurtenances, utilities, or other features in the levees. Techniques have since been developed that make these sites feasible for current construction. The WRDA 96 American River Common Features Remaining Sites Project involves constructing slurry walls at these “remaining sites” in order to complete this system of previously constructed slurry walls (Plate 1). Although all sites are included in the WRDA 96 authority, each site has specific impacts that require additional assessment in order for construction to be implemented. The scheduling and implementation of the remaining sites is based on considerations such as obtaining additional geotechnical data, complexity of design (based on the original reasons for excluding the site), real estate issues, and availability of funding. The proposed action discussed in this Environmental Assessment/Initial Study (EA/IS) is to construct a cutoff wall at Site R10, which is located near river mile (RM) 9.0 on the American River (Plate 2).

The project design would meet Flood Risk Management requirements as defined by (1) current design criteria used to certify levees as providing 100-year flood protection under regulations adopted by the Federal Emergency Management Agency (FEMA); (2) design criteria under USACE Engineer Memorandum (EM) 1110-2-1913 used by USACE and CVFPB. The American River Common Features Project is needed to strengthen the existing levee system in order to withstand emergency releases from Folsom Dam of 160,000 cubic feet per second (cfs).

### **1.2 Location of the Project Area**

The WRDA 96 American River Common Features Remaining Sites, Site R10 Project is located near RM 9.0 on the right (north) bank of the American River at the Watt Avenue Bridge, Sacramento, California (Plate 2).

### **1.3 Background and Need for Action**

The levees in the Lower American River basin were originally constructed by USACE in 1955 to 1956, coinciding with the construction of Folsom Dam. The levees were designed to contain a controlled flow of 115,000 cubic feet per second (cfs) from Folsom Dam. After construction of the levees, they were turned over to the State of California, where they are currently maintained through agreements with SAFCA. On-site levee maintenance is performed

by the American River Flood Control District (ARFCD) through further agreements with SAFCA.

Major storms in northern California caused record floodflows in 1986, 1995, 1997, 1998, and 2005 in the American River Basin. Outflows from Folsom Reservoir, together with high flows in the Sacramento River, caused water levels to rise above the safety margin for the levees protecting the Sacramento area. These major storms raised concerns over the adequacy of the existing flood management system, which led to a series of investigations into the need to provide additional protection for Sacramento.

In March 1996, USACE and CVFPB completed the Supplemental Information Report (SIR) and Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/EIR) for the American River Project. The SIR was undertaken to develop supplemental information to the American River Watershed Investigation, April 1991. The SIR evaluated an array of alternatives to provide increased flood risk management in the Sacramento area. The Chief of Engineers, in his June 27, 1996 report, deferred a decision on a comprehensive flood risk management plan. However, the Chief did recommend that the features common to all three proposed plans be authorized as the first component of a comprehensive flood risk management plan for the Sacramento area. These “common features” were authorized by Congress under WRDA 1996.

Included among these “common features” was slurry wall construction in order to stabilize about 24 miles of existing levees along the lower American River, as well as about one-half mile of existing levees along the Garden Highway along the lower Sacramento River. USACE signed the Record of Decision on the Common Features Project on July 1, 1997. Additional National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) documents were prepared, as required, as each of these project features were refined. A summary of these previous environmental documents is briefly discussed below in section 1.4.

In 1998, USACE began work on features authorized under WRDA 1996, which included the strengthening of existing levees along the lower American River (USACE, 1996). Subsequently, further modifications of the American River Common Features Project were authorized in the WRDA of 1999.

The slurry wall construction was conducted between 2000 and 2002. During project design, the Project Development Team determined that several logistical factors were complicating the contiguous slurry wall installation (utilities or appurtenances through the levee, abutments, overpasses, proximity of power distribution lines, etc.). These sites were set aside and the remaining slurry wall work was completed.

In 2002, USACE completed an inventory of “gaps” in the original slurry wall project and reduced the inventory to 19 individual sites on the American and Sacramento Rivers. One site is located near RM 62 on the east bank of the Sacramento River, and the remaining 18 sites are located from RM 3 to RM 10 on the north bank of the American River and from RM 0.1 to RM 10 on the south bank of the American River. Although the sites were already evaluated in the

1996 SEIS/EIR, they were compiled under the title of the Lower American River Common Features WRDA 96 Remaining Sites Project. These sites were initially separated into phases based on initial geotechnical evaluations regarding risk of levee failure, with the Phase 1 sites having the highest risk. Construction of Phase 1 (four sites) began in 2009 and is scheduled to be completed in 2012; Phase 2A (two sites) was completed in 2010. The rest of the sites are no longer categorized into phases; instead, scheduling and implementation of the remaining sites is based on considerations including obtaining additional geotechnical data, complexity of design (based on original reasons for excluding the site), real estate issues, and availability of funding. These sites are currently in design and are proposed to be constructed in 2013 and 2014. This document focuses on Site R10, which is scheduled for construction in the summer of 2013.

#### **1.4 Previous Environmental Documents**

This EA/IS focuses on Site R10 as part of the WRDA 96 American River Common Features Remaining Sites Project. The following documents are relevant to the proposed action and are briefly described below:

- The American River Watershed Investigation, Feasibility Report and EIS/EIR was issued in April 1991 and included the results of studies on flooding problems along the American and Sacramento Rivers in the greater Sacramento area.
- The American River Watershed Project, California, Final Supplemental Information Report and SEIS/EIR was completed in March 1996 (1996 SEIS/EIR). This report supplemented the December 1991 Feasibility Report for the American River Watershed Investigation.
- The Streambank Protection for the Lower American River Final SEIS/EIR for the Sacramento River Bank Protection Project was completed February 1998. This document analyzed the impacts of bank protection on eroding sites within the American River Parkway.
- The EA/SEIR, American River Project, Lower American River Slurry Wall, North Bank, was completed in June 1998. This document updated environmental documentation and disclosed any changes since the 1996 SIR and SEIS/EIR. Staging areas and borrow and disposal sites were also addressed in this document.
- The EA/IS, American River (Common Features) Project, Lower American River Slurry Wall South Bank and Lower American River Flood Warning System Modification was prepared in August 1999. This document updated environmental documentation and disclosed any changes since the 1996 SIR and SEIS/EIR with regard to slurry wall construction along the north bank. Construction accesses, staging areas, and borrow and disposal sites were also addressed in this document.
- The EA/IS, American River Common Features Remaining Sites Project, Phase 1 was prepared in August 2009. This document assessed potential impacts and mitigation for

the construction of slurry walls at Sites R1, R5, R6, and L12 of the Remaining Sites project.

- The EA/IS, American River Common Features Remaining Sites Project, Phase 2A was prepared in May 2010. This document assessed potential impacts and mitigation for the construction of slurry walls at Sites R8 and L8 of the Remaining Sites project.

## **1.5 Authority**

The proposed levee work is part of the ongoing American River Watershed Common Features project. Authorization for the Remaining Sites project is provided by Section 101 of the Water Resources Development Act of 1996 (Public Law 104-303).

## **1.6 Purpose of this Document**

This EA/IS (1) describes the existing environmental resources in the project area, (2) evaluates the environmental effects of the alternatives on these resources, and (3) identifies measures to avoid or reduce any effects to less than significant. This EA/IS has been prepared in accordance with NEPA and CEQA.

## **1.7 Decisions Needed**

The District Engineer, commander of the Sacramento District, must decide whether or not the proposed levee work qualifies for a Finding of No Significant Impact (FONSI) under NEPA or whether an EIS must be prepared. Under NEPA, preparation of an EIS is triggered if a Federal action has the potential to “significantly affect the quality of the human environment” which is based on the context and intensity of each potential impact. Additionally, CVFPB must decide if the proposed action qualifies for a Mitigated Negative Declaration under CEQA or whether an EIR must be prepared.

## **2.0 ALTERNATIVES**

### **2.1 Alternatives Eliminated from Further Consideration**

The topographic and metropolitan features of the project area limit alternative project options. The project area is situated in a narrow corridor between the American River Parkway and Sacramento area businesses, neighborhoods, and other residential features. The purpose of the project is to improve flood risk management in these residential areas by improving the levees to meet current USACE standards.

Among the initial alternatives proposed was a cutoff wall constructed at the waterside toe of the levee. This proposed cutoff wall would have required excavating under the Watt Avenue Bridge approximately 15 feet below surface level to allow sufficient clearance for the construction, as well as degrading the existing levee on either side of the Watt Avenue Bridge. In order to connect the cutoff wall to the main levee system, a clay cap of impervious fill would

have been constructed between the waterside toe and the levee. This alternative was eliminated from further consideration due to the larger footprint of construction and increased environmental impacts.

Rather than strengthening the levees at this site, other alternatives that could be considered include setting back the levee in order to widen the flood plain. This alternative is not a feasible option because of the current proximity of the levee to local residential and business areas. The Sacramento region is a highly developed, urbanized area with many residences and businesses immediately adjacent to the levee easement. There is currently no open land available within the project area for constructing a setback levee, and the costs of acquiring land for a setback levee far exceeds the cost of levee strengthening. Additionally, prior slurry wall construction and the need to fill in the gaps in its construction precludes setting back the levees as a viable engineering solution.

Another option includes protecting the residential properties themselves to prevent flood damages. Considering the high population within the flood plain and the number of houses that would need to be flood-proofed, this alternative is considered extremely costly and was eliminated from further consideration.

## **2.2 No Action Alternative**

NEPA requires that the lead agency, USACE, present a “no action” alternative that establishes the baseline conditions against which the action alternatives are compared. Under this alternative, USACE would not participate in improving the levee at this site and levee conditions would remain the same. The levee would continue to be operated and maintained by local levee maintenance districts. The levee would not meet the current standard requirements in EM 1110-2-1913 for USACE levees, and would not safely pass an emergency release of 160,000 cfs with three feet of freeboard. In extreme flooding conditions, the site would remain a potential hazard for levee underseepage. Excessive underseepage would undermine the integrity of the levee, and emergency floodfighting activities may be taken to prevent flooding in the possible event of levee failure.

## **2.3 Proposed Levee Improvements at Site R10**

This section describes a discussion of features, construction details, staging and stockpile areas, borrow and disposal sites, construction workers and schedule, restoration and cleanup, and operation and maintenance for the proposed construction at Site R10.

### **2.3.1 Features**

Site R10 is located near RM 9.0 on the right (north) bank of the American River at the Watt Avenue Bridge. The site extends for approximately 400 linear feet under the bridge (Plate 2). The proposed repair work for this site involves constructing a cutoff wall through the levee under the Watt Avenue Bridge using jet-grout construction techniques. Construction-related activities would take place for approximately three months, including approximately eight weeks for the construction of the cutoff wall across the Watt Avenue Bridge. Temporary,

progressive lane closures of the Watt Avenue Bridge and adjoining recreational trail would occur during cutoff wall construction. The construction of Site R10 is anticipated to take place in the summer of 2013.

### **2.3.2 Construction Details**

Jet Grout Construction. Jet grout construction involves injecting fluids and binders into the soil at very high pressures. The process involves drilling a hole straight down into the levee to a depth of approximately 50 feet, then injecting air, water, and grout into the hole through a high-pressure nozzle. As the fluid is injected from the bottom to the top of the hole, the high pressure excavates the soil around the nozzle to a radius of four to six feet. The nozzle is rotated and lifted at a slow, smooth constant speed to achieve thorough mixing and consistent quality. The grout then solidifies to create a column of low permeability. Multiple columns constructed together create a wall through the levee that prevents seepage. The jet grout cutoff wall would extend 15 feet beyond the existing slurry walls to provide an overlap. The total length of cutoff wall to be installed on the project is 400 feet.

Test-grout Section. Prior to the onset of construction, a test-grout section would be conducted within the levee in order to determine the proper mix of cement for the jet-grout construction. This testing would take place on the levee crown east of the Watt Avenue Bridge. The bridge itself would not be affected; however, the recreational access on the east side of the Watt Avenue Bridge would be temporarily closed. Jet-grout construction would be conducted for approximately six days. After this jet-grout section has completely dried, it would be tested over a three day time period using a drill-boring method in order to determine the strength and consistency of the jet-grout construction. All construction associated with the test-grout section would occur between 7:00 a.m. to 6:00 p.m., Monday through Friday.

Watt Avenue Bridge Section. The main portion of the construction at Site R10 would involve the temporary, progressive closure of portions of the Watt Avenue Bridge and adjoining recreational trail over an eight week period. Construction would consist of three components: the construction of a tailings trench to transport the jet grout spoils off the top of the bridge, jet-grout construction across the bridge, and restoration of the roadway. Construction requiring the closure of traffic lanes on the Watt Avenue Bridge would be conducted at night between the hours of 10:00 p.m. to 5:00 a.m., Monday through Sunday. Residences, businesses, commuters, and other interested parties would be notified of the lane closures associated with the levee strengthening project. Signs would be posted at least two weeks prior to mobilization for construction. All construction areas would be fenced off to limit access, including the staging area. Security fencing would be installed on the land side of the project site adjacent to the residential property lines for site safety and security. Lane closures would be clearly marked to direct traffic around the construction area. Effects on traffic and mitigation measures are further discussed in Traffic and Circulation, section 3.2.8.

Access and Staging. Access to the project area would be from American River Drive. Two access points are anticipated. The first access point is upstream of the project area, at Pump Station 151, which is owned and operated by the City of Sacramento. A second access point

would be made available from Moffat Way downstream of the work area (Plate 3). Haul routes and traffic details are discussed in Traffic and Circulation, section 3.2.8.

At the time of this writing, the proposed staging areas would be located in the Teichert Gravel Company main parking lot, as well as in areas adjacent to the American River Recreational Trail under the Watt Avenue Bridge (Plate 4). Construction materials, equipment, topsoil, and excess material would be temporarily stored in the parking lot staging area during the construction period. It would also provide a parking location for construction workers.

Construction Workers and Schedule. Due to the high day time traffic volumes on the Watt Avenue Bridge, all construction work directly affecting the bridge would be done at night. Night work hours would be between 10:00 p.m. to 5:00 a.m., Monday through Sunday. Construction work that would not involve closing traffic lanes on the bridge, including the test-grout section, would be performed during regular work hours between 7:00 a.m. to 6:00 p.m., Monday through Friday. An estimated 10 to 20 workers would be onsite during construction. These workers would access the area via regional and local roadways and park their vehicles in the staging area. Construction-related activities are anticipated to occur in the summer of 2013 for approximately three months.

Site Preparation. Prior to the onset of construction, biological surveys for the presence of special status species would be conducted in conjunction with the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG). Two weeks prior to the onset of construction, biological surveys would be conducted in order to confirm the results from the previous surveys. Any special status species observed would require consultation with USFWS and CDFG. Appropriate avoidance protocols would be used to protect all elderberry shrubs observed within 100 feet of construction. All trees within 100 feet of the construction area would be tagged and fenced off at a minimum distance of one and one-half times the dripline. K-rail draped with visqueen would be placed as the primary sediment control on the levee crown, and silt fencing would be installed at the toe of the levee as a secondary sediment control. Silt fencing would also be placed around the construction area, including the levee crown, staging area, and required access routes. No liquids would be disposed of into the American River. Environmental effects and mitigation measures associated with special status species are further discussed in Special Status Species, section 3.2.4.

Jet-grout spoil materials resulting from the construction would be transported to drying ponds in the staging area prior to transportation off-site. All non-useable material would be disposed of by the contractor at a site approved in writing by USACE. Removed material would total approximately 2,000 cubic yards (cy). Additional material would be brought in for the reconstruction of the asphalt crown on the bridge. Stockpiles of material temporarily stored in the staging area would be kept covered in order to prevent impacts on air quality and water quality. These and other best management practices (BMPs) are further described in the mitigation measures proposed under Air Quality (Section 3.2.5) and Water Resources and Quality (Section 3.2.7).

### **2.3.3 Borrow and Disposal Sites**

Construction would remove approximately 2,000 cy of disposal material and require approximately 1,200 cy of imported borrow material. It is reasonable to assume that the material would be acquired from sites within 15 to 20 miles of the project site. Similarly, it is assumed that disposal sites for excess materials or spoils would be located within 15 to 20 miles of the project site. The contractor is responsible for determining the location of borrow and disposal sites; however, they must be approved in writing by USACE.

### **2.3.4 Restoration and Cleanup**

Once the levee work is completed, all equipment and excess materials would be transported offsite via neighborhood streets and regional highways. The barren earthen and levee slopes would be reseeded with native grasses to promote revegetation and minimize soil erosion. The construction areas, access ramps, and staging areas would be restored to pre-project conditions and reseeded as required. Finally, the work site and staging areas would be cleaned of all rubbish, and all parts of the work area would be left in a safe and neat condition suitable to the setting of the area.

### **2.3.5 Operation and Maintenance**

After construction is completed, responsibility for the project would be turned over to CVFPB, the non-Federal sponsor for the project. This would include operation, maintenance, repair, rehabilitation, and replacement of all project features. CVFPB would transfer these responsibilities to SAFCA, who would contract with ARFCD to operate and maintain the levee. Regular maintenance activities include mowing and spraying the levee slopes, controlling rodents, clearing the maintenance road, and inspecting the levee.

## **3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

This section describes the environmental resources in the project area, as well as any effects of the alternatives on those resources. The section is arranged by environmental resources.

### **3.1 Environmental Resources Not Considered in Detail**

Initial evaluation of the effects of the project indicated that there would likely be little to no effect on several resources. These resources are briefly discussed below to add to the overall understanding of the project area.

#### **3.1.1 Climate**

The climate of the area is characterized by cool, wet winters and hot, dry summers. The average yearly temperature for Sacramento is 61 degrees Fahrenheit (°F) with an average high of

74° F and an average low of 48° F. The hottest months are June through September and the coldest months are November through January (Weatherbase, 2011).

Most of the seasonal rainfall occurs in two or three of the winter months. Precipitation ranges from 16 to 20 inches on the valley floor. Annual precipitation occurs almost entirely during the winter storm season (November to April). The prevailing wind direction in the Lower American River basin is from the south and southeast from April to September and from the north from October to March.

Due to the small scale of the proposed project, there would be no effect on the climate in the project area; therefore, climate is not discussed in this document. Construction activities would emit airborne contaminants associated with climate change; these effects are addressed in Climate Change, section 3.2.6.

### **3.1.2 Topography, Geology, and Soils**

The lower American River area consists of low rolling foothills and flood plain areas near the confluence with the Sacramento River. The floor of the Sacramento Valley is generally flat and open with little natural relief. Flood control levees provide the only significant topographic relief in or near the project area.

Geologic formations underlying the Sacramento Valley include igneous, metamorphic, and sedimentary rock types, which range in age from pre-cretaceous to recent. The valley is situated on vast alluvial deposits that have slowly accumulated over the last 100 million years. The materials have been derived from the surrounding uplands; transported by major streams; and deposited in successive clay, silt, sand, and gravel layers on the valley floor.

The lower American River area is part of the Great Valley Geomorphic province of California. The broad valley is filled with erosion debris that originates from the surrounding mountains. Most soils in the area are recent alluvial flood plain soils consisting of unconsolidated deposits of clay, silt, and sand that occur as flood plain deposits. Fresh alluvium is deposited with each floodflow.

Sedimentation rates in the American River basin and adjacent river basins are relatively low due to limited development, shallow soils, a low rate of upstream erosion, and numerous containment basins. Estimates of the annual sediment yield range from 0.1 to 0.3 acre-feet per square mile. In 1995, only about 2 percent of the reserved sediment storage space in the reservoir had been filled since the completion of Folsom Dam in 1955 (USACE, 1996).

The levee improvements would not significantly change the topography or geography in the project area. The removal or import of soil material for the levee construction would not significantly affect the soil condition in the project area. Effects from soil erosion from construction activities and proposed mitigation measures are addressed in Water Resources and Quality, section 3.2.7.

### **3.1.3 Land Use and Socioeconomics**

The project area is located within the Sacramento metropolitan area. The predominant land uses in the area include residential areas, commercial areas, industrial areas, and public land maintained by the County of Sacramento. The levees to be strengthened protect the neighboring areas from flooding and also serve as a buffer between the waterway and these land uses. The project would not result in any long-term changes in land use or socioeconomics in the area. Upon project completion, land use would remain the same as that identified prior to construction. The residential developments adjacent to the levee would remain the same, and the staging areas would be returned to pre-project uses after construction. The proposed action would not impact an established community or conflict with any applicable land use regulations.

As directed in Executive Order 12898 (Environmental Justice), all Federal agencies must identify and address adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The proposed project would not have a disproportionately adversely effect any minority or low-income communities, and is in compliance with this executive order. All nearby residents would benefit equally because the project would reduce the risk of levee failure and possible catastrophic flooding to the local community.

## **3.2 Environmental Resources Evaluated in Detail**

Initial evaluation of the effects of the project indicated that there could be an effect on several resources. Sections 3.2.1 through 3.2.13 describe the existing conditions, effects, and when necessary, mitigation measures proposed to avoid, reduce, minimize, or compensate for any potential significant effects. In determining effects, the consequences of the proposed action are compared to the consequence of taking no action. Impacts are identified as direct, indirect, or cumulative. Cumulative impacts are addressed separately in section 5, Cumulative Impacts. Effects are assessed for significance based on significance criteria. The significance criteria used in this document are based on the checklist presented in Appendix G of the State CEQA Guidelines; factual or scientific information and data; and regulatory standards of federal, state, and local agencies. Short-term, long-term, and cumulative effects are relevant, whether analyzed directly or indirectly.

### **3.2.1 Recreation**

#### **Existing Conditions**

Site R10 is located along the right bank of the lower American River within the American River Parkway. The American River Parkway consists of a 5,000 acre regional park along the riparian corridor of the American River stretching from its confluence with the Sacramento River upstream to Folsom Lake. The Parkway is a valuable regional resource that attracts bicyclists, runners, walkers, horseback riders and rafters. The Sacramento County Department of Regional Parks (County Parks) is the agency with primary responsibility over the American River Parkway.

The Jedediah Smith Recreation Trail provides bicycle, pedestrian, and equestrian trails from Discovery Park to Folsom Lake, and is the primary recreational feature of the Parkway. The trail also connects with the Folsom Lake Trail, the Sacramento River Trail, and Old Sacramento State Historic Park. Many people use it daily to commute by bicycle into Downtown Sacramento.

### **Environmental Effects**

Basis of Significance. Effects to recreational resources are considered significant if construction would result in any of the following: (1) eliminate or severely restrict access to recreational facilities and resources; or (2) result in substantial long-term disruption of use of an existing recreation facility.

No Action Alternative. Under this alternative, the levee improvement project would not be constructed, and there would be no changes to the project area. The recreational trail and levee roads would remain open and would continue to be maintained by County Parks and ARFCD. However, the recreational trail and access to the American River could be severely damaged in the event of a flood or levee breach.

Proposed Levee Improvements. The construction of Site R10 would require the temporary closure of the portions of the American River Recreational Trail that are within the construction footprint. Recreationists travelling east-west on the Jedediah Smith Recreational Trail would be minimally affected by construction since the recreational trail would not be closed on the waterside toe of the levee. Recreationists crossing the American River at the Watt Avenue Bridge may be impacted during the progressive closures of the bridge and adjoining recreational trail.

