

**DRAFT
ENVIRONMENTAL ASSESSMENT/
INITIAL STUDY**

**AMERICAN RIVER COMMON FEATURES
WRDA 96 REMAINING SITES PHASE 1
SITES R1, R5, R6, L12**

MAY 2009



**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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Acronyms and Abbreviations

AAQS	Ambient Air Quality Standards
APE	Area of Potential Effects
ARFCD	American River Flood Control District
CAR	Fish and Wildlife Coordination Act Report
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CESA	California Endangered Species Act
cfs	Cubic Feet per Second
CFR	Code of Federal Regulations
CO	Carbon monoxide
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRWQCB	California Regional Water Quality Control Board
CSU	California State University
cy	Cubic Yards
CVFPB	Central Valley Flood Protection Board
dB	decibels
dbh	Diameter at Breast Height
DFG	Department of Fish and Game
DOT	Department of Transportation
DWR	Department of Water Resources
EA/IS	Environmental Assessment/Initial Study
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EM	Engineering Manual
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FONSI	Finding of No Significant Impact
HTRW	Hazardous, Toxic, and Radioactive Waste
Ldn	day-night sound level
lf	Linear Feet
NEMDC	Natomas East Main Drainage Canal
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO _x	Nitrogen oxide
NPDES	National Pollution Discharge Elimination System
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
PL	Public Law
PM ₁₀	Particulate Matter 10 microns or larger
RM	River Mile

ROG	Reactive Organic Gas
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SCB	Soil, cement, bentonite
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
SO	Sulfur oxides
SPCP	Spill Prevention and Countermeasure Plan
SRA	Shaded Riverine Aquatic Habitat
SRBPP	Sacramento River Bank Protection Project
SSWD	Sacramento Suburban Water District
SWPPP	Storm Water Pollution Prevention Plan
USA	Underground Service Alert
USACE	United States Army Corps of Engineers
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), the State Central Valley Flood Protection Board (CVFPB), and the Sacramento Area Flood Control Agency (SAFCA) propose to strengthen the flood control levees in connection with the American River Watershed Common Features Project. This action involves critical sites remaining from the Water Resources Development Act (WRDA) project where standard slurry wall construction techniques were determined to be difficult or impractical. 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 Risk Management under regulations adopted by the Federal Emergency Management Agency (FEMA); (2) design criteria used by USACE and the State for the levees comprising the American River Common Features Project under USACE EM 1110-2-1913 for withstanding emergency releases from Folsom Dam of 160,000 cubic feet per second (cfs).

1.2 Location of the Project Areas

The proposed work involves 19 individual sites from River Mile (RM) 62 on the north bank of the Sacramento River 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. This project will take place in four individual phases in order to facilitate early implementation of the improvements. This document focuses on Phase 1 of the project.

Four sites are proposed for Phase 1 construction: one site at River Mile (RM) 62 on the north bank of the Sacramento River, two sites between RM 05 and RM 06 on the north bank of the American River, and one site on the south (left) bank of the American River between RM 08 and RM 09 (Plate 1).

- Site R1 is located near RM 62 on the north bank of the Sacramento River on Garden Highway at the end of the Natomas Main Drainage Canal (Plate 2). The site extends for 222 linear feet and is directly over the RD-1000 Pump Station. There are drainage pipes under the levee that lead directly to the Sacramento River.
- Site R5 is located between RM 05 and RM 06 along the American Parkway recreational trail near Cal Expo at the Northrop Avenue access to the parkway (Plate 6). The site extends for 162 linear feet. There is a force main sewer line under the levee with an access location on the waterside of the levee.
- Site R6 is located between RM 05 and RM 06 along the American River Parkway recreational trail between Spanos Court and the Campus Commons Golf Course (Plate 7). The site extends for 887 linear feet. The previous cutoff wall project could not construct in this area due to low hanging high voltage power lines across the levee.

- Site L12 is located between RM 08 and RM 09 on the left (south) bank of the American River between Howe Avenue and Watt Avenue near Glenbrook River Access Park (Plate 9). The site extends for 307 linear feet and is adjacent to the Florin-Perkins Pump Station. There is an access panel to the pumping station on the waterside of the levee.

1.3 Background and Need for Action

The project levees in this area of the American River were originally constructed by USACE in 1955-56, coinciding with the construction of Folsom Dam. The levees were designed to contain a controlled flow of 115,000 cfs from Folsom Dam.