Approximately one month prior to the levee construction involving the Watt Avenue Bridge, recreational access to the east side of the bridge would be closed for approximately six days for the construction of the test-grouting section. The Watt Avenue Bridge would not be affected by the test section, but all recreationists crossing the Watt Avenue Bridge would be detoured to the recreational trail on the west side of the Watt Avenue Bridge. All construction associated with the test grout section would occur during regular working hours between 7:00 a.m. to 6:00 p.m., Monday through Friday.

The main portion of construction would involve the temporary, progressive closure of portions of the Watt Avenue Bridge and adjoining recreational trail over an eight week period. This portion of the construction would be conducted during the night hours of 10:00 p.m. to 5:00 a.m., Monday through Sunday. During this portion of construction, the recreational trail crossing the Watt Avenue Bridge would also undergo progressive closures; for example, if construction is on the east side of the bridge the adjoining recreational trail on the east side of the bridge would also be closed. Recreationists crossing the bridge would be directed to the side away from the construction.

The levee maintenance roads adjacent to the recreational trail would be used as haul routes for trucks providing borrow material, resulting in the temporary closure of the levee

maintenance roads to recreationists. Access points into the adjacent residential areas would remain open; however, traffic control may be necessary for negotiating construction truck entry to the levee crown with along with recreationists entering the Parkway. Although no long term impacts to recreational resources are anticipated, short term effects associated with the construction process may have potentially significant effects unless mitigated.

### **Mitigation Measures**

Since the construction of Site R10 would involve progressive closures of the Watt Avenue Bridge, recreationists crossing the American River at the bridge would be directed to the side of the bridge away from construction. Informational and detour signage would be posted upstream and downstream of the access points, as well as at the Guy West Bridge access, the Howe Avenue Bridge access, the recreational bridge at River Bend Park access, and the Sunrise Bridge access.

In order to reduce the impacts of construction on recreation, Site R10 has been scheduled to begin construction after Eppie's Great Race (July 20, 2013). Construction involving partial closures of the Watt Avenue Bridge and adjoining recreational trail would occur at night, between the hours of 10:00 p.m. and 5:00 a.m. To ensure public safety, warning and restricted access signs would be posted before and during construction. In areas where recreational traffic intersects with construction vehicles, traffic control would be utilized in order to maintain public safety. All construction areas, including staging areas, would be enclosed with security fencing. A security guard would be posted at the site during non-work hours for the duration of construction. All trenches that remain open outside of work hours would be covered with steel plates lain across the top to prevent anyone from falling into a trench.

Public outreach would be conducted through mailings, public meetings, and Internet sites. Coordination with the Sacramento Area Bicycle Advocates (SABA), local residents, businesses, and other interested groups would keep the public and local bicycle groups informed of the effects to the Watt Avenue Bridge and recreational trails, as well as the timing of the closure and proposed detour routes. The 30-day Public Review would be conducted prior to construction. Copies of this draft EA/IS would be distributed to local libraries and agencies, as well as upon request to interested parties and individuals.

Any effects to recreation would be temporary, and the proposed mitigation measures would reduce impacts to less than significant. Therefore, no further mitigation measures would be required.

### **3.2.2 Vegetation and Wildlife**

#### **Existing Conditions**

There are 3 different types of vegetation communities in the project area: ruderal herbaceous, ornamental landscaping, and riparian forest and scrub. Other terrestrial cover types include non-vegetated cover such as access roads, parking structures, buildings, and other developed areas. These communities and associated wildlife are described below. Sensitive

native communities are considered native-diverse communities that are regionally uncommon or of special concern to Federal, State, and local resource agencies. The riparian forest and scrub habitat is considered a sensitive native community. Due to their local significance, native oak trees are separately addressed.

Ruderal Herbaceous. The ruderal herbaceous community is a native community that occurs in the project area. This community is located on the levee slopes and landside area between the levee and fences of the nearby residential homes. Areas of ruderal herbaceous community also occur in the waterside area between the levee and the American River.

This community is dominated by nonnative annual grasses such as ripgut brome (*Bromus diandrus*) and wild oat (*Avena fatua*), and forbs including horsetail (*Equisetum spp.*). Ruderal herbaceous communities provide cover, roosting habitat, and/or foraging habitat for resident and migratory birds (including raptors), small mammals, and reptiles.

The ruderal herbaceous community within the project area is predominantly limited to the grasses on the waterside slopes of the levee. The grasses occur as a result of restoration from previous levee projects, and are mowed as part of the maintenance program by ARFCD to reduce wildfire danger.

Ornamental Landscape. The Ornamental landscape community is a nonnative community that occurs within the project area primarily near residential homes and business areas. Most of the vegetation in this community is nonnative vegetation used to landscape lawns, backyards, and recreational fields. Vegetation type, height, and volume are managed by landowners and maintenance personnel. Some of this vegetation is trimmed by ARFCD during maintenance along the landside easement. This community provides nesting, cover, and/or foraging habitat for residential and migratory birds (including raptors), small mammals, and reptiles that have become adapted to urban areas.

Riparian Forest and Scrub. Riparian forest and scrub is a native community that occurs in the project area. This community consists of forested areas and underbrush habitat, including native and nonnative trees, shrubs, vines, and brush in a narrow band along the river. This community provides high quality habitat for birds, mammals, and reptiles as well as providing essential shaded riverine aquatic (SRA) habitat for fish species.

Native Oak Trees. The Sacramento County Ordinance, Chapter 19.12, Tree Preservation and Protection (Tree Preservation Ordinance), regulates the removal or disturbance of all species of oak trees native to Sacramento County. These species include valley oak, interior live oak, blue oak, oracle oak, and black oak. The ordinance applies to any native oak tree, as well as other species of trees in addition to oaks. Typically, only trees 6 inches in diameter at breast height or greater are protected (County of Sacramento Municipal Code, 9.12).

The City of Sacramento Protection of Trees Ordinance (City of Sacramento Municipal Code 12.56.060) protects trees of any size on public property, maintenance easements, or city streets from injury or destruction. Additionally, the City of Sacramento Heritage Tree Ordinance (City of Sacramento Municipal Code 12.64.020) protects trees of any species with a

circumference of 100 inches or more; California native oak, buckeye, and sycamore trees with a circumference of 36 inches or more; and trees of any species with a circumference of 36 inches or more in a riparian zone.

### **Environmental Effects**

Basis of Significance. A project would significantly affect vegetation and wildlife if it would: (1) significantly reduce the amount of native vegetation and wildlife habitat in the project area to a point that native wildlife could not live or survive in the project area, or (2) permanently remove or disturb sensitive native communities.

No Action. Under the no action alternative, the levees in all sites would continue to be maintained by local levee maintenance districts. Maintenance activities typically include mowing and spraying the levee slopes to regulate vegetation growth. Under this alternative, the proposed project would not be built. There would be no change to the native vegetation or wildlife in the project area; however, a levee breach in the project area or emergency actions taken to prevent flooding in the possible event of levee failure may result in loss of vegetation.

Proposed Levee Improvements. Construction at Site R10 would involve jet-grout construction techniques. This technique would involve the removal of portions of the levee crown in order to create a level working area; however, the removal of herbaceous vegetation from the levee slopes would be minimal. Construction activities may require minimal trimming of native oak and other large trees adjacent to the project area. Temporary displacement of local wildlife populations due to noise and increased human presence is likely to occur during construction activities. The effects to vegetation and wildlife are temporary and would be less than significant once the mitigation measures described below are implemented.

### **Mitigation Measures**

No trees or shrubs are expected to be removed as a part of this project. Trees and shrubs within the construction footprint would be protected in place with temporary fencing placed one and a half times the dripline of each tree or shrub, when possible. Any trees that require trimming would be trimmed under the observation of a qualified arborist. Any trees that must be removed would either be replaced with like species or with native tree species, such as valley oaks and sycamores, which would enhance the quality of the environment.

Grasses removed due to construction activities would be restored through reseeding. The reseeding mix would consist of native vegetation including California brome (*Bromus carinatus*), small fescue (*Vulpina microstachys*), and creeping wildrye (*Leymus triticoides*). Reseeded areas would be periodically monitored until 85% vegetation cover is achieved, or until May 1 of the year following the reseeding.

Effects associated with the trimming of trees and temporary removal of grasses would be less than significant. If any further vegetation removal were to occur, mitigation measures would follow with the recommendations provided by USFWS under the Fish and Wildlife Coordination Act. The USFWS Planning Aid Letter is included in Appendix D.

### 3.2.3 Fisheries

#### Existing Conditions

The lower 23 miles of the American River, including backwaters and dredge ponds, support at least 41 fish species, half of which are game fish. The Federally- and State-endangered Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), the Federally-threatened Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*), the Central Valley fall-run Chinook salmon (*Oncorhynchus tshawytscha*), and the Federally-threatened Central Valley steelhead (*Oncorhynchus mykiss*) are supported by the Sacramento and American River watersheds. Other notable species include the American shad, rainbow trout, striped bass, black bass, carp, Sacramento sucker, Sacramento splittail, and hardhead. The American River supports a mixed run of hatchery and naturally produced winter-run Chinook salmon. On average, tens of thousands of hatchery or naturally produced Chinook salmon return each year to spawn.

The project area is within the essential fish habitat (EFH) for the spring-run and winter-run Chinook salmon and the Central Valley steelhead. The Magnuson-Stevens Fishery Conservation and Management Act requires consultation with the National Marine Fisheries Service (NMFS) if a project action would potentially affect EFH. EFH is defined in the Magnuson-Stevens Act as "...those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity." As required by the Act, NMFS implemented regulations to provide guidance regarding EFH designation. The regulations further clarify EFH by defining "waters" to include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrates" to include sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" to mean the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding or growth to maturity" to cover a species' full life cycle.

#### Environmental Effects

Basis of Significance. An alternative would be considered to have a significant effect on fisheries resources if it would: (1) substantially interfere with the movement of any resident or migratory fish, (2) permanently remove or diminish EFH, or (3) involve discharges of material into waterways that would pose a hazard to fish.

No Action. Under the no action alternative, the levee improvement project would not be constructed. Current levee maintenance, recreation, and public activity would not change. Fish would continue to be affected by localized fishing and other water-based recreational activities. However, the possible event of levee failure may result in severe discharges of hazardous material into waterways that may result in fish mortality, as well as the degradation and loss of EFH.

Proposed Levee Improvements. Construction would not directly interfere with fisheries, including aquatic areas, underlying substrates or associated biological communities. The

proposed project would have no effects on the EFH of the Chinook salmon or the Central Valley Steelhead. There would be no in-water work, no bank stabilization, and no removal of woody debris from the river.

Construction at Site R10 is not expected to adversely affect fish species or their associated habitats; however, there is potential for fugitive dust and construction runoff to enter the American River. These effects to fish species would be less than significant; however, mitigation measures for water quality would be implemented to avoid potential impacts on EFH at this site.

### **Mitigation Measures**

Since no work would occur in a wet or aquatic environment, work would be of limited duration, and no trees or shrubs would be removed, construction of the proposed action is not expected to affect fishery or aquatic resources. Any potential effects would be minimized through mitigation measures proposed under Air Quality (Section 3.2.5) and Water Quality and Resources (Section 3.2.7). The contractor would be required to develop and submit a Storm Water Pollution Prevention Plan (SWPPP) and a Spill Preventions and Countermeasure Plan (SPCP) prior to initiating construction activities to minimize the potential for soil or other contaminants to enter the river. The SWPPP and SPCP must be approved by USACE.

K-rail draped with visqueen would serve as the primary sediment control measure around the construction area, and silt fence would be installed to serve as a secondary sediment control measure to prevent sediments from escaping the site and entering the American River. No liquids would be disposed of into the American River. Water trucks would be used for dust suppression along all areas of disturbed soil and along the haul routes; trucks would be monitored so over watering and runoff does not occur. The contractor would not be allowed to store fuels, lubricants or other potential hazardous substances on site. If equipment is to be refueled on site, the contractor would take measures to avoid and contain any spills.

With these BMPs in place, this project is expected to have no effect on fisheries, fish habitat or EFH; therefore, impacts would be considered less than significant.

### **3.2.4 Special Status Species**

#### **Existing Conditions**

Regulatory Setting. Certain special status species and their habitats are protected by Federal, State, or local laws and agency regulations. The Federal Endangered Species Act (ESA) of 1973 (50 CFR 17) provides legal protection for plant and animal species in danger of extinction. This act is administered by USFWS and NMFS. The California Endangered Species Act (CESA) of 1977 parallels the Federal ESA and is administered by CDFG. Other special status species lack legal protection, but have been characterized as “sensitive” based on policies and expertise of agencies or private organizations, or policies adopted by local government. Special-status species are those that meet any of the following criteria:

- Listed or candidate for listing under the Federal ESA (50 CFR 17).
- Listed or candidate for listing under CESA.
- Nesting bird species and active nests of birds listed under the Migratory Bird Treaty Act.
- Species listed in the Bald and Golden Eagle Protection Act.
- Fully protected or protected species under stated CDFG code.
- Wildlife species of special concern listed by the CDFG.
- Plant species listed as Rare under the California Native Plant Protection Act.
- Plant species listed by the California Native Plant Society.
- Species protected by local ordinances such as the Sacramento County Tree Preservation and Protection Ordinance, Chapter 19.12, the City of Sacramento Protection of Trees Ordinance, Chapter 12.56, and/or the City of Sacramento Heritage Tree Ordinance, Chapter 12.64.
- Species protected by goals and policies of local plans such as the American River Parkway Plan, which includes anadromous and resident fishes, as well as migratory and resident wildlife.
- Essential Fish Habitat listed under the Magnuson-Stevens Act.

Special Status Species Evaluation. A list of special status species and candidate species that may be affected by projects in the United States Geological Survey (USGS) quad East Sacramento was obtained on January 18, 2012 via the USFWS website. A search of the California Natural Diversity Database (CNDDDB) conducted on January 4, 2012. A total of 14 special-status species were identified as occurring within the quadrangle East Sacramento; however, seven of those species are not known to occur or have habitat within the project areas. These species are not discussed further in this document. The USFWS and CNDDDB lists are included in Appendix A. The following Federal and State listed species were identified as having the potential to occur in the vicinity of the project areas and could be impacted by construction activities:

- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB) (Federal Threatened) and critical habitat;
- White-tailed kite (*Elanus leucurus*) (CDFG Fully Protected);
- Swainson's hawk (*Buteo swainsoni*) (State Threatened);
- Cooper's hawk (*Accipiter cooperii*) (State Species of Concern);
- Bank swallow (*Riparia riparia*) (State Threatened);
- Central Valley steelhead (*Oncorhynchus mykiss*) (Federally Threatened) and critical habitat;
- Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) (Federally and State Endangered), Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), and critical habitat.

*Valley Elderberry Longhorn Beetle.* The VELB is endemic to the riparian habitats in the Sacramento and San Joaquin Valleys where it resides on elderberry (*Sambucus* spp.) plants. The beetle's current distribution is patchy throughout the remaining riparian forests of the Central Valley from Redding to Bakersfield (USFWS, 1991). The beetle is a pith-boring species that depends on elderberry plants during its entire life cycle. Throughout its range, the beetle is estimated to inhabit approximately 20 percent of all suitable elderberry shrubs (USFWS, 1991).

The Parkway, with an abundance of elderberry shrubs in a well-connected corridor, provides high quality habitat for the VELB. A biological survey was conducted by USACE and USFWS on April 25<sup>th</sup>, 2012. No elderberry shrubs were found within 100 feet of the Site R10 construction footprint; however, there are elderberry shrubs within 100 feet of the haul route and staging areas. USFWS has recommended that a 100-foot buffer zone around elderberry shrubs be maintained to avoid indirect effects to the VELB.

*White-tailed Kite.* The white-tailed kite is a common to uncommon yearlong resident in coastal and valley lowlands and is rarely found away from agricultural areas. The white-tailed kite forages in undisturbed, open grasslands, meadows, farmlands and emergent wetlands. Nests are made of loosely piled sticks and twigs and lined with grass, straw, or rootlets and placed near the top of a dense oak, willow, or other tree stand; usually 6 to 20 meters (20 to 100 feet) above ground. Nests are located near open foraging areas in lowland grasslands, agricultural areas, wetlands, oak-woodland and savannah habitats, and riparian areas associated with open areas.

White-tailed kites are recorded as occurring in several locations along the American River, and the riparian habitat in the vicinity of the project area provides suitable nesting habitat for this species. Biological surveys would be conducted throughout the breeding season prior to any construction activities according to the CDFG Swainson's Hawk Survey Protocols.

*Swainson's Hawk.* Swainson's hawk is an uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and the Mojave Desert. Swainson's hawks breed in California and over winter in Mexico and South America. Swainson's hawk nests usually occur in trees near the edges of riparian stands, in lone trees or groves of trees in agricultural fields, and in mature roadside trees. Suitable foraging areas for Swainson's hawks include native grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands.

Swainson's hawks are recorded as occurring in several locations along the American River as the riparian habitat in the vicinity of the project provides suitable nesting habitat for this species. The CNDDDB records several sightings of Swainson's hawks in the project area. During biological surveys conducted April 16-20, 2012, an active Swainson's hawk nest was found on the downstream waterside toe of Site R10. This nest will be monitored throughout the breeding season, and additional surveys would be conducted prior to any construction activities according to the CDFG Swainson's Hawk Survey Protocols. Coordination with CDFG is ongoing.

*Cooper's Hawk.* Cooper's hawks nest in deciduous trees or conifers in crotches or cavities that are usually 20 to 50 feet off the ground. The nest is a stick platform lined with bark.

Nests are usually placed in second growth coniferous stands or in the deciduous riparian areas that are closest to streams.

The CNDDDB recorded no sightings of Cooper's hawks in the project area. Biological surveys would be conducted throughout the breeding season prior to any construction activities according to the CDFG Swainson's Hawk Survey Protocols.

*Bank Swallow.* Bank swallows nest in small burrows that they dig into riverbanks, primarily along the Sacramento and Feather Rivers (Garrison, 1999). At nesting colonies, they forage mostly within 200 meters (650 feet) of their nesting burrows, but this range can vary with distances to good foraging areas.

Bank swallows are recorded as occurring in a few locations along the American River. In 1986, the CNDDDB recorded a colony of nesting bank swallows on the south bank of the American River, upstream from Cal Expo, approximately 1,000 feet from the Business 80 Bridge (approximately four miles from Site R10).

*Central Valley Steelhead.* Central Valley steelhead and its critical habitat occur along the American and Sacramento Rivers. Peak spawning occurs from December to April in small streams and tributaries with cool, well-oxygenated water. Steelheads spawn most often in areas with water velocities of about two feet per second with gravel-sized material. Juveniles usually rear in freshwater from one to three years, and require water temperatures lower than 66°F. Naturally spawning stocks of Central Valley steelhead are known to occur in the Sacramento River, the American River, and tributaries.

*Sacramento River Winter-run Chinook Salmon.* Sacramento River winter-run Chinook salmon and its critical habitat occur along the American and Sacramento Rivers. Winter-run salmon are distinguished from other runs of Chinook salmon in the American and Sacramento River watersheds by the timing of their upstream migration and spawning season. After maturing in the ocean, they return almost exclusively as 3-year olds to the river for spawning. Upstream migration extends from mid-November to mid-July. The bulk of the fish spawn in May and June in the main stem of the Sacramento River upstream from Red Bluff. Juvenile seaward migration begins in July and continues through December.

*Central Valley Spring-Run Chinook Salmon.* Central Valley spring-run Chinook salmon and its critical habitat occur along the American and Sacramento Rivers. Adult spring-run Chinook salmon enter the Delta from the Pacific Ocean beginning in January and enter natal streams from March to July (Myers *et al.*, 1998). Typically, spring-run Chinook salmon utilize mid-to high-elevation streams that provide appropriate temperatures and sufficient flow, cover, and pool depth to allow over-summering during maturation.

## **Environmental Effects**

Basis of Significance. Adverse effects on special status species would be considered significant if an alternative would result in any of the following: (1) direct or indirect reduction in the growth, survival, or reproductive success of species listed or proposed for listing as threatened or endangered under the Federal or State Endangered Species Acts; (2) direct

mortality, long-term habitat loss, or lowered reproduction success of Federal or State-listed threatened or endangered animal or plant species or candidates for Federal listing; (3) direct or indirect reduction in the growth, survival, or reproductive success of substantial populations of Federal species of concern, State-listed endangered or threatened species, or species of special concern or regionally important commercial or game species; or (4) an adverse effect on a species' designated critical habitat.

No-Action Alternative. Under the no action alternative, there would be no construction-related effects to existing special status species or critical habitat. The types of special status species and their associated habitats would remain the same. Current levee maintenance, recreation, and public activity would not change. The effects of these activities on special status species and their associated habitat would be the same; however, the possible event of levee failure may result in the loss of critical habitat, and special status species could be adversely affected.

Proposed Levee Improvements. Construction of the levee improvements could indirectly affect the Federally-threatened VELB. The project could also result in direct and indirect affects to white-tailed kites, Swainson's hawks, Cooper's hawks, bank swallows, Central Valley steelhead, and Central Valley winter-run Chinook salmon.

*Effects to Valley Elderberry Longhorn Beetle.* Construction of the levee improvements would not directly affect elderberry shrubs, the critical habitat of the VELB. Indirect effects would include physical vibration and an increase in dust during operation of equipment and trucks during construction activities.

*Effects to White-tailed Kite, Swainson's Hawk, and Cooper's Hawk.* Construction of the levee improvements would not directly affect white-tailed kites, Swainson's hawks, or Cooper's hawks. Indirect affects would include physical vibration, presence of construction vehicles and workers, and bright lights during night construction. Construction activities in the vicinity of a nest have the potential to result in forced fledging or nest abandonment by adult hawks.

*Effects to Bank Swallows.* Construction of the levee improvements could potentially result in direct and/or indirect affects to bank swallows if this species begins nesting in or adjacent to the project area prior to construction. Construction activities in the vicinity of bank swallow nesting areas may cause destruction of nesting habitat, and direct mortality may be caused by the sloughing of the embankment due to vibration.

*Effects to Central Valley Steelhead, Sacramento River Winter-Run Chinook Salmon, and Central Valley Spring-run Chinook Salmon.* The American River is considered critical habitat for the Central Valley steelhead, the Sacramento River winter-run Chinook salmon, and the Central Valley spring-run Chinook salmon. Construction at Site R10 is not expected to adversely affect fish species or their associated habitats; however, there is potential for fugitive dust and construction runoff to enter the American River. The effects to would be less than significant, however mitigation measures for water quality would be implemented to avoid potential impacts on EFH at this site.

## Mitigation Measures

Valley Elderberry Longhorn Beetle. To avoid potential take of the VELB, the following measures taken from USFWS's "Conservation Guidelines for the Valley Elderberry Longhorn Beetle," July 1999 would be incorporated into the project:

- A minimum setback of 100 feet from the dripline of all elderberry shrubs would be established, if possible. If the 100 foot minimum buffer zone is not possible, the next maximum distance allowable would be established. This area would be fenced, flagged and maintained during construction.
- Environmental awareness training would be conducted for all workers before they begin work. The training would include status, the need to avoid adversely affecting the elderberry shrubs, avoidance areas and measures taken by the workers during construction, and contact information.
- Dust suppression measures would be used and a biological monitor would provide instruction on establishing the buffer zones for the shrubs.
- Signs would be placed every 50 feet along the edge of the elderberry buffer zones. The signs would include: "This area is the habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be readable from a distance of 20 feet and would be maintained during construction.

Silt fence would also be installed around the construction area as a barrier between the construction and the riparian habitat near the river. The silt fence would serve as a secondary sediment control measure to prevent sediments from escaping the site and entering the American River. The proposed mitigation measures would reduce the effects on the VELB to less than significant.

White-tailed Kite, Swainson's Hawk, and Cooper's Hawk. Prior to the onset of construction, biological surveys for the presence of nesting raptors (white-tailed kites, Swainson's hawks, and Cooper's hawks) would be conducted within one-half mile of the proposed construction area. If a survey determines that a nesting pair is present, USACE would coordinate with CDFG. To avoid potential effects to nesting raptors, CDFG typically requires the avoidance of nesting sites during construction activities and/or avoiding construction during the nesting season. The construction of Site R10 is scheduled to occur in late July. If construction activities are determined to be necessary during the nesting season, then an on-site biologist/monitor experienced with raptor behavior would monitor the nest while construction-related activities are taking place. If raptors exhibit agitated behavior in response to construction-related activities, the biological monitor would have the authority to stop work and would consult with CDFG to determine the best course of action necessary to avoid nest abandonment or take of individuals. The proposed mitigation measures would reduce the effects on white-tailed kites, Swainson's hawks, and Cooper's hawks to less than significant.

Bank Swallow. Prior to the onset of construction, biological surveys for the presence of bank swallows would be conducted within one-half mile of the proposed construction areas. Two weeks prior to the onset of construction, biological surveys would be conducted in order to confirm the results from the previous surveys. If a survey determines that a nesting colony is nearby, USACE would coordinate with CDFG and the proper avoidance and minimization measures would be implemented. With the implementation of CDFG's avoidance and minimization measures, there would be no effect on bank swallows.

Central Valley Steelhead, Central Valley Spring-run Chinook Salmon, and Sacramento River Winter-Run Chinook Salmon. Construction of levee improvements may potentially indirectly affect the Central Valley steelhead, the Central Valley winter-run Chinook salmon, or their associated critical habitats from fugitive dust and construction runoff to the American River. No in-water work would occur. No riparian habitat or SRA would be removed. No trees at, or near, the banks of the river would be removed. The potential for fugitive dust and construction runoff to enter the water would be minimized through mitigation measures proposed under Air Quality (Section 3.2.5) and Water Quality and Resources (Section 3.2.7) through sediment control, erosion control, and dust abatement. The contractor would be required to develop and submit a SWPPP to minimize the potential for soil or other contaminants to enter the river. The contractor would also be required to develop and submit a SPCP prior to initiating construction activities. The SWPPP and SPCP must be approved by USACE. The proposed mitigation measures would reduce the effects on the Central Valley steelhead, the Central Valley spring-run Chinook salmon, and the Sacramento River winter-run Chinook salmon to less than significant.

Prior to ground disturbance, all on-site construction personnel would be given instruction regarding the presence of sensitive species and the importance of avoiding these species and their habitats. Mitigation measures would follow with the recommendations provided by USFWS and CDFG. These mitigation measures, as a requirement of ESA compliance, would reduce the effects on sensitive species to less than significant.

### **3.2.5 Air Quality**

#### **Existing Conditions**

Regulatory Background. The Federal Clean Air Act establishes National Ambient Air Quality Standards (AAQS) and delegates enforcement to the states, with direct oversight by the U.S. Environmental Protection Agency (EPA). In California, the California Air Resources Board (CARB) is the responsible agency for air quality regulation.

The California Clean Air Act established California AAQS. These standards are more stringent than Federal standards and include pollutants not listed in Federal standards. All Federal projects in California must comply with the stricter State air quality standards. The National AAQS and the California AAQS tables are available in Appendix B.

The Sacramento area is included in the Sacramento Valley Air Basin. The air quality in the area is managed by the Sacramento Metropolitan Air Quality Management District (SMAQMD), which is included in the Sacramento Federal Ozone Nonattainment Area (SFNA).

The SFNA is also subject to regulations, attainment goals, and standards of the U.S. and California EPAs. On February 14, 2008, CARB, on behalf of the air districts in the Sacramento region, submitted a letter to EPA requesting a voluntary reclassification (bump-up) of the Sacramento Federal Nonattainment Area from a “serious” to a “severe” 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019, and additional mandatory requirements. On May 5, 2010 EPA approved the request effective June 4, 2010 (SMAQMD, 2011). The SFNA is thus designated a “severe” nonattainment area for the National 8-hour AAQS for ozone. The EPA General Conformity Regulation requires that “severe” designated nonattainment areas further reduce Nitrogen Oxide (NO<sub>x</sub>) and Reactive Organic Gas (ROG) thresholds to 25 tons/year rather than 100 tons/year.

According to the State and Federal 24-Hour AAQS, Sacramento County is designated as a nonattainment area with respect to particulate matter less than 10 microns in diameter (PM<sub>10</sub>). Additionally, on October 16, 2006, the EPA promulgated a new 24-Hour standard for particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>). This change lowered the daily standard from 65µg/m<sup>3</sup> to 35µg/m<sup>3</sup> to protect the general public from short term exposure of the fine particulate matter. Sacramento does not meet the new standards (EPA, 2007). The California Clean Air Act of 1988 requires nonattainment areas to achieve and maintain the State AAQS by the earliest practicable date and local air districts to develop plans for attaining State ozone standards.

On November 3, 1993, the EPA issued the General Conformity Rule, stating that Federal actions must not cause or contribute to any violation of a National AAQS or delay timely attainment of air quality standards for those areas designated as in nonattainment of Federal standards. A conformity determination is required for each pollutant where the total of direct and indirect emissions caused by a Federal action in a nonattainment area or maintenance area exceeds threshold levels listed in the rule (40 CFR 93.153). The Federal standards and local thresholds for short term construction projects in Sacramento County are shown in Table 1.

**Table 1. Air Emission Thresholds for Federal and Local Criteria Pollutants**

Criteria Pollutant	Federal Standard (tons/year)	SMAQMD Threshold (lbs/day)
NO <sub>x</sub>	25**	85
CO	100	*
SO	100	*
PM <sub>10</sub>	100	*
ROG	25**	*

NO<sub>x</sub> = nitrogen oxides

CO = carbon monoxide

SO = sulfur oxides

\* = default to State standard (see California Ambient Air Quality Standards, Appendix B)

\*\* = rates for “severe” Federal nonattainment areas [Federal Register (40 CFR), 1993]

Source: SMAQMD, 2011

PM<sub>10</sub> = particulate matter 10 micrometers or less

PM<sub>2.5</sub> = particulate matter 2.5 micrometers or less

ROG = reactive organic gases

Sources of Pollutants/Sensitive Receptors. The main sources of emissions contributing to elevated ozone and PM<sub>10</sub> concentrations in this area of the Sacramento Valley Air Basin are vehicular emissions and airborne pollutants from road dust and plowing of fields. Light industry and emissions from recreational boaters and Sacramento Executive Airport also contribute to reduced air quality in the region. Sensitive receptors in the project area include residents and wildlife.

### **Environmental Effects**

Basis of Significance. A project would significantly affect air quality if it would: (1) violate any ambient air quality standard; (2) contribute on a long-term basis to any existing or projected air quality violation; (3) expose sensitive receptors to substantial pollutant concentrations; or (4) not conform to applicable Federal and State standards or local thresholds on a long-term basis.

No Action. Under the no action alternative, the project would not be constructed, and there would be no construction-related effects on air quality in the project area. Air quality would continue to be influenced by climatic and geographic conditions, local and regional emissions from vehicles and households, and local commercial and industrial land uses. However, air quality is expected to improve in the future based on the stricter standards implemented by CARB and SMAQMD.

Proposed Levee Improvements. The proposed construction would not violate any AAQS. Emissions associated with the project would be short-term during construction, and there would not be substantial concentrations of pollutions emitted during construction. Combustion emissions would result from the use of construction equipment, truck haul trips to and from commercial sources and disposal sites, and worker vehicle trips to and from the work areas. Exhaust from these sources would contain ROG, CO, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and CO<sub>2</sub>. Exhaust emissions would vary depending on the type of equipment, the duration of use, and the number of construction workers and haul trips to and from the construction site. Fugitive dust would also be generated during disturbance of the ground surfaces during construction.

The updated Road Construction Emissions Model, Version 6.3.2 (July 2009), was used in favor of the Urban Emissions Model, Version 7.5, as it applies to linear construction activities such as levee construction and repair activities. The road construction model was used to estimate project emission rates for ROG, CO, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and CO<sub>2</sub>. The estimated equipment to be used, volume of material to be moved, and disturbance acreages were compiled to determine the data to input into the emissions model and are included in Appendix B. The emission calculations are based on standard vehicle emission rates built into the model. Details and results of the calculations for Site R10 are provided in Appendix B.

**Table 2. Estimated Air Emissions for Site R10 (lbs/day)**

	<b>ROG</b>	<b>CO</b>	<b>NO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>CO<sub>2</sub></b>
Total emissions (lbs/day)	<b>5.8</b>	<b>26.7</b>	<b>46.5</b>	<b>3.6</b>	<b>1.9</b>	<b>6,080.8</b>
SMAQMD thresholds (lbs/day)	N/A	N/A	85	N/A	N/A	N/A
<b>Total (tons/project)</b>	<b>0.1</b>	<b>0.5</b>	<b>0.9</b>	<b>0.1</b>	<b>0.0</b>	<b>132.6</b>
Federal standards (tons/year)	25	100	25	100	N/A	N/A

Note: Estimates rounded.

Table 2 summarizes the estimated emissions for the project and compares them to the Federal standards and local thresholds. The emissions estimates in this table are based on emissions prior to reductions based on mitigation recommendations. Based on the air quality analysis performed, the estimated emissions totals for Site R10 would be below the Federal and SMAQMD thresholds.

Implementation of the standard construction mitigation measures as recommended by SMAQMD (Appendix B) would reduce the NO<sub>x</sub> emissions by 20% and the PM<sub>10</sub> emissions by 45%. As a result, the proposed action does not require an in-depth conformity analysis to evaluate ambient air quality concentrations and instead is presumed to conform to the region's ozone state implementation plan. The effects on air quality from the construction of the project would be less than significant.

### **Mitigation Measures**

Combustion emissions would result from the use of construction equipment, truck haul trips to and from the borrow sites, and worker vehicle trips to and from the construction site. The contractor would submit a list of vehicles to be used in the construction project for approval by USACE and SMAQMD. SMAQMD would approve the list only if the total fleet emissions would meet a 20% reduction in NO<sub>x</sub> and a 45% reduction in PM<sub>10</sub> in comparison to the state fleet emissions average. In order to achieve the required reductions in emissions, the following construction mitigation procedures would be followed, in accordance to the SMAQMD Recommended Mitigation for Reducing Emissions from Heavy-Duty Construction Vehicles (Appendix B):

- Maintain properly functioning emission control devices on all vehicles and equipment.
- Use diesel-fueled equipment manufactured in 2003 or later, or retrofit equipment manufactured prior to 2003 with diesel oxidation catalysts; use low-emission diesel products, alternative fuels, after-treatment products, and/or other options as they become available.
- Any equipment found to exceed 40% opacity (or Ringelmann 2.0) would be repaired immediately, and USACE and SMAQMD would be notified within 48 hours of identification of non-compliant equipment.

- Any remaining emissions over the NO<sub>x</sub> threshold would be reduced to zero through the payment of a mitigation fee. The cost of reducing one ton of NO<sub>x</sub> as of September 1, 2011 is \$16,640 (\$8.32/lb) (SMAQMD, 2011). On March 30, 2012, CARB announced its revised rate, which is \$17,080 (\$8.54/lb). This revised rate would apply to all environmental documents released for public review on or after July 1, 2012. The contractor would be responsible for payment of any required mitigation and administrative fees.

At least 48 hours prior to the use of subject heavy-duty off-road equipment, the contractor would provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager, and on-site foreman. SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Full mitigation program language is located in Appendix B.

Implementation of the BMPs listed below would reduce air quality degradation caused by dust and other contaminants:

- During construction, implement all appropriate dust control measures, such as tarps or covers on dirt piles, in a timely and effective manner.
- Periodically water all construction areas having vehicle traffic, including unpaved areas, to reduce generation of dust. Application of water would not be excessive or result in runoff into storm drains.
- Sweep paved streets adjacent to construction sites, as necessary, at the end of each day to remove excessive accumulations of soil or dust.
- Cover all trucks hauling dirt, sand, soil, or other loose material, or maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114. This provision would be enforced by local law enforcement agencies.
- Revegetate or pave areas cleared by construction in a timely manner to control fugitive dust.

Any effects to air quality would be temporary, and mitigation measures would reduce impacts to less than significant.

### **3.2.6 Climate Change**

#### **Existing Conditions**

Warming of the climate system is now considered to be unequivocal (IPCC, 2007). Global average surface temperature has increased approximately 1.33 °F over the last one hundred years, with the most severe warming occurring in the most recent decades. In the twelve years between 1995 and 2006, eleven years ranked among the warmest years in the

instrumental record of global average surface temperature (going back to 1850). Continued warming is projected to increase global average temperature between 2 and 11 °F over the next one hundred years (IPCC, 2007).

The causes of this warming have been identified as both natural processes and as the result of human actions. Increases in greenhouse gas (GHG) concentrations in the Earth's atmosphere are thought to be the main cause of human induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the Earth and is reflected back into space. The six principal GHGs of concern are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons, and perfluorocarbons.

### **Requirements**

CEQA requires that lead agencies consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. CEQA requires that the cumulative impacts of GHG, even impacts that are relatively small on a global basis, need to be considered.

No Action. NEPA requires that a “no action” alternative be established. Under the no action alternative, the project would not be constructed, and there would be no construction-related effects on climate change. Locally generated emissions, including levee operations and maintenance, would continue. However, the possible event of levee failure may result in large amounts of GHG emissions during flood-fighting activities, as well as large amounts of emissions resulting from clean-up activities and the repair and/or replacement of flood damaged housing, commercial and industrial properties, and public infrastructure.

### **Basis of Significance**

It is unlikely that any single project by itself could have a significant impact on climate change. However, the cumulative effect of human activities has been linked to quantifiable changes in the composition of the atmosphere, which in turn have been shown to be the main cause of global climate change (IPCC, 2007). The Department of Water Resources (DWR) has not established a quantitative significance threshold for GHG emissions; instead, each project is evaluated on a case by case basis using the most up to date calculation and analysis methods. The cumulative impact analysis of GHG emissions from this project are addressed in section 5.2, Cumulative Impacts.

The proposed project could result in a significant impact if it would generate GHG emissions: (1) either directly or indirectly, that may have a significant cumulative impact on the environment; or (2) that would conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases, including the state goal of reducing greenhouse gas emissions in California to 1990 levels by 2020, as set forth by the timetable established in AB 32, California Global Warming Solutions Act of 2006.

## **Greenhouse Gas Emissions**

Vehicle Emissions. The proposed construction would use large, diesel-fueled construction vehicles during all phases of the project. The partial degrade of the levee crown would result in emissions from bulldozers and graders, as well as emissions from the haul trucks used to dispose of material. The construction of the jet-grout slurry wall would result in emissions from the jet-grout equipment and haul trucks, as well as the diesel-powered mixers required for the mixing of the cement and bentonite. Diesel-powered cement mixers, pavers, and haul trucks for borrow materials would be used for the re-construction of the levee crown.

In addition to the construction vehicles, mixers, and haul trucks involved in the actual construction of the project, there would also be GHG emissions from the workforce vehicles. Workers would commute from their homes to the construction site and park in the staging area. Workers are assumed to commute no further than 20 miles from the construction site. During construction, there may be times during which large construction vehicles on the roads slow regular traffic patterns, increasing emissions from vehicles that use the roads on a regular basis. There would also be incidental emissions from the electricity used for lighting.

Operational Emissions. The long-term operations and maintenance of the project site would remain the same with or without project conditions. Current operations and maintenance involves the periodic mowing and spraying of the levee slopes for fire danger control, as well as electrical lighting on the Watt Avenue Bridge for safety and security. While the project does not improve operation maintenance efficiency, the project would also not increase emissions due to operations and maintenance. Additionally, the construction of the project would reduce the possibility of large amounts of GHG emissions from flood-fighting activities in the event of levee failure.

## **Emissions Models**

In response to the concerns regarding greenhouse gas emissions, the most recent version of the SMAQMD Road Construction Emissions Model (v. 6.3.2) now generates an output for CO<sub>2</sub>. This model 6.3.2 was based on knowledgeable individuals from SMAQMD, the California Department of Transportation, CARB, and the EPA. The emissions model was prepared by Jones & Stokes and Rimpo and Associates, Inc., and used the 26th edition of Walker's Building Estimator's Reference Book (1999).

As discussed in Table 2 (Section 3.2.5), estimated CO<sub>2</sub> emissions for Site R10 would total approximately 6,080.8 lbs/day or approximately 132.6 tons of CO<sub>2</sub> for the total project. It should be noted that although CO<sub>2</sub> emissions can now be calculated, there is no Federal standard, or any State or local threshold, to meet, which makes it difficult to fully analyze.

The CEQA Climate Change Committee has created a guidance document for GHG emissions calculations. This document requires data entry related to construction equipment, workforce transportation, materials transportation, and maintenance and operational emissions. According to this calculator, the total emissions of GHGs for Site R10 would be approximately 196.3 tons of CO<sub>2</sub> equivalents (CO<sub>2</sub>e). Details and results of the calculations are provided in

Appendix B. While the data entered on this form is based on assumptions and estimates, the amounts of CO<sub>2</sub>e can be used to determine significance according to CEQA.

### **Significance Determination**

The construction at Site R10 is a relatively small, short-term project and emissions from construction vehicles would occur during a short time period. Using the emissions model and calculations previously discussed in Air Quality (Section 3.2.5), CO<sub>2</sub> emissions are estimated to be less than 2,000 tons per year. Additionally, the CEQA Climate Change Committee GHG emissions calculator estimates total project emissions to be approximately 196.3 tons of CO<sub>2</sub>e. No state or Federal agency has yet established significance criteria (thresholds of significance) for GHG or other impacts to global climate change. However, some statewide standards have been established that provide information about the order of magnitude of emissions that might be considered significant. Pursuant to AB 32, the California Air Resources Board (CARB) mandates that only “large” facilities (stationary, continuous sources of GHG emissions) that generate greater than 25,000 metric tons of CO<sub>2</sub>e per year report their GHG emissions. In addition, CARB has released a preliminary draft staff proposal that recommends 7,000 metric tons of CO<sub>2</sub>e per year be used as the baseline threshold for impacts. It is not the intention of USACE to adopt a 25,000 or 7,000 metric ton CO<sub>2</sub>e threshold of significance; these figures are only listed to provide context to the scale of the emissions from the proposed project.

There would be no increase of long-term emissions (permanent sources) of GHGs from this project. Long-term emissions would be the same with or without the project; maintenance emissions would be the same, and the cutoff wall itself has no net long-term emissions. Based on the review discussed above, this project does not conflict with any statewide or local goals with regard to reduction of GHG.

### **Mitigation Measures**

BMPs and implementation of the standard construction mitigation measures as recommended by SMAQMD would reduce GHG emissions through the same processes that reduce total NO<sub>x</sub> and PM<sub>10</sub> emissions. These measures are described in Appendix B.

## **3.2.7 Water Resources and Quality**

### **Existing Conditions**

The American River is the major waterway in the project area. The river flow is influenced by upstream dams, local weather, spring snow melt, flood bypasses, and upstream tributaries. In 2011, the mean water level for the American River at Sacramento (near the Fair Oaks Boulevard/H Street Bridge) was 19.19 feet. The maximum water level of the American River was 30.67 feet and the minimum water level was 16.90 feet (DWR, 2012).

The water quality of the American River is affected by storm water runoff, water diversion, and surrounding land uses. The water quality tends to degrade as the river leaves the Sierra Mountains and flow through the Central Valley into the Sacramento-San Joaquin Delta.

Contamination by volatile organic compounds, especially contamination of ground water, can occur in any large urban setting (Domagalski and Brown, 1994).

The local rivers, lakes, and rainfall recharge the ground water table in the project area. Groundwater provides about 31% of the water supply for urban and agricultural uses in the Sacramento River Hydraulic Region. The reliability of the groundwater supply varies greatly. Average ground water depth can be affected by seasonal changes in water volume in the valley's rivers and lakes, local rainfall, and urban demand on the ground water (DWR, 2003).

### **Environmental Effects**

Basis of Significance. A project would significantly affect water resources if it would: (1) result in the loss of a surface or groundwater source; or (2) interfere with existing beneficial uses or water rights.

No Action. Under this alternative, there would be no construction activity to affect water resources or quality in the project area. The surface and groundwater conditions would continue to be affected by agricultural and urban contaminants through runoff. Extreme flooding events could wash siltation and contaminants into the water system, and if emergency levee work became necessary to prevent levee failure, measures required for the protection of water quality might not be used.

Proposed Levee Improvements. The proposed construction project would not result in the loss of a surface or groundwater source, and no water rights would be affected. No in-water construction is proposed that would directly affect water quality or aquatic life. Although less than one acre of bare soil would be exposed and minimal soil would be removed, jet-grout construction involves high pressures of grout inserted into the levee, resulting in grout spoil or cuttings that would be removed from the site and transported to a drying area in the staging area. Spilled or improperly contained cuttings could result in soil mixed with grout entering the American River. Although design and construction considerations have significantly minimized the risk, there is a slight potential for jet-grout cuttings, fugitive dust, and construction runoff to enter the American River. In addition, inadvertent spills of oil or fuels from construction equipment could be a source of contamination into the water column at work or staging areas. The proposed mitigation measures described below would further minimize the risk of impacts to water quality to less than significant during construction.

### **Mitigation Measures**

To prevent sediments from escaping the site and entering the American River, k-rails draped with visqueen would serve as the primary sediment control measure around the construction site, and silt fences would be installed to serve as a secondary sediment control measure. At the time of this writing, there are two staging areas proposed for use during the construction of Site R10: one in a landside parking lot and the other on the waterside bench of the levee. All jet-grout components would be stored in the landside parking lot, and cuttings would be transported away from the project area to holding areas in the landside parking lot. No liquids would be disposed into the American River.

The contractor would be required to obtain a National Pollution Discharge Elimination System permit from the Regional Water Quality Control Board (RWQCB), Central Valley Region. As part of the permit, the contractor would be required to prepare a SWPPP and a SPCP prior to initiating construction activities, identifying BMPs to be used to avoid or minimize any adverse effects during construction to surface waters.