The American River Common Features Project is a cooperative effort among local, State of California, and Federal agencies to improve flood risk management for the city of Sacramento and surrounding areas. The Common Features Projects encompass several actions under two authorizations (Water Resources Development Act [WRDA] 96 and WRDA 99) located along both banks within the lower American River Parkway as well as sections along the Sacramento River. The Flood Risk Management levees have been constructed by USACE and CVFPB and maintained by the American River Flood Control District (ARFCD).

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 control to the Sacramento area. The Chief of Engineers, in his June 27, 1996 report, deferred a decision on a comprehensive flood control 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 control plan for the Sacramento area. Although the Federal Administration did not make a recommendation to Congress, these “common features” were included in WRDA 1996.

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 control system, which led to a series of investigations of the need to provide additional protection for Sacramento. Subsequently, further modifications of the American River Common Features Project were authorized in the WRDA of 1999. 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). In April 2004, USACE began work on features modified under WRDA 1999, which included slurry cutoff walls and levee raises near Mayhew Drain, Howe Avenue, Jacob Lane, and Natomas East Main Drainage Canal (NEMDC).

The Lower American River Common Features WRDA 96 Remaining Sites Project involves the strengthening of sites along the north and south banks of the Lower American River at sites where standard slurry wall construction techniques were determined to be difficult or impractical during the slurry wall construction projects in 1998. This project will take place in four individual phases: Phase 1 (four sites) and Phase 2A (three sites) of this project are scheduled to begin in 2009 and be completed in 2010. Phase 2B (eight sites) and Phase 3 (four sites) of this project are proposed to begin in 2010 and be completed in 2011.

1.4 Authority

The proposed levee work is part of the ongoing American River Watershed Common Features project. Authorization for the Common Features project is provided by Section 101 of the Water Resources Development Act of 1996 (Public Law 104-303) and Section 366 of the Water Resources Development Act of 1999 (Public Law 106-53).

1.5 Purpose of the EA/IS

This Environmental Assessment/Initial Study (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 has been prepared in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

1.6 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 Environmental Impact Statement (EIS) must be prepared. Additionally, the CVFPB must decide if the proposed action qualifies for a Mitigated Negative Declaration under CEQA or whether an Environmental Impact Report (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 areas are situated in a narrow corridor between the American River Parkway and Sacramento area neighborhoods, schools, 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.

Rather than strengthening the levees at these sites, 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 areas. There is currently no land available within the project area for constructing a levee set-back.

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 levees at these sites. Levee conditions would remain the same and the levees would not meet the current standard requirements for USACE levees. Each site would remain a potential hazard for levee underseepage in extreme flooding conditions.

2.3 Construct Levee Improvements

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 four sites proposed for construction in Phase 1 of this action.

2.3.1 Site R1

Features. Site R1 extends for 222 feet along the Garden Highway levee at the Natomas Main Drainage Canal (Plate 2). The proposed repair for this site involves a slurry wall to connect to the existing slurry wall. This repair would require alternately closing the eastbound and westbound lanes of Garden Highway during the eight week construction period. In order to complete the connection of the two previously constructed seepage cutoff walls, both lanes of the Garden Highway will be closed for no more than two nights. Total closure of Garden Highway will take place at night in order to minimize the impacts of the closure.

Alternatively, a cutoff wall could be constructed along the buried conduit using a jet grout method. This alternative requires coring through the roof and floor of the conduit and would also require the temporary closure of Garden Highway.

Construction Details

Slurry Wall Construction. All four sites are proposed to be constructed using standard slurry wall construction. Standard slurry wall construction typically involves

the excavation of a 36 inch wide trench to an approximate depth of 70 feet. In order to prevent trench collapse during the excavation, the trench would be filled with a slurry mixture of water and clay fills. Upon completion of trench excavation, a soil/cement/bentonite (SCB) mixture would be pumped into the trench, displacing the original clay slurry which is pumped out and recycled. The SCB mixture then hardens into a cutoff wall that prevents underseepage in the levees.

Access and Staging. The R1 access road would be Garden Highway. Construction would take place on the levee crown.

The proposed staging area would be located at the City of Sacramento McClellan Sacramento River Dock Annex. It is a paved, gated area designed for public parking and recreation area purposes. The City of Sacramento would be contacted for the use of this area. Construction materials, equipment, topsoil and excess material would be temporarily stored in the staging area during the construction period. It would also provide a parking location for construction workers.

Site Preparation and Construction Methods. Before the start of 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, and K-Rails would section off one lane of Garden Highway. All trees and elderberry shrubs in the construction area would be tagged and fenced off. Appropriate avoidance protocols would be used to protect all elderberry shrubs. Prior to the temporary total closure of Garden Highway, the asphalt would be pre-cut to reduce noise impacts during the night-time construction activities. A detour route would be clearly marked to direct traffic away from the construction site to West El Camino for the total closure (see Plate 4). Construction of the slurry wall would require that the landside levee crown be removed and a trench be excavated; removed material would total approximately 1700 cubic yards (cy). Any removed material that could be reused for construction would be temporarily stored in the staging area; all non-useable material would be disposed by the contractor at an approved site. An additional 100 cy of material would be brought in for the rebuilding of the levee crown cap on Garden Highway.

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 access ramps and staging areas would also be restored to pre-project conditions and reseeded. Any damage from construction activities would be repaired. Finally, the work sites 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. The procedures for restoration and clean-up are the same for all four sites.

Borrow and Disposals Sites.

Construction at this site would remove approximately 1000 cy of disposal material and require approximately 100 cy of borrow material. It is reasonable to assume that the material would be acquired from sites within 10 to 15 miles of the project site. Similarly, it is assumed that disposal sites for excess materials or spoils would be located within 10 to 15 miles of the project site. The contractor is responsible for determining the location of borrow and disposal sites; however, they must be approved by USACE.

Construction Workers and Schedule. An estimated 10 to 20 workers would be onsite each day during construction. These workers would access the area via regional and local roadways, and park their vehicles in the staging area. Construction hours would be limited daily to the hours from 8:00 a.m. to 6:00 p.m. Monday through Saturday for the majority of construction, and from 7:00 p.m. to 5:00 a.m. Monday through Saturday during the temporary total closure of Garden Highway. Construction on Site R1 could begin as early as the summer of 2009, or as late as the spring of 2010. The duration of the construction period at this site should last approximately two months.

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 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. The procedures for operation and maintenance are the same for all four sites.

2.3.2 Site R5

Features. Site R5 extends for approximately 162 linear feet along the American River Parkway near Northrop Avenue (Plate 6). There is a 52 inch force-main sewer line under the levee. The proposed construction for this site involves a slurry wall using conventional slurry wall panel construction, requiring the exposure and protection of the force-main sewer line.

Construction Details

Slurry Wall Construction. All four sites are proposed to be constructed using standard slurry wall construction. See description of Slurry Wall Construction described in section 2.3.1 for details.

Access and Staging. Access points to Site R5 would be Northrop Avenue and Spanos Court. A secondary access point would be Fair Oaks Avenue. The proposed staging area would be located at the Sacramento Suburban Water District (SSWD) parking area (Plate 5). It is a paved, gated area designed for parking access to the SSWD area. The SSWD would be contacted for the use of this site. Construction materials,

equipment, spoils and excess material would be stored in the staging area during the construction period. It would also provide a parking location for construction workers.

Site Preparation and Construction Methods. Before the start of 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. The detour trail on the waterside of the levee would be inspected by County Parks, and major hazards would be repaired. Detour fencing and signs would be set up for the detour recreational trail. All trees and elderberry shrubs in the construction area would be tagged and fenced off. Appropriate avoidance protocols would be used to protect all elderberry shrubs.

Construction at site R5 would require that 4-6 inches of the levee crown be removed, and the levee itself partially degraded to allow a sufficient construction width for the exposure and protection of the force main sewer line. Once the force-main sewer line has been protected in place with a trench-box, a conventional slurry wall would be constructed. The amount of removed material would total approximately 1500 cubic yards (cy). Any removed material that could be used for the construction of the levee would be temporarily stored in the staging area; all non-useable material would be disposed by the contractor at an approved site. Once levee construction is completed, aggregate base material would be reinstalled on the levee crown to provide for the maintenance road.

Construction on Site R5 could begin as early as the summer of 2009, or as late as the summer of 2010. The duration of the construction period should last approximately two months.

Restoration and Cleanup. The procedures for restoration and clean-up are the same for all four sites. See description of Restoration and Cleanup described in section 2.3.1 for details.

Borrow and Disposal Sites.