The following BMPs would be incorporated into the project:

- Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on haul roads, construction areas, and stockpiles.
- Properly dispose of oil or other liquids.
- Fuel and maintain vehicles in a specified area that is designed to capture spills. This area cannot be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water.
- Fuels and hazardous materials would not be stored on site.
- Inspect and maintain vehicles and equipment to prevent the dripping of oil or other fluids.
- Schedule construction to avoid the rainy season as much as possible. Ground disturbance activities are expected to begin in the summer of 2013. If rains are forecasted during construction, additional erosion and sedimentation control measures would be implemented.
- Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.
- Train construction workers in storm water pollution prevention practices.
- Revegetate disturbed areas in a timely manner to control erosion.

Since no significant adverse affects to groundwater or surface water resources are anticipated, no additional mitigation measures are required. Any effects to water quality would be temporary, and BMPs and proposed mitigation measures would reduce impacts to less than significant.

### **3.2.8 Traffic and Circulation**

#### **Existing Conditions**

Site R10 is intersected by the Watt Avenue Bridge, which is a major eight-lane urban roadway that crosses the American River and connects to Highway 50 approximately 3,000 feet south of the site. The City and County of Sacramento both post traffic counts on their web sites

for roadways in the project area. The average daily traffic on the Watt Avenue Bridge (as surveyed in September of 2010) is 89,000 to 97,000 vehicles per day. Weekend traffic is approximately 70 to 75% of the volume of weekday traffic (Sacramento County, 2010). Traffic volume peaks during the morning and evening rush hour, and becomes a steady but lower volume during the day (Sacramento County, 2007).

Additional streets in the project area consist primarily of minor residential streets maintained by the City of Sacramento and Sacramento County. Roadways that parallel Site R10 include American River Drive and Fair Oaks Boulevard. The Jedediah Smith Recreational Trail in the American River Parkway also parallels the site on the waterside toe of the levee. The Jedediah Smith Recreational Trail provides recreational trails used for pedestrian traffic (running and walking); horseback riding and bicycling trails are also located throughout the project area.

### **Environmental Effects**

Basis of Significance. The project would have significant effects on traffic if it would: (1) cause an increase in traffic volume that is substantial in relation to the existing load and capacity of a roadway; (2) cause an increase in safety hazards on an area roadway; or (3) cause substantial deterioration of the physical condition of the nearby roadways.

No Action Alternative. The no action alternative would have no effect on the traffic and circulation in the project area. The existing roadways, recreational paths, types of traffic, traffic volume, and circulation patterns would not change; however, emergency actions taken to prevent flooding in the possible event of levee failure may result in changes to traffic flow.

Proposed Levee Improvements. Construction at Site R10 would involve jet-grout construction techniques. This technique would require cutting a trench into the surface of the Watt Avenue Bridge, injecting grout slurry into the levee beneath the bridge, and restoring the surface to pre-construction conditions. In order to conduct construction, partial closures of some lanes of the Watt Avenue Bridge would be necessary. In order to reduce the impact of construction on traffic, construction would only be performed at night. Between the hours of 10:00 p.m. to 11:00 p.m., a minimum of two lanes would remain open on both sides of the bridge (northbound and southbound). Between the hours of 11:00 p.m. to 5:00 a.m., at least one lane would remain open on both sides of the bridge. All lanes would remain open and unrestricted between the hours of 5:00 a.m. and 10:00 p.m. Although construction work impacting traffic on Watt Avenue would only occur during the hours of 10:00 p.m. and 5:00 a.m., site mobilization, preparatory work, and material hauling would occur between the hours of 7:00 a.m. to 4:00 p.m. All roadways would be restored to preconstruction conditions upon completion of the project; therefore, no significant deterioration of the roadways would occur.

The project would also temporarily affect local residential roads and major urban connector roads that would be used as haul routes during construction. Haul trucks would cause a temporary increase in traffic volume and may reduce traffic speeds on local residential roads. Increases in traffic volume on these roadways would return to previous levels on the completion of construction. During construction, haul trucks would travel between the construction site and the commercial disposal site. The directional flow of construction traffic has not been finalized,

but for the purposes of this discussion, the following probable scenario would be used to describe the haul routes and traffic impacts: Haul trucks would use Highway 50, turning north onto Watt Avenue. Construction vehicles would then turn right (south) onto American River Drive, turn right (west) onto the levee access area near Pump Station 151, and turn right (north) onto the levee maintenance trail in order to access the project site. After on-loading or off-loading the material, the haul trucks would drive under the Watt Avenue Bridge, heading north on the levee maintenance trail to the levee access area at Kadema Drive near Moffatt Way. From Moffatt Way, haul trucks would turn right onto American River Drive, turning left onto Watt Avenue, and returning to Highway 50 (Plate 3). Alternately, construction vehicles could access the proposed staging area directly by driving from Highway 50 to American River Drive, then turning right into the Teichert parking lot. A flagman would direct construction traffic as the haul trucks enter and leave the construction site. These and other BMPs would reduce hazards to public safety to less than significant.

Construction at Site R10 would impact traffic conditions on Watt Avenue, American River Drive, Kadema Drive, and Moffatt Way due to the presence of construction vehicles on small residential streets, as well as the addition of construction vehicles onto congested roadways. The type and duration of construction vehicles on the roadways would vary depending on the time of day and the type of materials being hauled. During the day, approximately 10 haul trucks would utilize the Watt Avenue Bridge. During the height of construction, there may be as many as 20 haul truck round trips per day on the bridge. Due to the high traffic volume on the Watt Avenue Bridge, this would not be a significant increase. Traffic patterns would return to normal once construction is completed.

Access to the recreational trail on the Watt Avenue Bridge would be partially closed during construction. Additionally, recreational access to the levee maintenance trail would be closed. Additional information related to the effects of construction on the recreational trail is discussed in Recreation, section 3.2.3.

### **Mitigation Measures**

In order to reduce the impacts of the project construction on traffic, mitigation measures have been incorporated into the design of the project. Coordination with the Sacramento County Department of Transportation (SACDOT) is ongoing. SACDOT mitigation measures include, but are not limited to, the following requirements:

- Notification to the public would require at a minimum changeable message signs 7 days prior to the lane restrictions, and media notification 14 days prior to the lane restrictions. Other requirements would be further evaluated during the traffic control plan review period.
- Working hour lane restrictions for maintaining a minimum of two lanes in each direction (northbound and southbound) between the hours of 10:00 p.m. to 11:00 p.m., and a minimum of one lane open in each direction between the hours of 11:00 p.m. to 5:00 a.m. All lanes would remain open and unrestricted between the hours of 5:00 a.m. and 10:00 p.m.

- Under an encroachment permit, structural details for repair of the approach slab and bridge appurtenances shall be submitted to SACDOT for review and approval.
- The existing overlay material over the slab is composed of rubberized asphalt. The material shall be replaced in kind with rubberized asphalt. To reduce visual color contrast between the new and old rubberized asphalt, it is required to slurry seal longitudinally on either side of the trench line and for full width of Watt Avenue. The longitudinal length on each side of the trench would be determined by SACDOT during the structural plan review.
- To minimize visual color contrast between the new and old concrete, it is required to match the existing colors of concrete sidewalk, curb and barriers as close as possible.
- To restore the load path continuity of the structural reinforcement in the slab, mechanical rebar splicing systems shall be used in place of lap splicing systems.

In addition to the SACDOT requirements, the contractor would be required to develop a Traffic Control Plan, which would be reviewed and approved by the City of Sacramento, Sacramento County, SACDOT, and USACE prior to construction. This plan would include the following measures:

- Do not permit construction vehicles to block any roadways or private driveways.
- Provide access for emergency vehicles at all times.
- Select haul routes to avoid schools, parks, and high pedestrian use areas when possible. Crossing guards that meet the requirements of the jurisdictional school district would be used when truck trips coincide with schools hours and when haul routes cross a student travel path.
- Obey all speed limits, traffic laws, and transportation regulations during construction. If speed limits are not posted, construction vehicles would not exceed 15 miles per hour on unpaved levee roads.
- Use signs and flagmen, as needed, to alert motorists, bicyclists, and pedestrians to avoid conflict with construction vehicles or equipment.
- Flagmen would be used at each roadway that crosses the levee to safely circulate traffic through the construction site.
- Use separate entrances and exits to the construction site when possible.
- Construction employee parking would be restricted to the designated staging areas.
- Closure of levee roads, construction sites, and public access areas for construction use would be clearly fenced and delineated with appropriate closure signage.

- Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Anchor barricades in a manner to prevent displacement by wind. Notify the Contracting Officer prior to beginning such work.

Public outreach (including public meetings) to inform the local residents, businesses, and media of the type of construction, the duration of construction, and expected impacts would be conducted at least two weeks prior to mobilization for construction. The 30-day public review would be conducted prior to construction, and copies of this draft EA/IS would be distributed to local libraries and agencies, as well as upon request to interested parties and individuals. Hours of construction would be clearly marked with signs prior to construction, and detour routes would be clearly marked. The proposed mitigation measures would reduce the effects on traffic and circulation to less than significant.

### **3.2.9 Public Utilities and Services**

#### **Existing Conditions**

Public services in or near the project area include street cleaning, trash pickup, potable water supply, electricity, natural gas supply, storm water discharge, and sanitary sewage. These public services are implemented by local utilities and Sacramento County. Public utility facilities, pipelines, and conduits in the project area include high voltage overhead power lines, underground electric lines, drainage pipelines and gate structures, and a force sewer main.

There are several known utilities passing through the work area. They include two 15-inch utility casings which containing utilities owned and operated by AT&T and the Sacramento Metropolitan Utility District (SMUD). One 2-inch water line and two 2-inch abutment drains also pass through the cutoff wall alignment. Additional utilities include the electrical wiring connected to the streetlights along the Watt Avenue Bridge, as well as two fiber optic lines that run the length of the bridge.

#### **Environmental Effects**

Basis of Significance. A project would significantly affect public utilities and services if it would: (1) disrupt or significantly diminish the quality of the public utilities and services for an extended period of time; or (2) damage public utility and service facilities, pipelines, conduits, or power lines.

No Action. Under the no action alternative, there would be no effects on public utilities and services in the project area. There would be no change in type, quality, or availability of services in the project area; however, utilities and public services may be interrupted in the event of an emergency flood-fighting operation.

Proposed Levee Improvements. Construction would not disrupt or realign existing potable water supply or sanitary sewerage. Nearby sanitary sewer force mains would not be affected by construction activities and the contractor would take precautions when crossing over the force mains with equipment. Natural gas supply or electrical transmission lines would not be

augmented except to provide temporary electrical power to the contractor's construction trailer. All utilities located adjacent to, or passing through the project area would either be protected in place or temporarily relocated. The temporary relocation of utilities would not disrupt or reduce the quality of service. Electrical lines for bridge lighting would be temporarily relocated. Bridge lighting would remain operational throughout the construction period for safety and security. Public utilities and services are not expected to be disrupted during construction activities; therefore, impacts would be considered less than significant. The below mitigation measures would be implemented to ensure that impacts remain less than significant.

### **Mitigation Measures**

Prior to initiating ground disturbing activities, the contractor would coordinate with Underground Service Alert to insure that all underground utilities are identified and marked. Utilities would be protected in place. If any utilities require disruption of service, residents and businesses within the potentially affected area would be given notice of the anticipated time and duration of the disruption of service before the start of construction.

### **3.2.10 Noise and Vibration**

#### **Existing Conditions**

Noise is defined as unwanted sound that evokes a subjective reaction to the physical characteristics of a physical phenomenon. Ambient noise in the project area is generated by the traffic on the Watt Avenue Bridge and the adjacent surface streets. Other noise may be generated primarily in the summer by motorized recreation on the American River. Based on experience with similar settings, it is assumed that existing noise levels in the project area are in the range of 60 to 70 decibels (dB) day-night sound level (Ldn). Noise-sensitive receptors in the project area include residents, recreational users, and wildlife. Site R10 is in close proximity to single family residential homes, apartment complexes, and businesses. Currently, the main source of noise includes motor vehicles, human activity, and natural sounds.

Site R10 is located within Sacramento County. The County of Sacramento General Plan Noise Element has established noise standards for various land use categories (County of Sacramento, 1997). Section 6.68.090 of the County of Sacramento Municipal Code exempts construction activities between the hours of 6:00 a.m. and 8:00 p.m., Monday through Friday, and 7:00 a.m. and 8:00 p.m., Saturday and Sunday (Sacramento County, 2009).

Although construction equipment may cause a noticeable increase in ambient noise levels near individual levee construction and staging areas, any noise increases would be short term and intermittent. Construction noise would fluctuate, depending on construction phase, equipment type and duration of use, distance between noise source and receptor, and presence or absence of barriers between noise source and receptor. Noise from construction activity generally attenuates at 6 to 7.5 dBA per doubling of distance. Assuming an attenuation rate of 6 dBA per doubling of distance, construction equipment noise in the range of 80 to 90 dBA at 50 feet would generate noise levels of 74 to 84 dBA at 100 feet from the source. Businesses and residences in this project area are located approximately 50 feet from the construction area and haul routes.

Using the same attenuation rate of 6 dBA per doubling of distance, the noise levels would not drop substantially based on the distance from the source. Most properties have trees or shrubbery planted at the property line which adjoins the landside boundary of the project area. This vegetation would provide for some attenuation of the noise.

### **Environmental Effects**

Basis of Significance. Adverse effects on noise are considered significant if an alternative would result in any of the following: (1) exposure of persons or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; (2) substantial short-term or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; (3) substantial long-term increase in ambient noise levels in the project vicinity above levels existing without the project; or, (4) vibration exceeding 0.2 inch per second within 75 feet of existing buildings.

No Action Alternative. Under the no action alternative, there would be no effects on noise due to construction. Sources of noise and noise levels would continue to be determined by local activities, development, and natural sounds. However, noise levels would temporarily increase in the event of an emergency flood-fighting situation.

Proposed Levee Improvements. Construction activity noise levels at and near the construction areas would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. In addition, certain types of construction equipment generate impulsive noises (such as pile driving or blasting), which can be particularly annoying. Pile driving or blasting, however, is not proposed for this project. Table 3 shows typical noise levels during different construction stages. Table 4 shows typical noise levels produced by various types of construction equipment.

**Table 3. Typical Construction Noise Levels**

<b>Construction Phase</b>	<b>Noise Level (dBA, Leq)<sup>a</sup></b>
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

<sup>a</sup> Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

Source: EPA, 1971.

**Table 4. Typical Noise Levels From Construction Equipment**

<b>Construction Equipment</b>	<b>Noise Level (dBA, Leq at 50 feet )</b>
Dump Truck	88
Portable Air Compressor	81
Concrete Mixer (Truck)	85
Scraper	88
Jack Hammer	88
Dozer	87
Paver	89
Generator	76
Pile Driver	101
Backhoe	85

Source: Cunniff, 1977.

As discussed above, an attenuation rate of 6 dBA has been assumed for this project. Residents and businesses nearest to the project area would experience noise levels at about 89 dBA during asphalt surface removal, the loudest of construction activities that would occur. Other residences and businesses located around the project area are further away and thus would receive lower levels of noise. Sensitive receptors that could be affected by this increase include residents, wildlife, and recreationists. Sensitive receptors would experience noise from construction vehicle motors and construction activities. Construction on the Watt Avenue Bridge would occur between the hours of 10:00 p.m. to 5:00 a.m. The unavoidable noise impacts due to project construction at night would be mitigated to less than significant as described below in Mitigation Measures.

In order to reduce the amount of construction activity conducted at night, site mobilization, preparatory work, and material hauling would occur between the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday. During the height of construction, there may be as many as 20 haul truck round trips per day on Watt Avenue. A receptor 50 feet from a dump truck would experience noise levels up to approximately 88 dBA during a pass by; however, these impacts would be within the County of Sacramento Municipal Code construction exemption and would not be considered significant.

Construction activities associated with the project may result in some minor amount of ground vibration. Vibration from construction activity is typically below the threshold perception when the activity is more than about 50 feet from the receptor. The closest residences and businesses to the construction activities would be just beyond this 50-foot limit; however, most residences and businesses would be 70 feet away or greater. The contractor would measure surface velocity waves caused by equipment, monitoring vibration up to a threshold value established and approved in writing by USACE. Due to the transitional nature of the construction activities, exposure at any one location would be intermittent. The most common vibration impacts at each site would result from truck traffic. Additionally, vibration from these activities would be short term and would end when construction is completed.

Construction would be short-term in nature and would not involve high-effect activities like pile-driving. Mitigation measures as described below would reduce the unavoidable noise impacts to less than significant.

## **Mitigation Measures**

The following measures would be implemented to reduce the effects of the noise as much as possible:

- Construction equipment noise would be minimized during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by shrouding or shielding impact tools.
- All equipment, haul trucks, and worker vehicles would be turned off when not in use for more than 30 minutes.
- Residences and businesses would be notified about the type and schedule of construction at least two weeks prior to mobilization.
- Site mobilization, preparatory work, and material hauling would occur during regular work hours between the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday.

Night construction could have unavoidable impacts on sensitive receptors immediately adjacent to the construction area. Any unavoidable noise impacts due to night construction would be mitigated through the distribution of hotel vouchers to the residents immediately adjacent to the construction area as requested. Public meetings would be scheduled with affected residents to ensure they are informed of the project schedule, its potential effects, and policies regarding vouchers. Discussions with Sacramento County on noise variances are ongoing. Construction-related activities would take place for approximately three months, including approximately eight weeks night construction. Due to the short nature of the construction and the proposed mitigation measures, the impact after mitigation is less than significant.

### **3.2.11 Aesthetics/Visual Resources**

#### **Existing Conditions**

The lower American River is a Federally- and State-designated component of the National Wild and Scenic Rivers System. Section 7 of the Wild and Scenic Rivers Act prohibits Federal agencies from "assist[ing] by loan grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established." The lower American River was included in the Federal and State Wild and Scenic Rivers System because of some or all of its fisheries, wildlife, scenic and recreational values, but primarily its recreation and anadromous fishery values.

The American River Parkway Plan includes several specific policies to regulate flood control and other activities within the Parkway. Policies are included in the plan to limit activities to those that result in minimal damage to riparian vegetation and wildlife and include a revegetation program to screen projects from public view and preserve a naturalistic appearance.

It is National policy that aesthetic resources be protected along with other natural resources. Aesthetic resources are those natural resources, landforms, vegetation, and manmade structures in the environment that generate one or more sensory reactions and evaluations by the observer, particularly in regard to pleasurable response. These sensory reactions are traditionally categorized as pertaining to sight, sound, and smell. Aesthetic quality is the significance given to aesthetic resources based on the intrinsic physical attributes of those specific features and recognized by public, technical, and institutional sources. The identification of scenic resources in the landscape requires a process that identifies the relevant visual features and that is derived from established Federal procedures. Visual quality is influenced by many landscape features including geologic, hydrologic, botanical, wildlife, recreational, and urban characteristics.

The area along this stretch of the American River has a moderate aesthetic value; however, visual sensitivity is high because of the large number of sensitive viewers. Site R10 is located within the American River Parkway alongside the American River. These areas provide valuable riparian habitat as well as recreational opportunities. Other areas near the project sites include residential development, the project levee, American River access points and parking lots, and the Jedediah Smith Recreational Trail.

### **Environmental Effects**

Basis of Significance. An alternative would be considered to have a significant effect on aesthetics if changes in landform, vegetation, or structural features create substantially increased levels of visual contrast as compared to surrounding conditions.

No Action Alternative. Under the no action alternative, there would be no effect on aesthetics. The views and aesthetic quality of all sites would remain the same. However, a major flood event may alter the areas surrounding the project area through erosion and debris.

Proposed Levee Improvements. Construction of the levee repairs at Site R10 would temporarily affect the aesthetics in the project area. Short-term effects would include the temporary removal of the levee crown and the construction itself, as well as the presence and activities of construction equipment and workers in the project areas. There would also be temporary changes in vegetation structure as the construction would involve the removal and re-establishment of vegetation. Additionally, conducting the levee repairs at night would require proper lighting to facilitate construction and worker safety. Light “spills” when it shines beyond the range of the construction site and illuminates unintended areas. Excessive lighting and/or “spilling” of light could create a visual hazard to motorists on the roadway, as well as temporarily reducing the aesthetic value of the American River Parkway beneath the Watt Avenue Bridge. All potential aesthetic impacts due to the construction of Site R10 would be temporary and minor.

### **Mitigation Measures**

In order to reduce the effects of light and glare due to the night construction, BMPs would be implemented including, but not limited to:

- Floodlights would be shielded to reduce “spillage” of light to unintended areas.
- Lights would be utilized only in those areas required for construction and worker safety.

After completion of construction, the site would be restored to preconstruction conditions. The reconstructed levee would remain consistent with the preconstruction visual resources of the project area and therefore would not significantly change the existing visual characteristics of the area. All areas impacted by the project would be revegetated and restored to remain consistent with preconstruction conditions. Any effects to visual resources would be temporary, and the BMPs and the mitigation measures listed in Vegetation and Wildlife (Section 3.2.2), Air Quality (Section 3.2.5), and Water Resources and Quality (Section 3.2.7) would reduce impacts to less than significant.

### **3.2.12 Cultural Resources**

#### **Existing Conditions**

Regulatory Setting. Section 106 of the National Historic Preservation Act of 1966 (36 CFR 800) requires Federal agencies, or those they fund or permit, to consider the effects of their actions on the properties that may be eligible for listing or are listed in the National Register of Historic Places. To determine whether an undertaking could affect National Register-eligible properties, cultural resources (including archeological, historical, and traditional cultural properties) must be inventoried and evaluated for listing in the National Register prior to implementation of the undertaking.

CEQA also requires that for public or private projects financed or approved by public agencies, the effects of the projects on historical resources and unique archeological resources must be assessed. Historical resources are defined as buildings, sites, structures, objects, or districts that have been determined to be eligible for listing in the California Register of Historical Resources. Properties listed in the National Register are automatically eligible for listing in the California Register.

As a component of the American River Watershed Project, the Lower American River Common Features WRDA 96 Remaining Sites Project is subject to the stipulations of the 1991 Programmatic Agreement between USACE, the Bureau of Reclamation, the California State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation Regarding Implementation of the American River Watershed Project. The agreement requires that USACE consult with SHPO and signatories of the agreement regarding its determinations of eligibility and findings of effect once an alternative has been selected. The American River Parkway Plan also requires preservation and interpretation of archeological and historical resources within the Parkway.

Cultural Setting. The term “cultural resources” is used to describe several different types of properties: prehistoric and historic archeological sites; architectural properties, such as buildings, bridges, and infrastructure; and resources of importance to Native Americans

(traditional cultural properties). Artifacts include any objects manufactured or altered by humans.

Prehistoric archeological sites date to the time before recorded history. This area of the U.S. consists primarily of sites associated with Native American use before the arrival of Europeans. Archeological sites dating to the time when these initial Native American-European contacts were occurring are referred to as protohistoric. Historic archeological sites can be associated with Native Americans, Europeans, or any other ethnic group. In the study area, these sites include the remains of historic structures and buildings.

Structures and buildings are considered historic when they are more than 50 years old or when they are exceptionally significant. Exceptional significance can be gained if the properties are integral parts of districts that meet the criteria for eligibility for listing in the National Register or if they meet special criteria considerations.