Construction at site R5 would require approximately 800 cy of borrow material for the restoration of the levee crown. It is reasonable to assume that the material would be acquired from sites within 10 to 15 miles of the project site. Similarly, it is assumed that disposal sites for excess materials or spoils would be located within 10 to 15 miles of the project site. The contractor is responsible for determining the location of borrow and disposal sites; however, they must be approved by USACE.

Construction Workers and Schedule. An estimated 10 to 20 workers would be onsite each day during construction. These workers would access the area via regional and local roadways, and park their vehicles in the staging area located at Northrop Avenue. Construction hours would be limited daily to the hours from 8:00 a.m. to 6:00 p.m. Monday through Saturday. Construction could begin as early as the summer of

2009, or as late as the spring of 2010. The duration of the construction period should last approximately two months.

Operation and Maintenance. The procedures for operation and maintenance are the same for all four sites. See description of Operation and Maintenance described in section 2.3.1 for details.

2.3.3 Site R6

Features. Site R6 extends for approximately 887 linear feet along the American River Parkway between Spanos Court and Campus Commons Golf Course (Plate 7). The proposed construction at this site involves conventional slurry wall construction. This would require degrading the existing levee to allow for clearance of the overhead high voltage power lines. Upon completion of the slurry wall, the levee would be reconstructed with a fine clay material, and an overlap layer of fine clay material on either side of the reconstructed levee would tie-in the reconstructed levee to the existing slurry wall.

Alternatively, construction could involve a landside berm with an internal drain. This alternative would require property acquisition from the landside apartment complexes.

Construction Details

Slurry Wall Construction. All four sites are proposed to be constructed using standard slurry wall construction. See description of Slurry Wall Construction described in section 2.3.1 for details.

Access and Staging. Access points to Site R6 would be Northrop Avenue and Spanos Court. A secondary access point would be Fair Oaks Avenue. A turnaround point is proposed at the upstream end of the site near Campus Commons Golf Course. The proposed staging area would be located at the Sacramento Suburban Water District (SSWD) parking area (Plate 5). It is a paved, gated area designed for parking access to the SSWD area. The SSWD would be contacted for the use of this site. Construction materials, equipment, spoils and excess material would be stored in the staging area during the construction period. It would also provide a parking location for construction workers.

Site Preparation and Construction Methods. Before the start of 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. The detour trail on the waterside of the levee would be inspected by County Parks, and major hazards would be repaired. Detour fencing and signs would be set up for the detour recreational trail. All trees and elderberry shrubs in the construction area would be tagged and fenced off. Appropriate avoidance protocols would be used to protect all elderberry shrubs.

Construction of the levee improvements at site R6 would require degrading the existing levee, as well as trenching an additional 6 foot depth for clearance from the high voltage power lines. The amount of removed material from site R6 would total approximately 25,000 cubic yards (cy). Any removed material that could be used for the construction of the levee would be temporarily stored in the staging area; all non-useable material would be disposed by the contractor at an approved site.

Construction on site R6 could begin as early as the summer of 2009, or as late as the summer of 2010. The duration of the construction period would last approximately three months.

Reconstruction of the levee would require fine clay material. The new material would be delivered by dump truck on the top of the levee and then redistributed. The levee would be reconstructed to a consistent 20-foot crest using approximately 28,000 cy of borrow material, and would be compacted to USACE levee standards. A layer of fine clay material would also be placed in a 50-foot overlap layer on either side of the reconstructed levee in order to tie the new levee segment into the existing slurry wall. Once levee construction is completed, aggregate base material would be reinstalled on the levee surface to provide for the maintenance road.

Restoration and Cleanup. The procedures for restoration and clean-up are the same for all four sites. See description of Restoration and Cleanup described in section 2.3.1 for details.

Borrow and Disposal Sites.

The proposed construction at this site would remove approximately 25,000 cy of disposal material and require approximately 28,000 cy of borrow material. It is reasonable to assume that the material would be acquired from sites within 10 to 15 miles of the project site. Similarly, it is assumed that disposal sites for excess materials or spoils would be located within 10 to 15 miles of the project site. The contractor is responsible for determining the location of borrow and disposal sites; however, they must be approved by USACE.

Construction Workers and Schedule. An estimated 10 to 20 workers would be onsite each day during construction. These workers would access the area via regional and local roadways, and park their vehicles in either the staging area. Construction hours would be limited daily to the hours from 8:00 a.m. to 6:00 p.m. Monday through Saturday. Construction on Site R6 could begin as early as the summer of 2009, or as late as the spring of 2010. The duration of the construction period would last approximately three months.