A traditional cultural property is defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history; and (b) are important in maintaining the continuing cultural identity of the community (National Park Service, 1998). Although normally associated with Native Americans, traditional cultural properties can include those that have significance derived from the role the property plays in any cultural groups' or communities' historically rooted beliefs, customs, and practices.

According to 36 CFR 800.16(l)(1), historical property is defined as "...any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria."

Cultural Resources in the Area of Potential Effects (APE). Discussion of cultural resources has been provided in the American River Watershed, California Long-Term Study Final Supplemental Plan Formulation Report EIS/EIR, Volume II: Appendix A, Attachment 1, Appendix 1E (USACE, 2002b). This study provided a general overview and background research for cultural resources within the entire American River Watershed Project and did not focus on any particular project component area.

Records and Literature Search. The records and literature search indicated that six surveys have taken place within the broader WRDA 96 Remaining Sites Project, three of which included all or portions of the APE for Site R10. In 1995, Dames & Moore, Inc. conducted a survey of the Lower American River for the American River Watershed Investigation project (Dames & Moore, 1995a; Dames & Moore, 1995b). In 2001, JRP Consulting Services conducted a transmission line survey for the Western Area Power Administration Transmission Line Corridor (JRP, 2001), and Peak and Associates surveyed a proposed bike trail (Peak, 1978). Beginning mid-September 2007 until April 30th, 2008, Statistical Research, Inc. was contracted to monitor the geotechnical boring of 26 locations (Statistical Research, Inc., 2008), two of

which were within the Site R10 project APE. Results of the geotechnical investigations revealed little to no presence of subsurface cultural deposits.

The American River left and right bank levees were recorded as historical sites during the 1995 Dames & Moore American River Survey. During the Western Area Power Administration Transmission Line Corridor survey, Herbert and Blosser updated the CA-SAC-481H site report and provided a detailed and thorough history of the levee; they determined that the levee was ineligible for inclusion in the National Register of Historic Places due to extensive repairs and maintenance.

Field Survey. On Monday, March 19, 2012, an additional field study was conducted in and around the APE for Site R10. The pedestrian survey of the APE was negative for historic properties as defined under 36 CFR 800.16(1)(1).

### **Environmental Effects**

Basis of Significance. An alternative would be considered to have a significant adverse effect on cultural resources if it diminishes the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association. Types of effects include physical destruction, damage, isolation, or alteration of the character of the setting; introduction of elements that are out of character; neglect; and transfer, lease, or sale.

No Action Alternative. The no action alternative assumes that no levee improvements would be constructed by USACE. The cultural resources are expected to remain as described in the existing conditions. However, a major flooding event could alter existing conditions by burying, destroying, or revealing cultural resources.

Proposed Levee Improvements. The project, as planned, would not have an effect on properties that are listed in, or are eligible for listing in the National Register of Historic Places. The section of the north levee that was recorded in 1994, and again in 2001, was recommended as ineligible by the site's recorder, JRP Historical Group, Inc. They cited the lack of integrity of the levee due to regular alteration and maintenance during the levee's period of significance of 1955 to 1978.

### **Mitigation Measures**

Because there are no prehistoric, historic, or cultural resources that would be recommended as eligible for listing in the National Register of Historic Places, no mitigation measures are warranted. The project would have no effect on any other known prehistoric or historic resources.

The possibility exists that potentially significant unidentified cultural remains could be encountered during project construction. If buried or otherwise obscured cultural resources are encountered during construction, activities in the area of the find would be halted, and a qualified archeologist would be consulted immediately to evaluate the find.

Should any potentially significant cultural resources be discovered, compliance with 36 CFR 800.13(b), “Discoveries without prior planning,” would be implemented. Data recovery or other mitigation measures might be necessary to mitigate adverse effects to significant properties. Implementation of Mitigation Measure CUL-MM-1, Compliance With National Historic Preservation Act of 1966, Historic and Archeological Resources Protection Act, and Protection of Historic Properties, would reduce this effect to less than significant. A letter has been sent to SHPO requesting their concurrence with a finding of no adverse effect in accordance with 36 CFR 800.4(c)(2). This letter is included in Appendix C, Correspondence Regarding Cultural Resources.

### **3.2.13 Hazardous, Toxic, and Radioactive Waste**

#### **Existing Conditions**

Previous surveys in this area and other areas of the American River Parkway have found no hazardous, toxic, or radioactive waste (HTRW). A Phase 1 Environmental Site Assessment was conducted to identify and evaluate potential hazardous and toxic waste issues associated with all sites in and near the project area. The study area is defined as the area within ¼ mile from the project site. If any evidence of hazardous and toxic waste is identified, then more detailed studies including field sampling and analysis would likely be conducted to determine the nature and extent of any hazardous and toxic waste. The Phase 1 Site Assessment was completed in April 2012.

#### **Environmental Effects**

Basis of Significance. The effect of those substances identified as potentially hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act; the Resource, Conservation, and Recovery Act; and/or 40 CFR Parts 260 through 270 would be considered to be significant if they would (1) expose workers to hazardous substances in excess of Occupational Safety and Health Administration (OSHA) standards, or (2) contaminate the physical environment, thereby posing a hazard to humans, animals, or plant populations by exceeding Federal exposure, threshold, or cleanup limits.

No Action Alternative. Under the no action alternative, there would be no effects on hazardous and toxic waste. Existing sites would not be disturbed, and any hazardous materials would continue to be present in the same amounts. However, a major flood event could release contaminants in the form of petroleum products, solvents, and pesticides into the water and the surrounding areas.

Proposed Levee Improvements. Construction at Site R10 involves jet-grout construction. One of the constituents associated with jet-grout is cement. The cement would be delivered in large bags, which would be offloaded at the batch plant for mixing. The cement is a hazardous material, characterized as a caustic. As such, it would be stored and handled in compliance with all Federal, State, and local regulations, as well as in adherence to OSHA worker safety standards. The contractor would be responsible for developing and implementing a SWPPP. All applicable spill prevention measures associated with the batch plant would be implemented, as

well as measures to avoid the cement mixture or jet-grout spoils from entering the American River. All spoils would be properly dried before being characterized and disposed of at a licensed regulated facility.

In addition, inadvertent spills or leaks of oil or fuels from construction equipment could result in soil contamination at the work or staging areas. Precautions would be followed to avoid contamination, including having a spill control plan. The contractor would be required to properly store and dispose of any hazardous waste generated at the site.

### **Mitigation Measures**

Identification, characterization, segregation, transportation, and disposal of all hazardous wastes would be conducted in accordance with all applicable Federal, State, and local regulations to ensure safety to workers and the public against exposure and contamination. These regulations and BMPs would reduce impacts to less than significant.

## **4.0 GROWTH-INDUCING EFFECTS**

The proposed action alternative would not induce growth in or near the project area. Local population growth and development would be consistent with the Land Use Element of the Sacramento County General Plan (2007). The goal of the proposed action alternative is to construct levee improvements along the American River in order to meet USACE requirements for levee stability. The areas protected by the levees are highly urbanized areas. Levee improvements from this project and other levee improvement projects in the area would not increase or decrease the level of urbanization in the greater Sacramento region. In addition, construction, operation, and maintenance of the improved levee would not result in a substantial increase in the number of permanent workers or employees.

## **5.0 CUMULATIVE EFFECTS**

The NEPA regulations and CEQA guidelines require that an EIS/EIR discuss project effects that, when combined with the effects of other projects, result in significant cumulative effects. Additional detailed information on cumulative effects in the lower American River is included in the 1996 SEIS/EIR.

The NEPA regulations define a cumulative effect as “The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor or collectively significant actions taken over a period of time” (40 CFR 1508.7).

The CEQA Guidelines require that an EIR discuss cumulative effects “when they are significant” (Section 15130). The CEQA Guidelines define cumulative effects as “two or more individual effects which, when considered together, compound or increase other environmental

impacts” (Section 15355). Additionally, the CEQA Guidelines state: “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to the other closely related past, present, and reasonable foreseeable probable future projects” (Section 15355).

## **5.1 Local Projects**

This section briefly describes other major Federal projects in the Sacramento area. The exact construction timing and sequencing of these projects are not yet determined or may depend on uncertain funding sources. All of these projects are required to evaluate the effects of the proposed project features on environmental resources in the area. In addition, mitigation or mitigation measures must be developed to avoid or reduce any adverse effects to less than significant based on Federal and local agency criteria. Those effects that cannot be avoided or reduced to less than significant are more likely to contribute to cumulative effects in the area.

### **5.1.1 Folsom Dam Safety and Flood Damage Reduction Project Ongoing Construction Activities**

The Folsom Dam Safety and Flood Damage Reduction Project address the dam safety hydrologic risk at the Folsom Facility and improve flood protection. Several activities associated the project include: Phase II, Phase III, and Phase IV of the Folsom Dam Auxiliary Spillway Joint Federal Project, referred to as the Joint Federal Project (JFP), static upgrades to Dike 4, Mormon Island Auxiliary Dam (MIAD) modifications, and seismic upgrades (piers and tendons) to the Main Concrete Dam.

Auxiliary Spillway Excavation: Spring 2009 to Fall 2010. Major work under Phase II of the JFP includes partial excavation of the western portion of the auxiliary spillway, construction of the downstream cofferdams, relocation of the Natoma Pipeline, and the creation of an access road to the stilling basin. This portion of the JFP was covered under the 2007 Folsom Dam Safety and Flood Damage Reduction Project EIS/EIR (2007 EIS/EIR). Construction was conducted by the United States Bureau of Reclamation (USBR) and was completed prior to the start of the Control Structure construction effort.

Dike 4 and 6 Repairs: Summer 2009 to June 2010. To address seepage concerns due to static and hydrologic loading for Dikes 4 and 6, USBR installed full height filters, toe drains, and overlays on the downstream face of each earthen structure. This portion of the JFP was covered under the 2007 EIS/EIR.

Mormon Island Auxiliary Dam Modification Project: Summer 2010 to Summer 2014. USBR released the Draft EIS/EIR for the MIAD Modification Project in December 2009. The preferred MIAD action alternative of jet grouting selected in the FEIS/EIR was determined to be neither technically nor economically feasible. Four action alternatives were analyzed in the MIAD Draft Supplemental EIS/EIR. All alternatives address methods to excavate and replace the MIAD foundation, place an overlay on the downstream side, and install drains and filters; the alternatives differ only in their method of excavation. In addition, all four action alternatives in

the Draft Supplemental EIS/EIR include habitat mitigation proposed for up to 80 acres at Mississippi Bar on the shore of Lake Natoma to address impacts from the JFP.

Pier Tendon Installation, Spillway Pier Wraps, and Braces at Main Concrete Dam: April 2011 through Spring 2012. These three projects address seismic concerns at the main concrete dam. These improvements are designed to help stabilize the main concrete dam against movement during a major earthquake. This portion of the JFP was covered under the 2007 FEIS/EIR, and will be completed prior to implementation of the Approach Channel project.

Control Structure, Chute, and Stilling Basin: Spring 2011 to Fall 2017. Phase III of the JFP consists of construction of the auxiliary spillway control structure. This effort is currently under construction by the Corps and is projected to be completed in the fall of 2014. Concrete lining of the spillway chute and stilling basin will be conducted by USACE as the final phase of the JFP. These actions will be constructed from approximately summer 2013 to fall 2017. Construction of the control structure, and the concrete lining of the chute and stilling basin were all covered under the USACE 2010 EA/EIR.

Additional Downstream Features: Fall 2012 to Spring 2013. The design refinements to Phase III construction are being evaluated in a supplemental EA/EIR include the construction of a temporary traffic light, modification to the existing dirt access haul road, installation of the stilling basin drain, and use of the existing nearby staging area with the installation of a new batch plant to be used and operated for other downstream features work. A draft EA/EIR is scheduled for public review in summer 2012.

Approach Channel: Spring 2013 to Fall 2017. The approach channel project is the final construction activity of Phase IV of the JFP. The primary and permanent structures consist of the 1,100 foot long excavated approach channel and spur dike. A transload facility and concrete batch plant will be constructed as necessary temporary structures to facilitate the construction. Additional existing sites and facilities that would be utilized for the length of the project include the Folsom Prison staging area, the existing Bureau of Reclamation Overlook, the MIAD area, and Dike 7. These sites and facilities are connected by an internal project haul road. Criteria pollutant emissions from the approach channel project and the downstream project would be less than significant for ROG, CO, SO<sub>2</sub>, and PM<sub>2.5</sub>, less than significant with mitigation for PM<sub>10</sub>. NO<sub>x</sub> exceeds the GCR de minimis threshold, but would be addressed by inclusion in the State Implementation Plan, which would provide compliance with the GCR of the Federal Clean Air Act. The draft supplemental EIS/EIR is scheduled to be available for public review in summer 2012.

### **5.1.2 Folsom Dam Flood Management Operations Study**

The Flood Management Operations Study is being completed in conjunction with the JFP by USACE, USBR, CVFPB, and SAFCA. The Flood Management Operations Study for Folsom Dam will develop, evaluate, and recommend changes to the flood control operations at Folsom Dam that would further reduce flood risks to the Sacramento area. Operational changes may be necessary to fully realize the flood risk reduction benefits of the following:

- The additional operational capabilities created by the auxiliary spillway;
- The increased downstream conveyance capabilities anticipated to be provided by the American River Common Features Project (Common Features);
- The increased flood storage capacity anticipated to be provided by completion of the Folsom Dam Raise Project (Dam Raise); and
- The use of improved forecasts from the National Weather Service.

Further, the Flood Management Operations Study will evaluate options for the inclusion of creditable flood control transfer space in Folsom Reservoir in conjunction with Union Valley, Hell Hole, and French Meadows Reservoirs (also referred to as Variable Space Storage). The study will result in a USACE decision document and will be followed by a water control manual implementing the recommendations of the Study. It should be recognized that the initial water control manual will implement the recommendations of the study, but will not include the capabilities to be provided by the Dam Raise and additional Common Features project improvements until such time as these projects have been completed.

### **5.1.3 Folsom Dam Raise**

The Folsom Dam Raise project will follow the JFP. This project includes raising the Folsom Dam, and the dikes around Folsom Reservoir by 3.5 feet; replacing the three emergency spillway gates; and three ecosystem restoration projects (automation of the temperature control shutters at Folsom Dam and restoration of the Bushy and Woodlake sites downstream). The ecosystem restoration projects have been prioritized at different levels and separated, with automation of the temperature control shutters to be the next completed feature in 2017 and the two downstream restoration sites to be completed in approximately 2016-2017. For the dam raise portion of the project, the design should begin in 2015 and be completed in FY16, with construction following in phases through 2017 and 2018.

### **5.1.4 Lower American River Common Features Project**

Based on congressional authorizations (Water Resource Development Act, or WRDA) in 1996 and 1999, USACE, CVFPB, and SAFCA have undertaken various improvements to the levees along the north and south banks of the American River and the east bank of the Sacramento River. Under WRDA 96, the most recent improvements include seepage protection at RM 62 on the east bank of the Sacramento River (2009), RM 7.0 left and right bank (2010), RM 8.5 left bank (2010), and RM 5.5 right bank (2011), all on the American River. A site at RM 6.5 right bank (Site R6) is scheduled for construction in 2012 and a site at RM 9.5 (Site R10) is scheduled for construction in 2013. Two smaller sites under WRDA 96 (L9/L9A, and L5A, totaling 371 linear feet) are currently scheduled for construction in 2013; however, they are expected to be approved under NEPA Categorical Exclusions and would not have air quality emissions data to consider under cumulative effects. Several other sites are being considered for construction in 2014 and beyond, but evaluations of environmental impacts have not yet begun.

Of the five sites authorized under WRDA 99, Mayhew Levee Raise (2008) and Mayhew Drain Closure Structure (2008) have been completed; Jacob Lane (Reaches A & B, 2009) and

2010) will be completed with the construction of Reach C scheduled for 2013; Howe Avenue is scheduled for construction in 2012 and the Natomas East Main Drain Canal is scheduled for construction in 2013 and 2014.

Several other phases of repairs have been completed in the Natomas Basin under the Lower American River Common Features Project. The project will continue to study potential erosion control repairs along the lower American River and the east bank of the Sacramento River.

### **5.1.5 Natomas Levee Improvement Project**

The Natomas Levee Improvement Project was authorized in 2007 as an early-implementation project initiated by SAFCA in order to provide flood protection to the Natomas Basin as quickly as possible. These projects consist of improvements to the perimeter levee system of the Natomas Basin in Sutter and Sacramento Counties, California, as well as associated landscape and irrigation/drainage infrastructure modifications. SAFCA, DWR, CVFPB, and USACE have initiated this effort with the aim of incorporating the Landside Improvements Project and the Natomas Levee Improvement Project into the Federally-authorized American River Common Features Project. The project is still under construction at this writing. Future project features will be completed under the proposed American River Common Features General Reevaluation Report, upon authorization.

### **5.1.6 Sacramento River Bank Protection Project**

The Sacramento River Bank Protection Project (SRBPP) was authorized to protect the existing levees and flood control facilities of the Sacramento River Flood Control Project. The SRBPP is a long-range program of bank protection authorized by the Flood Control Act of 1960. The SRBPP directs USACE to provide bank protection along the Sacramento River and its tributaries, including that portion of the lower American River bordered by Federal flood control project levees. Beginning in 1996, erosion control projects at five sites covering almost 2 miles of the south and north banks of the lower American River have been implemented. Additional sites at RM 149 and 56.7 on the Sacramento River totaling one-half mile have been constructed since 2001. During 2005 through 2007, 29 critical sites totaling approximately 16,000 linear feet were constructed under the Declaration of Flood Emergency by Governor Schwarzenegger. This is an ongoing project, and additional sites requiring maintenance will continue to be identified indefinitely until the remaining authority of approximately 24,000 linear feet is exhausted over the next 3 years. The Water Resources Development Act of 2007 authorized an additional 80,000 linear feet of bank.

These projects would help to improve flood protection to residents in the Sacramento area by ensuring the integrity of the levees along the American and Sacramento Rivers. The Lower American River Common Features Project and the Sacramento River Bank Protection Project would also help meet FEMA's 100-year flood criteria for the Sacramento area levee system. These would be considered beneficial cumulative effects.

## **5.2 Cumulative Effects**

### **Land Use**

The River Corridor Management Plan and American River Parkway Plan recognize the American River Parkway as the key feature of the American River flood control system in Sacramento, and consider flood management the primary land use on the Parkway. The use of Parkway land to provide flood protection to the Sacramento area is consistent with these plans. In addition, the areas protected by the levees are highly urbanized areas. Levee improvements from this project and other levee improvement projects in the area would not increase or decrease the level of urbanization in the greater Sacramento region as there is little room for future growth. As a result, the project is consistent with adopted plans and policies on land use in the project area and would not contribute significantly to cumulative effects on land use.

### **Recreation**

The project would have a short-term restriction on recreational access during construction. This project and other similar past, present, and reasonably foreseeable future projects are not expected to result in long-term changes to recreational access or opportunities on the Parkway. Projects in immediate vicinity of each other, such as other sites in the WRDA 1996 American River Common Features Remaining Sites Project, would be timed to occur progressively in order to reduce impacts to recreation. These projects are not expected to result in adverse cumulative effects.

### **Vegetation and Wildlife**

The project would result in short-term disturbances of wildlife habitat, but the project would not substantially reduce the connectivity or extent of natural vegetation and wildlife habitat along the American River. Other projects in the local area, such as the WRDA 1999 Howe Avenue Levee Improvement Project, the Jacob Lane C Levee Improvement Project, and the NEMDC Levee Improvement Project cannot eliminate short-term effects on vegetation and wildlife associated with construction activities; however, mitigation measures would provide improved habitat through the planting of native tree species and other native vegetation. These plantings would occur in mitigation sites and are expected to result in a net, long-term improvement in native vegetation and wildlife habitat values in the Parkway.

### **Fisheries**

Historical modifications to the project areas have created a highly altered riverine system; however, current projects are not expected to create new adverse effects on fisheries. Levee improvement projects such as the WRDA 1999 Howe Avenue Levee Improvement Project, the Jacob Lane C Levee Improvement Project, and the NEMDC Levee Improvement Project would not involve in-water work or removal of woody debris from the river. Current Folsom Dam modifications are being designed to allow water to be released from the bottom of the reservoir, potentially lowering water temperatures in the American River. Lower water temperatures are conducive to optimal spawning in threatened and endangered salmonids. Mitigation measures

and BMPs would be implemented during the construction of all projects to reduce the potential impacts to fisheries and EFH to less than significant.

### Special Status Species

Local projects, including the WRDA 1999 Jacob Lane C Levee Improvement Project and the NEMDC Levee Improvement Project, would result in the removal of elderberry shrubs. The short term impacts of the removal of these elderberry shrubs is unknown; however, because of the limited spatial extent of elderberry shrub removal and prevalence of existing elderberry shrubs in the project vicinity, the overall extent and connectivity of beetle habitat is not expected to be diminished by these projects. Establishment of new, additional beetle mitigation areas on the Parkway consistent with USFWS Guidelines would result in the long-term net improvement of beetle habitat by increasing habitat extent and connectivity along the American River. While this and other projects have resulted in short-term, localized effects to beetle habitat, the incorporation of habitat mitigation on the Parkway is expected to result in the long-term, cumulative improvement to beetle habitat on the Parkway and ultimately assist in the recovery of the species. Other special status species including Swainson’s hawks, white-tailed kites, bank swallows, giant garter snakes (*Thamnophis gigas*), and threatened or endangered salmonids are not expected to be adversely affected by other projects in the local area. Levee improvement projects would utilize BMPs and mitigation measures to reduce any effects to less than significant. As a result, these projects would not contribute significantly to cumulative adverse effects on special status species.

### Air Quality

Construction of the WRDA 1996 Common Features Remaining Sites Project Sites R10 is not expected to have any long-term effects on air quality since the operational activities (including inspection and maintenance) are expected to be similar to existing conditions. If the Site R10 Project is constructed in 2013, it may overlap with the construction of the NEMDC Project and the Jacob Lane Reach C Project, as well as the Folsom Auxiliary Spillway. All projects in the area would implement BMPs and mitigation measures as recommended by SMAQMD, and are in compliance with the Clean Air Act. Table 5 shows the combined air emissions estimations for the construction of Site R10, NEMDC, and Jacob Lane Reach C.

**Table 5. Combined Estimated Air Emissions for Concurrent Construction of the Jacob Lane Reach C, NEMDC, and Site R10 Projects.**

	ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Total emissions (lbs/day)	22.8	169.3	162.2	58.6	16.8	22,414.4
SMAQMD thresholds (lbs/day)	N/A	N/A	85	N/A	N/A	N/A
Total (tons/construction project)	0.6	4.9	4.7	1.4	0.4	647.2
Federal standards (tons/year)	25	100	25	100	N/A	N/A

## **Climate Change**

Projects in the area would emit GHGs as part of the combustion engine process in light- and heavy-duty vehicles. GHGs by definition are cumulative in nature; that is, the significance of GHG emissions is negligible until all GHG emissions are accounted for on a global scale. Protocol is being developed that would enable greater analysis and understanding of the effects of GHG emissions in order to reduce the effects of climate change. That being said, there are currently no Federal, State, or Agency thresholds of significance on GHGs, making analysis of the cumulative effects of GHG emissions speculative at best. Although projects in the local area and state wide would have varying levels of GHG emissions, standard construction techniques and BMPs would reduce the GHGs emitted from these construction projects to below significant levels. Therefore, the emissions from other local construction projects would not contribute significantly to climate change.