Operation and Maintenance. The procedures for operation and maintenance are the same for all four sites. See description of Operation and Maintenance described in section 2.3.1 for details.

2.3.4 Site L12

Features. Site L12 extends for 307 linear feet on the left (south) side of the American River between River Miles 08 and 09 (Plate 9). The proposed construction at this site involves conventional slurry wall construction. This would require protecting the 32-inch siphon pipes in place, and removing an abandoned 52-inch pipe at 30 foot depth.

Alternatively, construction at the site could involve reshaping the landside slope and installing a 10-foot drainage berm with a retaining wall.

Construction Details

Slurry Wall Construction. All four sites are proposed to be constructed using standard slurry wall construction. See description of Slurry Wall Construction described in section 2.3.1 for details.

Access and Staging. Glenbrook River Access south of site L12 provides an access road and a staging area. The staging area is a flat, grassy area with ornamental plantings along a recreational jogging trail. The City of Sacramento Department of Parks and Recreation has been contacted for the use of this area. Construction materials, equipment, spoils and excess material would be stored in the staging area during the construction period. It would also provide a parking location for construction workers.

Site Preparation and Construction Methods. Before the start of 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. In any areas where the recreational trail is in the vicinity of the project footprint, K-rails would be installed along the edge of the trail in order to separate recreationists from the construction area. All trees and elderberry shrubs in the construction area would be tagged and fenced off. Appropriate avoidance protocols would be used to protect all elderberry shrubs.

Proposed construction at this site would involve conventional slurry wall construction. This would require protecting the 32 inch siphon pipes in place using a trenchbox, and degrading the existing levee in order to expose an abandoned 52 inch corrugated metal pipe at 30 foot depth. Any removed material that could be reused for the construction of the levee would be temporarily stored in the staging area; all non-useable material would be disposed by the contractor at an approved site. After the removal of the 52 inch pipe, the excavated area would be refilled in order to provide a construction footprint for standard slurry wall construction. Upon completion of the slurry wall, the levee would be reconstructed with a fine clay material, and an overlap layer of fine clay material on either side of the reconstructed levee would tie-in the reconstructed levee to the existing slurry wall. Once levee construction is completed, aggregate base material would to be reinstalled on the levee surface to provide for the maintenance road.

Construction on Site L12 could begin as early as the summer of 2009, or as late as the spring of 2010. The duration of the construction period should last approximately one to two months.

Restoration and Cleanup. The procedures for restoration and clean-up are the same for all four sites. See description of Restoration and Cleanup described in section 2.3.1 for details.

Borrow and Disposal Sites.

The proposed construction at this site would remove approximately 3300 cy of disposal material and require approximately 3,800 cy of borrow material. It is reasonable to assume that the material would be acquired from sites within 10 to 15 miles of the project site. Similarly, it is assumed that disposal sites for excess materials or spoils would be located within 10 to 15 miles of the project site. The contractor is responsible for determining the location of borrow and disposal sites; however, they must be approved by USACE.

Construction Workers and Schedule. An estimated 10 to 20 workers would be onsite each day during construction. These workers would access the area via regional and local roadways, and park their vehicles in the staging area. Construction hours would be limited daily to the hours from 8:00 a.m. to 6:00 p.m. Monday through Saturday. Construction on Site L12 could begin as early as the summer of 2009, or as late as the spring of 2010. The duration of the construction period should last approximately one to two months.

Operation and Maintenance. The procedures for operation and maintenance are the same for all four sites. See description of Operation and Maintenance described in section 2.3.1 for details.

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. When necessary, mitigation measures are also proposed to avoid, reduce, minimize, or compensate for any significant effects.

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 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° 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 2008).

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.

The project would have no effect on the climate in the project area.

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, the general shallowness of 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 (CalFed 2007).

The work proposed at all four sites primarily consists of earth work, as the surface of the levees would be cleared and grubbed of the immediate surface material. All suitable excavated soil material would be reused in the project, and any unsuitable material would be disposed offsite at a commercial landfill. Soil material would be

brought to the site to create berms, stabilize levee slopes, build cutoff walls, and rebuild levees. Areas temporarily disturbed by construction would be returned to pre-project conditions after construction. Barren areas would be seeded with native grasses to reduce the potential for erosion.

The levee improvements would not significantly change the project area topography. The project would not affect project area geography. The removal or import of soil material for the levee construction would not significantly affect the soil condition in the project area.

3.1.3 Land Use and Socioeconomics

A detailed discussion of socioeconomics (population, housing, and the economy) and land use are presented in the 1996 SEIS/EIR. The project area is located within the Sacramento metropolitan area. The predominant land use in the area is residential, with some commercial, industrial, and public land also included in the project area. The project would not result in any long-term changes in land use or socioeconomics in the area. The residential development adjacent to the levee in both reaches would remain the same, and the staging areas would be returned to pre-project uses after construction.

As directed in Executive Order 12898, 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. There are no minority or low-income populations in the project area. All nearby residents would benefit equally from the project.

3.2 Recreation

3.2.1 Existing Conditions.

The project area is located along the right and left banks 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 stretching from the confluence with the Sacramento River upstream to Folsom Lake. The Parkway is valuable regional resource which attracts bicyclists, runners, walkers, horseback riders and rafters. The Sacramento County Department of Regional Parks is the agency with primary responsibility over the American River Parkway.

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

Site R1 is at RM 62 on the north bank of the Sacramento River on Garden Highway. This site is near a pedestrian access road that leads to the old pump house,

residential areas, a recreational path and a public walkway. This road provides pedestrian and bicycle access along the Sacramento River and the Natomas Main Drainage Canal. There is also a recreational boat dock approximately 100 meters (328 feet) southeast from the project site.

Sites R5 and R6 are between RM 05 and 06 on the north bank of the American River. There are four access points in this area. The access point at Northrop Avenue has both a pedestrian walkway and a locked vehicle gate. The access point at Spanos Court is a locked vehicle gate, the access at the Campus Commons Golf Course is accessible for both pedestrians and vehicles, and the access point at Fair Oaks Avenue is accessible for both pedestrians and vehicles.

Site L12 is between RM 08 and RM 09 on the south side of the American River. This site has pedestrian and bicycle access with vehicular access for maintenance purposes. There are also several informal access points originating from the nearby residential areas and unpaved trails leading from the levee to the American River for recreational fishing, bicycling and walking.

3.2.2 Environmental Effects

Basis of Significance. Effects to recreational resources are considered significant if construction would result in any of the following:

- Eliminate or severely restrict access to recreational facilities and resources.
- 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; therefore there would be no effects on recreation. The recreational trail and levee roads would remain open, and there would be no changes to the project area.

Construct Levee Improvements.

The primary impact on recreation would be effects on the Jedediah Smith Recreation Trail. The project would not restrict access to the American River Parkway itself; however, construction vehicles would be present in staging areas and levee crown roads would be closed to pedestrian access. The access roads in and out of the Parkway would be used as haul routes for trucks providing borrow material resulting in increased traffic along the entry routes used by recreationists. At times, traffic control may be necessary for negotiating truck entry to the levee crown with recreationist vehicles entering the Parkway.

Construction at site R1 would have minimal to no short-term effects on recreational use on the bike trail that parallels the Natomas West Drainage Canal as the

trail is away from the construction closures; however, the bicyclists that use Garden Highway for commuting and exercise in the mornings and evenings would be impacted by the temporary restrictions.

Construction at sites R5 and R6 would have short-term effects on recreational use in the American River Parkway. The maintenance road on the top of the levee would be closed to pedestrian access during the two to three month construction period, and the recreational trail on the waterside toe of the levee would be used as a haul route by construction crews and trucks. The temporary closure of the recreational trail in this area would force bicyclists to use Howe Avenue from Cadillac Drive near the Campus Commons Golf Course to Hurley Way near Cal Expo. In order to reduce these significant impacts and allow recreational access to remain available during construction activities from Northrop Avenue to Campus Commons Golf Course, an alternate detour path has been proposed along the old recreational trail that is closer to the river (Plates 5,6, and 7).

Construction at site L12 would have short-term effects on recreational use in the American River Parkway. The Glenbrook River Access recreational trail would be used as an access route to the construction site on the levee crown. Recreational use would be restricted in the Glenbrook River Access Park as well as the levee crown, and the maintenance road on top of the levee would be closed to pedestrian access during the 2 month construction period.