## **Water Resources and Quality**

Projects in the area could result in accidental spills or leaks that could affect surface and ground water resources. With multiple projects under construction, the possibility exists that several accidental spills or leaks could enter the water. All projects have mitigation measures and BMPs included in the construction plans that would be implemented to avoid or reduce these effects to less than significant. As a result, the projects would not contribute significantly to cumulative effects on water resources and quality. In addition, the projects in the area may have an overall positive effect on water quality. By diminishing the possibility for a catastrophic flood event, significant long term impacts to water quality through contamination from flooded vehicles, household and industrial chemicals, raw sewage, and other wastes that may be present in the area would be avoided.

## **Traffic and Circulation**

The construction of all projects in the local area would involve trucks and worker vehicles entering and exiting residential areas, potentially disrupting traffic flow and possibly posing a safety hazard to other motorists, pedestrians, and bicyclists on and along these roadways and access points to the Parkway. Large trucks transporting equipment and materials to the work areas would not be consistent with the types of residential traffic using the neighborhood streets; however, the increases in traffic due to construction vehicles would not be significant as compared with existing levels of neighborhood traffic. Projects in the local area have adequate distances between them to reduce overall traffic impacts to small residential neighborhoods. Implementation of measures in the Traffic Management Plan would minimize traffic congestion and delays and ensure public safety. Minimization practices at all sites and the relative distances between multiple projects would reduce adverse cumulative effects on local traffic to less than significant.

## **Public Utilities and Services**

Local projects adjacent to Site R10 would protect utilities in place and are not expected to affect public services and utilities. In the event of changes or disruptions to public utilities and

services due to other projects in the area, USACE would coordinate with the affected companies and would send notice to potentially affected customers. Since no significant adverse effects to public utilities and services are anticipated for this project or other projects in the local area, there would be no adverse cumulative effects on public utilities and services.

### **Noise and Vibration**

This project and other local projects would result in temporarily increased levels of ambient noise in the residential area and Parkway during construction. Movement and operation of equipment, haul trucks, and worker vehicles would generate noise in the work area, as well as on the neighborhood roadways that provide access through residential areas. Noise levels could reach the high 80s dBA, depending on the type of equipment or truck. Noise from construction activities generally attenuates at a rate of 6 to 7.5 dBA per doubling of the distance from the reference noise source. Based on the project site layout and terrain, an attenuation of 6 dBA will be assumed. Residences that are located adjacent to the project areas would experience noise levels at about 89 dBA during excavation, the loudest of construction activities that would occur. Other residences that are further away from the project areas would receive lower levels of noise. Since noise impacts would be short term and would utilize BMPs for noise reduction, and since noise impacts would be reduced due to noise attenuation, the project would not contribute significantly to cumulative effects on local noise.

## **6.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS**

### **6.1 Federal**

**Archaeological Resources Protection Act of 1979, 16 U.S.C. 470, et seq.** *Full compliance.* This act prohibits the removal, sale, receipt, and interstate transportation of archaeological resources obtained illegally (without permits) from public lands. The proposed project would not involve any such archaeological resources.

**Clean Air Act of 1972, as amended, 42 U.S.C. 7401, et seq.** *Full compliance.* The proposed action is not expected to violate any Federal air quality standards, exceed the EPA's general conformity *de minimis* threshold, or hinder the attainment of air quality objectives in the local air basin. Implementation of BMPs would reduce NO<sub>x</sub> emissions to below local thresholds. Thus, USACE has determined that the proposed project would have no significant effects on the future air quality of the area.

**Clean Water Act of 1972, as amended, 33 U.S.C. 1251, et seq.** *Full compliance.* The proposed action is not expected to adversely affect surface or ground water quality, deplete ground water supplies, or result in placement of dredged or fill material into waters of the United States and associated wetlands. BMPs would be implemented to avoid movement of soils or accidental spills into the river. Since the project would disturb one or more acres of land and involve possible storm water discharges to surface waters, the contractor would be required to obtain a National Pollution Discharge Elimination System permit from the California Regional Water Quality Control Board, Central Valley Region. As part of the permit, the contractor

would be required to prepare a SWPPP identifying BMPs to be used to avoid or minimize any adverse effects of construction on surface waters. USACE has determined that the proposed project would have no significant effects on the future water quality of the area.

**Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, et seq.** *Full compliance.* In accordance with Section 7(c), USACE obtained a list of Federally listed and proposed species likely to occur in the project area. The only Federally listed species within the project area is the valley elderberry longhorn beetle. USACE has consulted with USFWS and has obtained their concurrence that there would be no significant effects on any listed or proposed species under the jurisdiction of USFWS.

USACE as the action agency has made the determination that there would be no effect on any listed species under the jurisdiction of NMFS. As a result, consultation is not required with NMFS under Section 7 of the Endangered Species Act.

**Fish and Wildlife Coordination Act of 1958, as amended, 16 U.S.C. 661, et seq.** *Full compliance.* Coordination with USFWS is ongoing in order to determine the effects on vegetation and wildlife in the project area. The USFWS's Planning Aid Letter (May 17, 2012) is included in Appendix D.

**Executive Order 11988, Floodplain Management (May 24, 1977).** *Full compliance.* Executive Order 11988 directs Federal agencies to issue or amend existing regulations and procedures to ensure that the potential effects of any action it may take in a floodplain are evaluated and that its planning programs and budget requests reflect consideration of flood hazards and floodplain management. The purpose of this directive is "to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative."

Repairs to the levees protecting the areas associated with the proposed project have been determined by USACE, the State, and SAFCA to be the most feasible method of providing adequate flood protection to existing development. Other potential levee repair options to provide flood protection for existing development, such as setback levees, seepage berms, or floodwalls are limited due to the proximity of residential and commercial development adjacent to the project sites. The areas adjacent to, and surrounding, the project sites are already developed and built-out; therefore, the implementation of the project would not directly promote development in the floodplain. However, it must be recognized that completion of the authorized project would not discourage any future redevelopment.

The proposed project would reduce the risk of flood loss and minimize the impact of floods on human health, safety, and welfare by strengthening the existing flood control infrastructure protecting significant existing development. Because there is no practicable alternative to the floodplain development indirectly associated with the project, and because the project would reduce flood risk, it satisfies Executive Order 11988.

**Executive Order 11990, Protection of Wetlands.** *Full compliance.* This order directs all Federal agencies to “minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency’s responsibilities.” The project would not directly affect wetlands, and would carry out BMPs in order to reduce the possibility of degrading wetlands through indirect effects.

**Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.** *Full compliance.* This order directs all Federal agencies to identify and address adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. There are no minority or low-income populations in the project area. All nearby residents would benefit from the proposed project.

**Farmland Protection Policy Act (7 U.S.C. 4201, et seq).** *Full compliance.* There are no prime and/or unique farmlands in the project area.

**Migratory Bird Treaty Act (15 U.S.C 701-18h).** *Full compliance.* Construction would be timed to avoid destruction of active bird nests or young of birds that breed in the area. If this is not feasible, a qualified biologist would survey the area prior to initiation of construction. If active nests are located, a protective buffer would be delineated and the entire area avoided, preventing disturbance of nests until they are no longer active.

**National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321, et seq.** *Partial compliance.* This EA is in partial compliance with this act. Comments received during the public review period will be incorporated into the EA, as appropriate, and a comments and responses appendix will be prepared. A Finding of No Significant Impact (FONSI) may be prepared when an action would not have a significant effect on the human environment and for which an environmental impact statement would not be prepared. The final EA will be accompanied by a final FONSI, if appropriate. These actions will provide full compliance with this act.

**National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq.** *Full compliance.* The project is in full compliance with Section 106 of the National Historic Preservation Act (36 CFR 800). A records and literature search of the area of potential effects (APE) was conducted by USACE archeological staff, and a survey of the APE was negative for cultural resources. According to the 2008 records and literature search, the American River north and south levees were recorded as historic properties potentially eligible for listing in the National Register of Historic Places (NRHP). The American River north levee, CA-SAC-481-H, was determined ineligible for listing in the NRHP in 2008. The American River south levee, CA-SAC-482-H, has not been formally evaluated for eligibility for listing in the NRHP. For the purposes of the proposed project, USACE will consider CA-SAC-482-H eligible for listing in the NRHP. However, the proposed project would not alter the configuration, prism, or any defining original characteristics of the original levee. Therefore, pursuant to 36 CFR 800.4(d)(1), the proposed project would have no effect on NRHP listed or eligible properties. A letter has been sent to the State Historic Preservation Officer (SHPO). This letter is included in Appendix C, and any responses received from SHPO will be included in the final EA/IS.

**Native American Graves Protection and Repatriation Act of 1990, 23 U.S.C. 3002.** *Full Compliance.* This act requires Federal agencies to (1) establish procedures for identifying Native American groups associated with cultural items on Federal lands; (2) inventory human remains and associated funerary objects in Federal possession; and (3) return such items upon request to the affiliated groups. The law also requires that any discoveries of cultural items covered by the act be reported to the head of the Federal entity, who would notify the appropriate Native Americans group. The proposed action would not involve any such cultural items.

**Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271 et seq.).** *Full compliance.* The lower American River has been designated as a “recreational” component of the Federal Wild and Scenic Rivers system. The project would neither adversely affect the resources for which the American River was designated nor adversely affect the river's free-flowing status. All construction activities would be away from the river.

## 6.2 State

**California Clean Air Act of 1988.** *Full compliance.* SMAQMD determines whether project emission sources and emission levels significantly affect air quality based on Federal standards established by the EPA and State standards set by the California Air Resources Board. The project is in compliance with all provisions of the Federal and State Clean Air Acts.

**California Endangered Species Act of 1984.** *Full compliance.* The California Department of Fish and Game administers this State law providing protection of fish and wildlife resources. This act requires the non-Federal lead agencies to prepare biological assessments if a project may adversely affect one or more State-listed endangered species. No State-listed species would be adversely affected by the project. As a Federal agency, USACE is not required to obtain a California Fish and Game Code Section 1602 Stream Alterations Agreement issued by the California Department of Fish and Game.

**California Environmental Quality Act, California Public Resources Code, Section 21000 et seq.** *Partial compliance.* This EA/IS is in partial compliance with this act. All comments received during the public review period will be considered and incorporated into the final EA/IS, as appropriate. This final EA/IS will be accompanied by a final Negative Declaration. The Central Valley Flood Protection Board, as the non-Federal sponsor, will ensure full compliance with the requirements of this act.

## 7.0 COORDINATION AND REVIEW OF THE DRAFT EA/IS

The draft EA/IS and draft FONSI/Negative Declaration will be circulated for 30 days to agencies, organizations and individuals known to have a special interest in the project. Copies of the draft EA/IS will be posted on the SAFCA website ([http://www.safca.org/Programs\\_AmericanRiverCommonFeaturersProject.html](http://www.safca.org/Programs_AmericanRiverCommonFeaturersProject.html)) and made available for viewing at local public libraries, or provided by mail upon request. This project has been coordinated with all the appropriate Federal, State, and local government agencies.

## **8.0 FINDINGS**

This draft EA/IS evaluated the environmental effects of the proposed project of constructing levee improvements at Site R10 on the American River in East Sacramento. Potential adverse effects to the following resources were evaluated in detail: recreation, special status species, vegetation and wildlife, air quality, climate change, water resources and quality, traffic and circulation, aesthetics, noise and vibration, cultural resources, and hazardous materials. Results of the EA/IS, field visits, and coordination with other agencies indicate that the proposed project would have no significant long-term effects on environmental resources. Short-term effects during construction would either be less than significant or mitigated to less than significance using BMPs and other mitigation measures.

Based on this evaluation, the proposed project meets the definition of a FONSI as described in 40 CFR 1508.13. A FONSI may be prepared when an action would not have a significant effect on the human environment and for which an environmental impact statement would not be prepared. Therefore, a draft FONSI has been prepared and accompanies this draft EA/IS.

The Central Valley Flood Protection Board, as the non-Federal sponsor, is evaluating this project under CEQA guidelines. Should their evaluation determine that the project would have no significant impacts on the environment, a Negative Declaration would be attached to this document.

## **9.0 LIST OF PREPARERS**

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Office of Counsel Review

## 10.0 REFERENCES

- Association of Environmental Professionals (AEP). 2007. Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents, Final. [http://www.counties.org/images/public/advocacy/ag\\_natres/aep\\_global\\_climate\\_change\\_june\\_29\\_final%5b1%5d.pdf](http://www.counties.org/images/public/advocacy/ag_natres/aep_global_climate_change_june_29_final%5b1%5d.pdf).
- California Department of Water Resources (DWR). 2003. Bulletin 118, Update 2003, Chapter 7: Sacramento River Hydrologic Region. [http://www.water.ca.gov/pubs/groundwater/bulletin\\_118/california's\\_groundwater\\_\\_bulletin\\_118\\_-\\_update\\_2003\\_/bulletin118\\_5-sr.pdf](http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118_-_update_2003_/bulletin118_5-sr.pdf)
- California Department of Water Resources (DWR). 2009. Water Data Library. Sacramento River at Sacramento. [http://www.water.ca.gov/waterdatalibrary/docs/Hydstra/docs/A07140/2009/STAGE\\_DAILY\\_MEAN\\_REPORT.TXT](http://www.water.ca.gov/waterdatalibrary/docs/Hydstra/docs/A07140/2009/STAGE_DAILY_MEAN_REPORT.TXT).
- California Department of Water Resources (DWR). 2009. Water Data Library. American River at Sacramento. <http://wdl.water.ca.gov/hydstra/index.cfm?site=A07140>.
- California Natural Diversity Database (CNDDDB). 2009. California Department of Fish and Game, Biogeographic Data Branch. <http://www.dfg.ca.gov/biogeodata/cnddb>.
- California State University (CSU). 2009. Analytic Studies Statistical Reports. <http://www.calstate.edu/AS/stats.shtml>.
- California State University at Sacramento (CSUS). 2010. Academic Calendar, Fall 2010. <http://www.csus.edu/acaf/calendars/fall10.stm>.
- City of Sacramento. 2004. Sacramento River Treatment Plant and E.A. Fairbairn Water Treatment Plant Improvement. <http://www.cityofsacramento.org/utilities/water/documents/TM08.pdf>.
- City of Sacramento. 2007. City of Sacramento Traffic Counts Database. <http://www.cityofsacramento.org/transportation/traffic/list.cfm>.
- County of Sacramento. 1997. The County of Sacramento General Plan Noise Element. [http://library.ceres.ca.gov/cgi-bin/doc\\_home?elib\\_id=2023](http://library.ceres.ca.gov/cgi-bin/doc_home?elib_id=2023).
- County of Sacramento. 2007. The County of Sacramento General Plan Land Use Element. <http://www.planning.saccounty.net/general-plan/docs/pdf/GP-Elements/Land%20Use%20Element-updated%2008.29.07.pdf>.
- Cunniff, P. F. 1977. Cunniff Solutions Manual to Acc Environmental Noise Pollution. John Wiley & Sons Inc. New York.

- Dames & Moore. 1995a. South Bank American River Levee. Cultural Resources site record for CA-SAC-482H. On file, California State University, Sacramento.
- Dames & Moore. 1995b. North Bank American River Levee. Cultural resource site record for CA-SAC-481H. On file, California State University, Sacramento.
- Domagalski, J and L. Brown. 1994. National Water-Quality Assessment Program: The Sacramento River Basin. U.S. Geological Survey.  
[http://ca.water.usgs.gov/sac\\_nawqa/Publications/fs\\_1994-029.html](http://ca.water.usgs.gov/sac_nawqa/Publications/fs_1994-029.html).
- Garrison, Barrett A. 1999. Bank Swallow (*Riparia riparia*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/414>.
- Intergovernmental Panel on Climate Change (IPCC). 2007. *Climate Change 2007 Synthesis Report*. [http://www.ipcc.ch/publications\\_and\\_data/publications\\_ipcc\\_fourth\\_assessment\\_report\\_synthesis\\_report.htm](http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm).
- JRP Historical Consulting Services, Inc. 2001. Site Record Form Update: CA-SAC-4812H.
- Losee, C. 2004. Letter Report to Cingular Wireless.
- Moyle, P.B. 2002. Inland fishes of California. University of California Press, Berkeley, CA.  
<http://www.nmfs.noaa.gov/pr/species/fish/greensturgeon.htm>.
- Myers, J.M., R.G. Kope, G.L. Bryant, D. Teel, L.J. Lierheimer, T.C. Wainwright, W.S. Grant, F.W. Waknitz, K. Neely, S.T. Lindley, and R.S. Waples. 1998. Status review of Chinook salmon from Washington, Idaho, Oregon, and California. U.S. Department of Commerce, NOAA Tech Memo. NMFS-NWFSC-35, 443p.
- National Park Service. 1998. Guidelines for Evaluating and Documenting Traditional Cultural Properties. National Register Publications,  
<http://www.nps.gov/nr/publications/bulletins/nrb38/>.
- Nilsson, E., J. J. Johnson, and S. Flint. 1995. Archaeological Inventory Report, Lower American River Locality: American River Watershed Investigation California. Submitted to U.S. Army Corps of Engineers, Sacramento District. Contract No. DACW05-92-C-0126; Site Record Form: CA-SAC-481H.
- Peak, A. S. 1978. Archaeological Investigation of Discovery Park and Captain Tiscornia Park (South Discovery Park) and the American River Parkway, Sacramento, California. Prepared for County of Sacramento Department of Parks and Recreation.
- Sacramento Area Flood Control Agency and United States Bureau of Reclamation (SAFCA and USBR). 2000. Interim Folsom Dam Reoperation Agreement. Folsom, CA.

- Sacramento County. 2010. Sacramento County Traffic Counts. <http://www.msa2.saccounty.net/transportation/Pages/TrafficCountDatabase.aspx>.
- Sacramento County. 2009. Sacramento County Municipal Code, Title 6 (Health and Sanitation). <http://qcode.us/codes/sacramentocounty/>.
- Sacramento Metropolitan Air Quality Management District. 2008. Construction Emissions Mitigation CEQA Tools. <http://www.airquality.org/ceqa/mitigation.shtml>.
- Sacramento Metropolitan Air Quality Management District, 2011. Revision - Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan. <http://www.airquality.org/plans/federal/ozone/8hr1997/2011SIPrev/index.shtml>
- Statistical Research, Inc. 2008. Archaeological Monitoring Report for Geotechnical Borings for the Water Resources Development Act 1996 Remaining Sites Study, Along the American River, Sacramento, California. Technical Report 08-42. Contract No. DACWA05-04-D-0004. Prepared for Sacramento District, U.S. Army Corps of Engineers.
- U.S. Army Corps of Engineers (USACE). 1996. Final Supplemental Environmental Impact Statement/Environmental Impact Report, American River Watershed Project, Sacramento, California. U.S. Army Corps of Engineers, Sacramento District. Sacramento, CA.
- U.S. Army Corps of Engineers (USACE). 1998. Streambank Protection for the Lower American River Final Environmental Impact Report and Supplemental Environmental Impact Statement V for the Sacramento River Bank Protection Project. U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA.
- U.S. Army Corps of Engineers (USACE). 2002. Final Environmental Assessment/Initial Study, American River Watershed Common Features Project, California, Lower American River Features as Modified by the Water Resources Development Act of 1999. U.S. Army Corps of Engineers, Sacramento District. Sacramento, CA.
- U.S. Army Corps of Engineers (USACE). 2002b American River Watershed, California Long-Term Study Final Supplemental Plan Formulation Report EIS/EIR, Volume II: Appendix A, Attachment 1, Appendix 1E. U.S. Army Corps of Engineers, Sacramento District. Sacramento, CA.
- U.S. Army Corps of Engineers (USACE). 2006. Final Environmental Assessment/Initial Study, American River Common Features Pocket Area Geotechnical Reaches 2 and 9. U.S. Army Corps of Engineers, Sacramento District. Sacramento, CA.
- U.S. Army Corps of Engineers (USACE). 2008a. Environmental Impact Statement/Environmental Impact Report, Natomas Levee Improvement Project and Phase 3 Landside Improvements Project. U.S. Army Corps of Engineers, Sacramento District. Sacramento, CA.

- U.S. Army Corps of Engineers (USACE). 2008b. Final Environmental Assessment/Initial Study, American River Watershed Common Features Project, California Lower American River Features as Modified by WRDA 1999, Jacob Lane Levee Improvements Reaches A & B. U.S. Army Corps of Engineers, Sacramento District. Sacramento, CA.
- U.S. Army Corps of Engineers (USACE). 2009. Final Environmental Assessment/Initial Study, American River Common Features WRDA 96 Remaining Sites Phase 1, Sites R1, R5, R6, L12. U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA.
- U.S. Environmental Protection Agency (EPA). 1971. Community Noise. Office of Noise Abatement and Control EPA-NTID 300.3. Washington, D.C.: U.S. Environmental Protection Agency; PB-207 124. Springfield, VA: National Technical Information Service.
- U.S. Environmental Protection Agency (EPA). 2007. Area Designations for 1997 Fine Particle (PM<sub>2.5</sub>) Standards. <http://www.epa.gov/pmdesignations/1997standards/final/statemaps/California.htm>.
- U.S. Fish and Wildlife Service (USFWS). 1991. The Distribution, Habitat, and Status of the Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*. Sacramento, California.  
[http://www.fws.gov/sacramento/es/documents/VELB\\_Report/velb\\_report.htm](http://www.fws.gov/sacramento/es/documents/VELB_Report/velb_report.htm).
- U.S. Fish and Wildlife Service (USFWS). 2000. Fish and Wildlife Coordination Act Report for the American River Watershed Investigation, Common Features Modifications, Sacramento County, California [Draft].
- Weatherbase. 2008. Sacramento, California.  
[www.weatherbase.com/weather/weather.php3?s=38427&refer=.](http://www.weatherbase.com/weather/weather.php3?s=38427&refer=)

# Plates

### American River WRDA 1996 and 1999 Common Features Remaining Sites



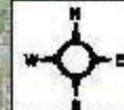
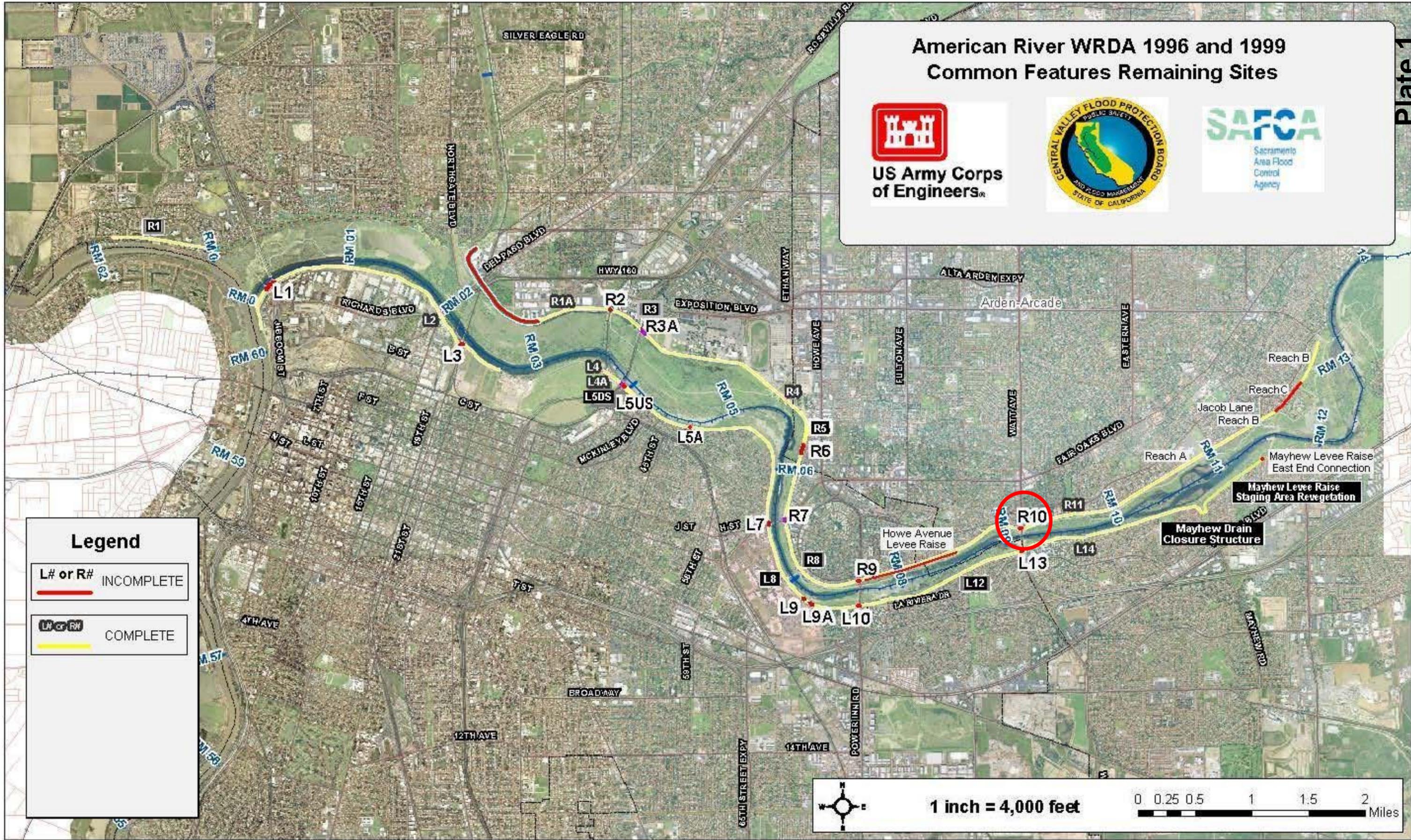
US Army Corps  
of Engineers



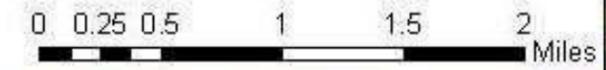
**Legend**

L# or R# INCOMPLETE  


L# or R# COMPLETE  

1 inch = 4,000 feet









## **Appendix A**

# **Correspondence Regarding Special Status Species**

**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: 120118042500**

**Database Last Updated: September 18, 2011**

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**Quad Lists**

**Listed Species**

**Invertebrates**

- Branchinecta lynchi
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - Critical habitat, valley elderberry longhorn beetle (X)
  - 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)
  - Critical habitat, Central Valley steelhead (X) (NMFS)
- Oncorhynchus tshawytscha
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - Critical Habitat, Central Valley spring-run chinook (X) (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:**

SACRAMENTO EAST (512C)

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**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 April 17, 2012.



## Selected Elements by Scientific Name

California Department of Fish and Game

California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFG SSC or FP
<i>Accipiter cooperii</i> Cooper's hawk	ABNKC12040	None	None	G5	S3	WL
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S2	SSC
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S2S3	
<i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070	None	Threatened	G5	S2	
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
<i>Elanus leucurus</i> white-tailed kite	ABNKC06010	None	None	G5	S3	FP
<i>Elderberry Savanna</i> Elderberry Savanna	CTT63440CA	None	None	G2	S2.1	
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S2S3	
<i>Linderiella occidentalis</i> California linderiella	ICBRA06010	None	None	G3	S2S3	
<i>Progne subis</i> purple martin	ABPAU01010	None	None	G5	S3	SSC
<i>Riparia riparia</i> bank swallow	ABPAU08010	None	Threatened	G5	S2S3	
<i>Sagittaria sanfordii</i> Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S4	SSC

Record Count: 14

## **Appendix B**

### **Construction Emissions Estimates using the Road Construction Emissions Model Version 6.3.2**

## Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> WRDA 96 Remaining Sites--R10											
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)	
Grubbing/Land Clearing	4.9	20.7	44.4	3.6	1.6	2.0	1.9	1.5	0.4	5,794.6	
Grading/Excavation	5.4	26.7	43.9	3.9	1.9	2.0	2.2	1.8	0.4	6,042.8	
Drainage/Utilities/Sub-Grade	4.4	21.3	38.6	3.6	1.6	2.0	1.9	1.5	0.4	6,047.2	
Paving	5.8	25.1	46.5	2.4	2.4	-	2.2	2.2	-	6,080.8	
Maximum (pounds/day)	5.8	26.7	46.5	3.9	2.4	2.0	2.2	2.2	0.4	6,080.8	
Total (tons/construction project)	0.1	0.5	0.9	0.1	0.0	0.0	0.0	0.0	0.0	132.6	

Notes: Project Start Year -> 2013  
 Project Length (months) -> 2  
 Total Project Area (acres) -> 0  
 Maximum Area Disturbed/Day (acres) -> 0  
 Total Soil Imported/Exported (yd<sup>3</sup>/day)-> 56

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> WRDA 96 Remaining Sites--R10											
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)	
Grubbing/Land Clearing	2.2	9.4	20.2	1.7	0.7	0.9	0.9	0.7	0.2	2,633.9	
Grading/Excavation	2.4	12.1	20.0	1.8	0.9	0.9	1.0	0.8	0.2	2,746.7	
Drainage/Utilities/Sub-Grade	2.0	9.7	17.5	1.6	0.7	0.9	0.8	0.7	0.2	2,748.7	
Paving	2.7	11.4	21.1	1.1	1.1	-	1.0	1.0	-	2,764.0	
Maximum (kilograms/day)	2.7	12.1	21.1	1.8	1.1	0.9	1.0	1.0	0.2	2,764.0	
Total (megagrams/construction project)	0.1	0.4	0.8	0.1	0.0	0.0	0.0	0.0	0.0	120.3	

Notes: Project Start Year -> 2013  
 Project Length (months) -> 2  
 Total Project Area (hectares) -> 0  
 Maximum Area Disturbed/Day (hectares) -> 0  
 Total Soil Imported/Exported (meters<sup>3</sup>/day)-> 43

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

**Road Construction Emissions Model**

Version 6.3.2

**Data Entry Worksheet**

Note: Required data input sections have a yellow background.  
 Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.  
 The user is required to enter information in cells C10 through C25.



**Input Type**

Project Name	WRDA 96 Remaining Sites--R10	
Construction Start Year	2013	Enter a Year between 2005 and 2025 (inclusive)
Project Type	3	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	2.0	months
Predominant Soil/Site Type: Enter 1, 2, or 3	1	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.2	miles
Total Project Area	0.2	acres
Maximum Area Disturbed/Day	0.1	acres
Water Trucks Used?	2	1. Yes 2. No
Soil Imported	20.0	yd <sup>3</sup> /day
Soil Exported	36.0	yd <sup>3</sup> /day
Average Truck Capacity	12.0	yd <sup>3</sup> (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

	Months	% Time
	0.2	10
	0.2	40
	1.2	35
	0.4	15

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of		2005		2006		2007		2008		2009		2010	
	Construction Months	Program Calculated Months		%		%		%		%		%		%
Grubbing/Land Clearing	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.20	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	1.20	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.40	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Totals</b>	<b>2.00</b>	<b>2.00</b>												

Hauling emission default values can be overridden in cells C45 through C46.

User Input	User Override of		Hauling Emissions					
	Soil Hauling Defaults	Default Values	ROG	NOx	CO	PM10	PM2.5	CO2
Miles/round trip	20.00	30						
Round trips/day	1.00	5						
Vehicle miles traveled/day (calculated)					20			
<b>Hauling Emissions</b>								
Emission rate (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76		
Emission rate (grams/trip)	10.32	7.57	172.85	0.01	0.01	199.87		
Pounds per day	0.2	0.6	3.8	0.0	0.0	86.7		
Tons per construction period	0.00	0.00	0.01	0.00	0.00	0.19		

20  
1

21

Worker commute default values can be overridden in cells C60 through C65.

Worker Commute Emissions	User Override of Worker					
	Commute Default Values	Default Values				
Miles/ one-way trip		20				
One-way trips/day		2				
No. of employees: Grubbing/Land Clearing	10.00	3				
No. of employees: Grading/Excavation	10.00	7				
No. of employees: Drainage/Utilities/Sub-Grade	10.00	6				
No. of employees: Paving	10.00	4				
	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Emission rate - Grubbing/Land Clearing (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Grading/Excavation (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Paving (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Grubbing/Land Clearing (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Grading/Excavation (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Paving (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Pounds per day - Grubbing/Land Clearing	0.170	0.214	2.583	0.041	0.017	392.889
Tons per const. Period - Grub/Land Clear	0.000	0.000	0.006	0.000	0.000	0.864
Pounds per day - Grading/Excavation	0.170	0.214	2.583	0.041	0.017	392.889
Tons per const. Period - Grading/Excavation	0.000	0.000	0.006	0.000	0.000	0.864
Pounds per day - Drainage/Utilities/Sub-Grade	0.170	0.214	2.583	0.041	0.017	392.889
Tons per const. Period - Drain/Util/Sub-Grade	0.002	0.003	0.034	0.001	0.000	5.186
Pounds per day - Paving	0.170	0.214	2.583	0.041	0.017	392.889
Tons per const. Period - Paving	0.001	0.001	0.011	0.000	0.000	1.729
tons per construction period	0.004	0.005	0.057	0.001	0.000	8.644

20  
2  
10  
10  
10  
10

40

Water truck default values can be overridden in cells C91 through C93 and E91 through E93.

Water Truck Emissions	User Override of		Program Estimate of		User Override of Truck		Default Values	
	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Day	Miles Traveled/Day	Miles Traveled/Day	Miles Traveled/Day		
Grubbing/Land Clearing - Exhaust		0				0		
Grading/Excavation - Exhaust		0				0		
Drainage/Utilities/Subgrade		0				0		
	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>		
Emission rate - Grubbing/Land Clearing (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76		
Emission rate - Grading/Excavation (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.84	10.25	5.45	0.40	0.33	1874.76		
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		

0  
0  
0

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust	User Override of Max		Default		PM10	PM10	PM2.5	PM2.5
	Acreage Disturbed/Day	Maximum Acreage/Day	Maximum Acreage/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing		0.1			2.0	0.0	0.4	0.0
Fugitive Dust - Grading/Excavation		0.1			2.0	0.0	0.4	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		0.1			2.0	0.0	0.4	0.0

0  
0  
0

<b>Off-Road Equipment Emissions</b>									
<b>Grubbing/Land Clearing</b>	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2	
Override of Default Number of Vehicles	<i>Program-estimate</i>	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	
1.00		Concrete/Industrial Saws	0.12	0.41	0.76	0.03	0.03	99.43	
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00	
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		Excavators	0.00	0.00	0.00	0.00	0.00	0.00	
1.00		Forklifts	0.13	0.77	0.98	0.06	0.05	130.43	
1.00		Generator Sets	1.63	6.35	21.53	0.61	0.56	3014.38	
		Graders	0.00	0.00	0.00	0.00	0.00	0.00	
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
1.00		Other Material Handling Equipment	0.55	1.53	5.73	0.18	0.17	665.84	
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00	
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00	
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00	
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	
1.00		1 Rubber Tired Dozers	1.51	6.67	12.84	0.53	0.49	1245.79	
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		1 Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	
2.00		0 Signal Boards	0.78	2.35	2.32	0.20	0.19	245.82	
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	
		Welders	0.00	0.00	0.00	0.00	0.00	0.00	
		Grubbing/Land Clearing	pounds per day	4.7	18.1	44.1	1.6	1.5	5401.7
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.1	0.0	0.0	11.9

<b>Grading/Excavation</b>	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	<i>Program-estimate</i>	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Cement and Mortar Mixers	0.04	0.20	0.24	0.01	0.01	32.44
1.00		Concrete/Industrial Saws	0.12	0.41	0.76	0.03	0.03	99.43
		1 Cranes	0.64	2.17	5.85	0.21	0.20	739.64
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		1 Excavators	0.59	3.25	4.37	0.25	0.23	547.36
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00

1.00		Generator Sets	1.63	6.35	21.53	0.61	0.56	3014.38	
0.00	1	Graders	0.00	0.00	0.00	0.00	0.00	0.00	
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	
	0	Other Construction Equipment	0.00	0.02	0.03	0.00	0.00	2.88	
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00	
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00	
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00	
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	
	1	Rubber Tired Loaders	0.54	2.71	4.11	0.23	0.21	458.86	
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	
2.00	0	Signal Boards	0.78	2.35	2.32	0.20	0.19	245.82	
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
1.00		Sweepers/Scrubbers	0.61	2.89	3.89	0.34	0.32	422.40	
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	
		Welders	0.00	0.00	0.00	0.00	0.00	0.00	
		Grading/Excavation	pounds per day	4.9	20.3	43.1	1.9	1.7	5563.2
		Grading	tons per phase	0.0	0.0	0.1	0.0	0.0	12.2

Drainage/Utilities/Subgrade	Default Number of Vehicles Override of Default Number of Vehicles	Program-estimate	ROG	CO	NOx	PM10	PM2.5	CO2
			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Air Compressors	0.37	1.68	2.54	0.23	0.21	244.03
1.00		Bore/Drill Rigs	0.48	2.06	4.57	0.13	0.12	1127.60
1.00		Cement and Mortar Mixers	0.04	0.20	0.24	0.01	0.01	32.44
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Generator Sets	1.63	6.35	21.53	0.61	0.56	3014.38
	1	Graders	0.77	3.84	5.86	0.33	0.30	647.87
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Plate Compactors	0.02	0.09	0.11	0.00	0.00	14.83
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
2.00	0	Signal Boards	0.78	2.35	2.32	0.20	0.19	245.82

		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Tractors/Loaders/Backhoes	0.18	2.14	1.18	0.04	0.04	327.38
0.00	1	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage	pounds per day	4.3	18.7	38.3	1.6	1.4	5654.4
	Drainage	tons per phase	0.1	0.2	0.5	0.0	0.0	74.6

Paving	Override of Default Number of Vehicles	Default		ROG	CO	NOx	PM10	PM2.5	CO2
		Number of Vehicles	Type						
		Program-estimate		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
			Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
			Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Cement and Mortar Mixers	0.04	0.20	0.24	0.01	0.01	32.44
			Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
			Cranes	0.00	0.00	0.00	0.00	0.00	0.00
			Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Excavators	0.00	0.00	0.00	0.00	0.00	0.00
			Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Generator Sets	1.63	6.35	21.53	0.61	0.56	3014.38
			Graders	0.00	0.00	0.00	0.00	0.00	0.00
			Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
			Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
			Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Other Material Handling Equipment	0.55	1.53	5.73	0.18	0.17	665.84
		1	Pavers	0.78	2.82	4.67	0.41	0.38	386.18
		1	Paving Equipment	0.58	2.12	3.52	0.31	0.28	291.96
			Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Pressure Washers	0.00	0.01	0.02	0.00	0.00	1.64
			Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		1	Rollers	0.50	2.07	3.18	0.27	0.25	299.86
			Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
			Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
			Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
			Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
2.00		0	Signal Boards	0.78	2.35	2.32	0.20	0.19	245.82
			Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
			Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Sweepers/Scrubbers	0.61	2.89	3.89	0.34	0.32	422.40
1.00			Tractors/Loaders/Backhoes	0.18	2.14	1.18	0.04	0.04	327.38
			Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
			Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Paving		pounds per day	5.7	22.5	46.3	2.4	2.2	5687.9
	Paving		tons per phase	0.0	0.1	0.2	0.0	0.0	25.0
<b>Total Emissions all Phases (tons per construction period) =&gt;</b>				0.1	0.4	0.9	0.0	0.0	123.8

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C285 through C317, E285 through E317, and G285 through G317.

Equipment	Default Values	Default Values	Default Values
	Horsepower	Load Factor	Hours/day
Aerial Lifts	60	0.46	8

**Columns**  
**Horsepower Load Factor Hours/Day (LxMxN)**  
60 0.46 8.0 222.6

Air Compressors		106		0.48		8		106	0.48	8.0	405.8
Bore/Drill Rigs	200.00	291		0.75		8		200	0.75	8.0	1200.0
Cement and Mortar Mixers		10		0.56		8		10	0.56	8.0	46.2
Concrete/Industrial Saws		19		0.73		8		19	0.73	8.0	108.7
Cranes		399		0.43		8		399	0.43	8.0	1372.9
Crushing/Proc. Equipment		142		0.78		8		142	0.78	8.0	888.2
Excavators		168		0.57		8		168	0.57	8.0	766.5
Forklifts		145		0.30		8		145	0.3	8.0	347.0
Generator Sets		549		0.74		8		549	0.74	8.0	3251.3
Graders		174		0.61		8		174	0.61	8.0	847.7
Off-Highway Tractors		267		0.65		8		267	0.65	8.0	1388.3
Off-Highway Trucks		479		0.57		8		479	0.57	8.0	2184.0
Other Construction Equipment		75		0.62		8		75	0.62	8.0	370.5
Other General Industrial Equipment		238		0.51		8		238	0.51	8.0	971.3
Other Material Handling Equipment		191		0.59		8		191	0.59	8.0	900.8
Pavers		100		0.62		8		100	0.62	8.0	497.2
Paving Equipment		104		0.53		8		104	0.53	8.0	439.7
Plate Compactors		8		0.43		8		8	0.43	8.0	27.5
Pressure Washers		1		0.60		8		1	0.6	8.0	4.4
Pumps		53		0.74		8		53	0.74	8.0	316.5
Rollers		95		0.56		8		95	0.56	8.0	427.4
Rough Terrain Forklifts		93		0.60		8		93	0.6	8.0	448.4
Rubber Tired Dozers		357		0.59		8		357	0.59	8.0	1685.3
Rubber Tired Loaders		157		0.54		8		157	0.54	8.0	678.2
Scrapers		313		0.72		8		313	0.72	8.0	1800.0
Signal Boards		20		0.78		8		20	0.78	8.0	125.8
Skid Steer Loaders		44		0.55		8		44	0.55	8.0	193.0
Surfacing Equipment		362		0.45		8		362	0.45	8.0	1302.8
Sweepers/Scrubbers		91		0.68		8		91	0.68	8.0	495.8
Tractors/Loaders/Backhoes		108		0.55		8		108	0.55	8.0	475.1
Trenchers		63		0.75		8		63	0.75	8.0	376.6
Welders		45		0.45		8		45	0.45	8.0	163.6



**Maintenance Emissions**

	Total Number of Trips	Average Trip Distance	Total Miles Travelled	Average Fuel Efficiency	Total Fuel Consumption	CO2e/gal	Total CO2 Equivalent Emissions (metric tons)
Mowers	10	30	300	10	30	0.010391	0.3117
sprayers	10	30	300	10	30	0.010391	0.3117
inspection vehicles	30	30	900	20.8	43.26923077	0.010391	0.4496
Worker commute emissions	50	30	1500	20.8	72.11538462	0.010391	0.7494

**Operational Emissions**

Average Annual Electricity Needed	MWH of electricity	MT CO2/MWH	CO2e emissions
	*unknown	0.329858	

\*The Watt Avenue Bridge utilizes lighting structures that activate during low-light periods; calculating the average annual electricity used for bridge operations is out of the scope of this project.

<b>TOTAL</b>	<b>1.8224</b>
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Greenhouse Gas	Average Annual Production Emissions (MT)	Global Warming Potential	CO2e emissions
CO2		1	
CH4		23	
N2O		296	
SF6		22000	
Others as necessary			

Construction Equipment Emissions	165.4247
Workforce Transportation Emissions	2.5990
Construction Materials Emissions	8.6505
Maintenance and Operational Emissions	1.8224

<b>Total Project Greenhouse Gas Emissions (Metric Tons)</b>	<b>178.4967</b>
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convert to US tons x 1.1000  
196.3464

## National Ambient Air Quality Standards (NAAQS)

The Clean Air Act, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards.

*Primary standards* set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. *Secondary standards* set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for six principal pollutants, which are called "criteria" pollutants. They are listed below. Units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air ( $\text{mg}/\text{m}^3$ ), and micrograms per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ).

**National Ambient Air Quality Standards**

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide	9 ppm (10 $\mu\text{g}/\text{m}^3$ )	8-hour <sup>(1)</sup>	None	
	35 ppm (40 $\mu\text{g}/\text{m}^3$ )	1-hour <sup>(1)</sup>		
Lead	0.15 $\mu\text{g}/\text{m}^3$ <sup>(2)</sup>	Rolling 3-Month Average	Same as Primary	
	1.5 $\mu\text{g}/\text{m}^3$	Quarterly Average	Same as Primary	
Nitrogen Dioxide	0.053 ppm (100 $\mu\text{g}/\text{m}^3$ )	Annual (Arithmetic Mean)	Same as Primary	
Particulate Matter (PM <sub>10</sub> )	150 $\mu\text{g}/\text{m}^3$	24-hour <sup>(3)</sup>	Same as Primary	
Particulate Matter (PM <sub>2.5</sub> )	15.0 $\mu\text{g}/\text{m}^3$	Annual <sup>(4)</sup> (Arithmetic Mean)	Same as Primary	
	35 $\mu\text{g}/\text{m}^3$	24-hour <sup>(5)</sup>	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour <sup>(6)</sup>	Same as Primary	
	0.08 ppm (1997 std)	8-hour <sup>(7)</sup>	Same as Primary	
	0.12 ppm	1-hour <sup>(8)</sup> (Applies only in limited areas)	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Mean)	0.5 ppm (1300 $\mu\text{g}/\text{m}^3$ )	3-hour <sup>(1)</sup>
	0.14 ppm	24-hour <sup>(1)</sup>		

- <sup>(1)</sup> Not to be exceeded more than once per year.
- <sup>(2)</sup> Final rule signed October 15, 2008.
- <sup>(3)</sup> Not to be exceeded more than once per year on average over 3 years.
- <sup>(4)</sup> To attain this standard, the 3-year average of the weighted annual mean PM<sub>2.5</sub> concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m<sup>3</sup>.
- <sup>(5)</sup> To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m<sup>3</sup> (effective December 17, 2006).
- <sup>(6)</sup> To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)
- <sup>(7)</sup> (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.  
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
- <sup>(8)</sup> (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is < 1.  
(b) As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) Areas.

## California Ambient Air Quality Standards<sup>1</sup>

Pollutant	Averaging Time	Concentration <sup>2</sup>
Ozone (O <sub>3</sub> )	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )
Respirable Particulate Matter (PM <sub>10</sub> )	Annual Geometric Mean	30 µg/m <sup>3</sup>
	24 Hour	50 µg/m <sup>3</sup>
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m <sup>3</sup> )
	1 Hour	20 ppm (23 mg/m <sup>3</sup> )
	1 Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )
Nitrogen Dioxide (NO <sub>2</sub> )	1 Hour	0.25 ppm (470 µg/m <sup>3</sup> )
Lead	30 Days Average	1.5 µg/m <sup>3</sup>
Sulfur Dioxide (SO <sub>2</sub> )	24 Hour	0.04 ppm (105 µg/m <sup>3</sup> )
	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )
Visibility Reducing Particles	8 Hour (10am-6pm, PST)	10 Miles (30 Miles Lake Tahoe) or more <sup>3</sup>
Sulfates	24 Hour	25 µg/m <sup>3</sup>
Vinyl Chloride <sup>4</sup>	24 Hour	0.01 ppm (26 µg/m <sup>3</sup> )
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )

Footnotes:

- Standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter-PM<sub>10</sub>, and visibility reducing particles are values not to be exceeded. All others are not to be equaled or exceeded. (Table of Standards, Section 70200, Title 17, California Code of Regulations)
- Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25° C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25° C and a reference pressure of 760 mm of mercury (1,013.2 millibar). ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter; mg/m<sup>3</sup> = milligrams per cubic meter.
- In sufficient amount to produce an extinction coefficient of 0.23 per kilometer – visibility of ten miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent.
- The standard notes that vinyl chloride is a “known human and animal carcinogen” and that “low level effects are undefined, but are potentially serious. Level specified is lowest level at which violation can be reliably detected by the method specified. Ambient concentrations at or above the standard constitute an endangerment to the health of the public.

# **SMAQMD Recommended Mitigation for Reducing Emissions from Heavy-Duty Construction Vehicles**

*Apply only to projects with construction emissions above the CEQA Threshold of Significance.*

Revised December 1, 2008

## *Category 1: Reducing NOx emissions from off-road diesel powered equipment*

The project shall provide a plan, for approval by the lead agency and SMAQMD, demonstrating that the heavy-duty (> 50 horsepower) self-propelled off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction<sup>1</sup> compared to the most recent CARB fleet average at time of construction; and

The project representative shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

**and:**

## *Category 2: Controlling visible emissions from off-road diesel powered equipment*

The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supercede other SMAQMD or state rules or regulations.

**and/or:**

If at the time of construction, the SMAQMD has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with SMAQMD prior to construction will be necessary to make this determination.

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<sup>1</sup>Acceptable options for reducing emissions may include use of newer model year engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

**SMAQMD Rules & Regulations Statement** (revised 1/07)

*The following statement is recommended as standard condition of approval or construction document language for **all** development projects within the Sacramento Metropolitan Air Quality Management District (SMAQMD):*

All projects are subject to SMAQMD rules and regulations in effect at the time of construction. A complete listing of current rules is available at [www.airquality.org](http://www.airquality.org) or by calling 916.874.4800. Specific rules that may relate to construction activities or building design may include, but are not limited to:

**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 District 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.

**Rule 403: Fugitive Dust.** The developer or contractor is required to control dust emissions from earth moving activities or any other construction activity to prevent airborne dust from leaving the project site.

**Rule 417: Wood Burning Appliances.** Effective October 26, 2007, this rule prohibits the installation of any new, permanently installed, indoor or outdoor, uncontrolled fireplaces in new or existing developments.

**Rule 442: Architectural Coatings.** The developer or contractor is required to use coatings 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.

*Other general types of uses that require a permit include dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions.*

## **Appendix C**

# **Correspondence Regarding Cultural Resources**



**DEPARTMENT OF THE ARMY**  
**U.S. ARMY ENGINEER DISTRICT, SACRAMENTO**  
**CORPS OF ENGINEERS**  
**1325 J STREET**  
**SACRAMENTO, CALIFORNIA, 95814-2922**

REPLY TO  
ATTENTION OF

Environmental Resources Branch

Milford Wayne Donaldson  
State Historic Preservation Officer  
Office of Historic Preservation  
California State Department of Parks and Recreation  
P.O. Box 942896  
Sacramento, California 94296-0001

**MAR 29 2012**

Dear Mr. Donaldson:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for proposed work intended to strengthen site R10 on the right bank (north) levee of the American River. Project work will entail the construction of a jet-grout cutoff wall where Watt Avenue passes over the levee. This is intended to ameliorate underseepage problems. Prior to construction of the jet-grout cut-off wall, the properties of the local soil will be tested in the jet-grout test area indicated on Figure 1. Abbreviated jet grout walls will be constructed in the test area, and then excavated to a depth of 30 feet to determine the adequacy of their performance. This work is authorized by the Water Resources Development Act of 1999 (WRDA 99). Your file number for the Common Features Project is COE900711G.

We are initiating consultation under Section 106 of the National Historic Preservation Act by notifying you of the proposed undertaking pursuant to 36 CFR 800.3 (a). We have determined and documented the area of potential effects (APE) pursuant to 36 CFR 800.4(a) and have determined that the project qualifies for a finding of no historic properties affected, pursuant to 36 CFR 800.4(d)(1).

Enclosure 1 is a memorandum in which we define and describe the APE, and discuss our efforts to locate and evaluate any potential historic properties. The record search and survey resulted in the location of only one cultural resource in the APE. CA-SAC-481H, the American River right bank levee. The levee was recorded as a historical site during the 1995 Dames & Moore American River Survey. During a subsequent survey Herbert and Blosser updated the CA-SAC-481H site report and provided a very detailed and thorough history of the levee; they determined that the levee was ineligible for inclusion to the National Register of Historic Places (NRHP). These site forms are appended to the enclosed memorandum.

Regarding the significance of CA-SAC-481H, we refer you to our earlier Section 106 consultation from July 2009, in which you concurred with our determination of non-eligibility for the levee, site CA-SAC-481H in a letter dated July 7, 2008. In light of this, we find that the proposed work will affect no historic properties (36 CFR 800.4[d][1]).

A copy of the enclosed memorandum was also sent to all the potentially interested Native American groups and individuals identified by the Native American Heritage Commission. No replies have been received to date, but the Corps remains open to their consultation and is sensitive to the interests of Native groups.

We request that you concur with our determinations of the APE, NRHP eligibility, and finding of no historic properties affected for the proposed work. Please review the enclosed information and provide your comments if any, and concurrence with our determinations. We are looking forward to your reply.

If you have any questions or comments please contact Mr. S. Joe Griffin, Archaeologist at (916) 557-7897 or by email at [s.joe.griffin@usace.army.mil](mailto:s.joe.griffin@usace.army.mil). Please contact Mr. John Hoge, Project Manager at (916) 557-5304 with any project specific questions.



Alicia E. Kirchner  
Chief, Planning Division

Enclosures

## **Appendix D**

### **U.S. Fish and Wildlife Planning Aid Letter**



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846



In Reply Refer To:  
08ESMF-2012-CPA-0104

MAY 17 2012

Alicia Kirchner  
Chief, Planning Division  
Corps of Engineers, Sacramento District  
1325 J Street  
Sacramento, California 95825-2922

Dear Ms. Kirchner:

This is the Fish and Wildlife Service's (Service) draft Planning Aid Letter on the effects that constructing a levee repair (R10) along the lower American River would have on fish and wildlife resources (Figure 1). This Planning Aid Letter has been prepared under the authority of, and in accordance with, the provisions of the Fish and Wildlife Coordination Act (48 stat. 401, as amended: 16 U.S.C. 661 et seq).

### BACKGROUND

The levees in the Lower American River basin were originally constructed by Corps of Engineers (Corps) in 1955-56, coinciding with the construction of Folsom Dam. The levees were designed to contain a controlled flow of 115,000 cubic feet per second from Folsom Dam. After construction of the levees, they were turned over to the State of California, where they are currently maintained through agreements with the Sacramento Area Flood Control Association (SAFCA). On-site levee maintenance is performed by the American River Flood Control District through further agreements with SAFCA.

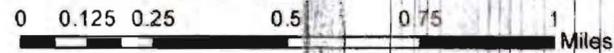
Major storms in northern California caused record floodflows in 1986, 1995, 1997, 1998, and 2005 in the American River Basin. Outflows from Folsom Reservoir, together with high flows in the Sacramento River, caused water levels to rise above the safety margin for the levees protecting the Sacramento area. These major storms raised concerns over the adequacy of the existing flood management system, which led to a series of investigations into the need to provide additional protection for Sacramento.

In March 1996, the Corps and Central Valley Flood Protection Board completed the Supplemental Information Report (SIR) and Supplemental Environmental Impact Statement/Environmental Impact Report for the American River Project. The SIR



Figure 1.

**WRDA 96 Remaining Sites Project  
Sites L5A, L9, L9A, R10, and L13**



Sacramento, East 7.5" U.S.G.S. Quadrangle



was undertaken to develop supplemental information to the American River Watershed Investigation in April 1991. The SIR evaluated an array of alternatives to provide increased flood risk management in the Sacramento area. The Chief of Engineers, in his June 27, 1996 report, deferred a decision on a comprehensive flood risk management plan. However, the Chief did recommend that the features common to all three proposed plans be authorized as the first component of a comprehensive flood risk management plan for the Sacramento area. Although the Federal Administration did not make a recommendation to Congress, these "common features" were included in Water Resources Development Act (WRDA) 1996.

Included among these "common features" was slurry wall construction in order to stabilize about 24 miles of existing levees along the lower American River, as well as about 0.5 mile of existing levee along the Garden Highway along the lower Sacramento River. The Corps signed the Record of Decision on the Common Features Project on July 1, 1997. Additional National Environmental Policy Act and California Environmental Quality Act documents were prepared, as required, as each of these project features were refined.

In 1998, the Corps began work on features authorized under WRDA 1996, which included the strengthening of existing levees along the lower American River. Subsequently, further modifications of the American River Common Features Project were authorized in the WRDA of 1999.

The slurry wall construction was conducted between 2000 and 2002. During construction, it was determined that several logistical factors were complicating the contiguous slurry wall installation (utilities or appurtenances through the levee, abutments, overpasses, proximity of power distribution lines, etc.). These sites were set aside and the remaining slurry wall work was completed. The location addressed in this report is Site R10 which was authorized under WRDA 96.

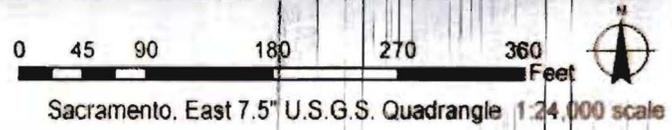
## PROJECT DESCRIPTION

Site R10 is located on the north levee of the American River at the Watt Avenue Bridge crossing, in Sacramento, California (Figure 2). There is an existing cutoff wall in the levee that approaches the bridge on each side, but leaves a 183-foot gap across the Watt Avenue Bridge. This contract involves construction of a jet-grout cutoff wall through Watt Avenue to fill in this gap. The cutoff wall would consist of 6-foot diameter overlapping grout columns, 50 feet deep east and west of Watt Avenue, and 54 feet deep across Watt Avenue. Traffic control for both vehicles and pedestrians/bicyclists would be required. Only two lanes of Watt Avenue would be allowed to be closed at any time, and the construction on Watt Avenue would be limited to nights and weekends. The main access road to Site R10 would be Watt Avenue. The proposed staging areas would be located in the Teichert Gravel Company main parking lot and in areas along the American River Recreational Trail under the Watt Avenue Bridge. Construction materials, equipment, topsoil and excess material would be temporarily stored in the landsite parking lot staging area during the construction period. It would also provide a parking location for construction workers. The staging area under the bridge would only be used to transport material to or from the project site.



Figure 2.

**WRDA 96 Remaining Sites Project  
Site R10 and Staging**



Construction would be scheduled in August, and perhaps later, depending on presence of nesting raptors.

## **BIOLOGICAL RESOURCES**

### **Vegetation**

The general project area currently supports annual grassland and riparian woodland. Annual grassland is predominant in the project area. The riparian woodland is separated from the project's annual grassland by the bike trail. The overstory is mainly oak and cottonwood trees while the understory is dominated by annual grass and other forbs and shrubs such as elderberry.

There are at least two thickets of elderberry shrubs and grape vines just beyond bike trail, directly adjacent to the project site. This construction is not expected to directly impact the thicket of shrubs (trim or removal); however, it will require work (material transport) within 100 feet of the shrubs.

### **Wildlife**

The project area provides a mosaic of seasonal wetland, annual grassland, and oak woodland habitat. These diverse habitats support a corresponding diversity of wildlife.

The lands near the project area provide feeding, resting, and/or nesting habitat for many bird species, many of which require the seasonal wetlands and oak woodlands. Avian species which may use the area include red-tailed hawk, red-shouldered hawk, Cooper's hawk, and great-horned owl, mourning dove, turkey, turkey vulture, California quail, and numerous passerine species.

More than 50 species of mammals have been recorded for the general area. Common species include deer, black-tailed jackrabbit, striped skunk, Virginia opossum, raccoon, California ground squirrel, gophers, and many small rodents and insectivores including voles, moles, shrews, deer mice, and pocket gophers. Uncommon species include several carnivores, such as badger, long-tailed weasel, gray fox, coyote, bobcat, and mink.

Reptile species likely found in the area include common kingsnake, western rattlesnake, Gilbert and western skinks, southern alligator lizard, western fence lizard, gopher snake, and several garter snakes. Common amphibians include Pacific treefrog, California newt, California slender salamander, western toad, and the introduced bullfrog.

Relatively little is known about invertebrates in the area, but elderberry plants are fairly common in the area, and provide habitat for the endangered valley elderberry longhorn beetle.

### **Fish**

The project is located on the crown of the levee and Watt Avenue outside the floodway. However, there is a construction easement area within the floodway which will periodically have vehicles and equipment parked on it. The edge of this site is about 100 feet from the river (see Figure 2).

**Endangered Species**

Based on a search of the Sacramento East USGS quadrangle map there are listed species which could occur within or near the project area. The species under the jurisdiction of the Service which may be affected by the project is the valley elderberry longhorn beetle. The complete list is included in Enclosure 1 as well as a summary of Federal agencies responsibilities under the Endangered Species Act of 1973, as amended.

**DISCUSSION****Service Mitigation Policy**

The recommendations provided herein for the protection of fish and wildlife resources are in accordance with the Service's Mitigation Policy as published in the Federal Register (46:15; January 23, 1981).

The Mitigation Policy provides Service personnel with guidance in making recommendations to protect or conserve fish and wildlife resources. The policy helps ensure consistent and effective Service recommendations, while allowing agencies and developers to anticipate Service recommendations and plan early for mitigation needs. The intent of the policy is to ensure protection and conservation of the most important and valuable fish and wildlife resources, while allowing reasonable and balanced use of the Nation's natural resources.

Under the Mitigation Policy, resources are assigned to one of four distinct Resource Categories, each having a mitigation planning goal which is consistent with the fish and wildlife values involved. The Resource Categories cover a range of habitat values from those considered to be unique and irreplaceable to those believed to be much more common and of relatively lesser value to fish and wildlife. However, the Mitigation Policy does not apply to threatened and endangered species, Service recommendations for completed Federal projects or projects permitted or licensed prior to enactment of Service authorities, or Service recommendations related to the enhancement of fish and wildlife resources.

In applying the Mitigation Policy during an impact assessment, the Service first identifies each specific habitat or cover-type that may be impacted by the project. Evaluation species<sup>1</sup> which utilize each habitat or cover-type are then selected for Resource Category analysis. Selection of evaluation species can be based on several rationale, as follows: (1) species known to be sensitive to specific land- and water-use actions; (2) species that play a key role in nutrient cycling or energy flow; (3) species that utilize a common environmental resource; or (4) species that are associated with Important Resource Problems, such as anadromous fish and migratory birds, as designated by the Director or Regional Directors of the Fish and Wildlife Service. Based on the relative importance of each specific habitat to its selected evaluation species, and the habitat's relative abundance, the appropriate Resource Category and associated mitigation planning goal are determined.

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<sup>1</sup> Note: Evaluation species used for Resource Category determinations may or may not be the same evaluation species used in a HEP application, if one is conducted.

Mitigation planning goals range from “no loss of existing habitat value” (i.e., Resource Category 1) to “minimize loss of habitat value” (i.e., Resource Category 4). The planning goal of Resource Category 2 is “no net loss of in-kind habitat value;” to achieve this goal, any unavoidable losses would need to be replaced in-kind. “In-kind replacement” means providing or managing substitute resources to replace the habitat value of the resources lost, where such substitute resources are physically and biologically the same or closely approximate those lost.

In addition to mitigation planning goals based on habitat values, Region 8 of the Service, which includes California, has a mitigation planning goal of no net loss of acreage and value for wetland habitat. This goal is applied in all impact analyses.

In recommending mitigation for adverse impacts to fish and wildlife habitat, the Service uses the same sequential mitigation steps recommended in the Council on Environmental Quality’s regulations. These mitigation steps (in order of preference) are: avoidance, minimization, rectification of measures, measures to reduce or eliminate impacts over time, and compensation.

Three fish and/or wildlife habitats were identified in the project area which had potential for impacts from the project: riparian woodland, annual grassland, and “other.” The resource categories, evaluation species, and mitigation planning goal for the habitats impacted by the project are summarized in Table 1.

Table 1. Resource categories, evaluation species, and mitigation planning goal for the habitats possibly impacted by the proposed levee repair at WRDA 96 Site R10 along the American River, Sacramento County, California.

COVER-TYPE	EVALUATION SPECIES	RESOURCE CATEGORY	MITIGATION GOAL
Riparian woodland	Acorn woodpecker Turkey Deer	2	No net loss of in-kind habitat value or acreage.
Annual grassland	Red-tailed hawk	3	No net loss of habitat value while minimizing loss of in-kind habitat value.
Other	None	4	Minimize loss of habitat value

The evaluation species selected for the riparian woodland that may be impacted are acorn woodpecker, turkey, and mule deer. Acorn woodpeckers utilize oak woodlands for nearly all their life requisites; 50-60 percent of the acorn woodpecker’s annual diet consists of acorns. Acorn woodpeckers can also represent impacts to other canopy-dwelling species. Turkeys forage and breed in oak woodlands and are abundant in the project area. Mule deer also heavily depend on acorns as a dietary item in the fall and spring; the abundance of acorns and other browse influence the seasonal pattern of habitat use by deer. These latter species represent species which utilize the ground component of the habitat and both have important consumptive and non-consumptive human uses (i.e., hunting and bird watching). Based on the high value of oak woodlands to the evaluation species, and their declining abundance, the Service has

determined oak woodlands which would be affected by the project should be placed in Resource Category 2, with an associated mitigation planning goal of “no net loss of in-kind habitat value.”

The evaluation species selected for the annual grassland cover-type is the red-tailed hawk, which utilizes these areas for foraging. This species was selected because of the Service’s responsibility for their protection and management under the Migratory Bird Treaty Act, and their overall high non-consumptive values to humans. Annual grassland areas potentially impacted by the project vary in their relative values to the evaluation species, depending on the degree of human disturbance, plant species composition, and juxtaposition to other foraging and nesting areas. Therefore, the Service designates the annual grassland cover-type in the project area as Resource Category 3. Our associated mitigation planning goal for these areas is “no net loss of habitat value while minimizing loss of in-kind habitat value.”

No evaluation species were identified for the “other” cover-type. The “other” cover-type encompasses those areas such as ornamental landscaping, gravel and paved roads, parking areas, buildings, bare ground, riprap, etc. Generally this cover-type would not provide any significant habitat value for wildlife species. Therefore, the Service designates the “other” cover-type in the project area as Resource Category 4. Our associated mitigation planning goal for these areas is “minimize loss of in-kind habitat value.”

Based on our review of the proposed project most of the potential impacts for wildlife species would be temporal losses of habitat value (for species utilizing nearby annual grasslands and riparian woodland) during construction. Much of this area is already highly disturbed due to its proximity to recreation activities such as walking and biking along the American River Recreational Trail and Watt Avenue traffic. To minimize impacts, all disturbed areas should be reseeded with annual grasses at the completion of construction. No impact to the riparian woodland is anticipated as these areas are being avoided. The wildlife species utilizing these areas however, would be displaced during construction.

Construction activities may impact migratory birds which may be nesting in affected vegetation and nearby areas around the staging area, trenching areas, and road construction area. Conducting pre-construction surveys to determine if there are migratory birds nesting in these areas could avoid any effects on nesting birds. If nests are located, work should be deferred until any young have fledged the nest.

## RECOMMENDATIONS

The Service recommends:

1. Avoid impacts to trees and shrubs. Any trees or shrubs removed with a diameter at breast height of 2 inches or greater should be replaced on-site, in-kind with container plantings so that the combined diameter of the container plantings is equal to the combined diameter of the trees/shrubs removed. These replacement plantings should be monitored for 5 years or until they are determined to be established and self-sustaining with at least 80% survival. The planting site(s) should be protected in perpetuity.

2. Avoid impacts to migratory birds nesting by conducting pre-construction surveys for active nests along and near the work areas. Work activity around active nests should be avoided until the young have fledged. The following protocol from the California Department of Fish and Game for Swainson's hawk would suffice for the pre-construction survey for raptors.

*A focused survey for Swainson's hawk nests will be conducted by a qualified biologist during the nesting season (February 1 to August 31) to identify active nests within 0.25 miles of the project area. The survey will be conducted no less than 14 days and no more than 30 days prior to the beginning of construction. If nesting Swainson's hawks are found within 0.25 miles of the project area, no construction will occur during the active nesting season of February 1 to August 31, or until the young have fledged (as determined by a qualified biologist), unless otherwise negotiated with the California Department of Fish and Game. If work is begun and completed between September 1 and February 28, a survey is not required.*

3. Minimize project impacts by reseeding all disturbed areas at the completion of construction with forbs and grasses.
4. Contact the California Department of Fish and Game regarding possible effects of the project on State listed species.

If you have any questions regarding this report on the proposed project, please contact Doug Weinrich at (916) 414-6563.

Sincerely,



Daniel Welsh  
Assistant Field Supervisor

Enclosure

cc:

Robin Rosenau, COE, Sacramento, CA  
Howard Brown, NOAA Fisheries, Sacramento, CA  
Regional Manager, CDFG, Region 2, Rancho Cordova, CA

**ENCLOSURE 1**

**FEDERAL ENDANGERED AND THREATENED SPECIES LIST**

**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: 120426022144**

**Database Last Updated: September 18, 2011**

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**Quad Lists****Listed Species****Invertebrates**

- Branchinecta lynchi
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - Critical habitat, valley elderberry longhorn beetle (X)
  - 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)
  - Critical habitat, Central Valley steelhead (X) (NMFS)
- Oncorhynchus tshawytscha
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - Critical Habitat, Central Valley spring-run chinook (X) (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:**

SACRAMENTO EAST (512C)

**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 July 25, 2012.