3.2.3 Mitigation Measures

In order to reduce negative impacts to the recreational trail, mitigation measures would be taken to keep the public informed of the situation. Coordination would be done with local bicycle groups in order to keep them informed of the effects to the recreational trails, and to ensure the fewest possible impacts to trail use. To ensure public safety, warning signs and signs restricting access would be posted before and during construction, as necessary. Detour routes would be clearly marked, and fences erected in order to prevent access to the project area. The alternate recreational trail around sites R5 and R6 would be inspected by County Parks for potential safety hazards, and major hazards would be repaired.

In areas where recreational traffic intersects with construction vehicles, traffic control would be utilized in order to maintain public safety. Public outreach would be conducted through mailings, posting signs, coordination with interested groups, and meetings, if necessary, in order to provide information regarding changes to recreational access in and around the Parkway. Coordination with the Sacramento County Department of Regional Parks has been initiated for impact reduction.

Any effects to recreation would be temporary and considered less than significant. Therefore, no further mitigation measures would be required.

3.3 Vegetation and Wildlife

3.3.1 Existing Conditions

There are 5 different types of vegetation communities in the project area: ruderal herbaceous, ornamental landscaping, developed areas, riparian forest and scrub, and open water. 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 and open water habitats are considered sensitive native community. Due to their local significance, native oak trees are separately addressed.

Ruderal Herbaceous. 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 annual grasses such as ripgut brome (*Bromus diandrus*), wild oat (*Avena fatua*), and forbs including horsetail (*Equisetum spp.*). Ruderal herbaceous community provides cover and foraging habitat for resident and migratory songbirds, 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. Ornamental landscape community is a nonnative community that occurs within the project area primarily near residential homes and the Los Rios building complex. Ornamental landscape community also includes Glenbrook River Access. Most of the vegetation in this community is nonnative vegetation used to landscape lawns, backyards, and recreation fields. Vegetation type, height, and volume are managed by landowners and maintenance personnel. Some of this vegetation is trimmed by ARFCD while performing maintenance along the landside easement. This community provides nesting, cover, and foraging habitat for residential and migratory songbirds, small mammals, and small reptiles.

Developed Areas. Nonnative communities occur in areas developed for urban use in the project area. Developed areas include sidewalks, roadways, buildings, driveways, parking lots, and recreation trails. This community provides little to no habitat for wildlife, and has little to no vegetation and ground cover.

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 along the American River. This community includes native and nonnative trees, shrubs, vines, and brush in a narrow band along the river.

Open Water. Open Water community is defined as all areas of open water, generally with less than 25% cover of vegetation or soil. No construction would take place from the water, and Best Management Practices would be utilized to avoid impacts to Open Water.

Native Oak Trees. The Sacramento County Ordinance, Chapter 19.12, Tree Preservation and Protection (Oak tree 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, and there are more than 40 native oak trees immediately within, or adjacent to the project area. Typically, only trees 6 inches in diameter at breast height (dbh), or greater, are protected.

3.3.2 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.

Construct Levee Improvements

Site R1. Construction at this site is not expected to require any vegetation removal; however, there is a large (30 inch diameter) Valley Oak tree at the upper limit of the site construction area that may require minimal trimming.

Site R5. Construction at Site R5 would involve a conventional slurry cutoff wall using the SCB method and the protection of the force main sewer pipe. This method would remove vegetation from the levee slopes, and may require minimal trimming of native oak trees adjacent to the project area.

Site R6. Construction at site R6 would require degrading the existing levee to allow for clearance of the overhead high voltage power lines for the construction equipment. There are no trees in the expected footprint; however, the levee slopes would require vegetation removal, and the proposed turnaround area contains small plants that should either be protected or mitigated for.

Site L12. Construction at this site would involve vegetation removal from the levee slopes, and a large tree along the haul route may require minimal trimming. Several small ornamental trees within the staging area may require protection. Proper conservation procedures should be followed if any trees are damaged or destroyed.

3.3.3 Mitigation Measures

There are no trees expected to require removal for the construction of this project. Trees within the construction footprint would be protected in place to the greatest extent practical. Any trees that require trimming would be done so under the observation of a qualified arborist. Any trees that must be removed would be replaced with native tree species, such as valley oaks, that would enhance the quality of the environment of the parkway. Mitigation measures would follow ratios coordinated with the U.S. Fish and Wildlife Service under the Fish and Wildlife Coordination Act. The mitigation measures would be conducted near the area that the trees were removed.

3.4 Fisheries

3.4.1 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. Common species include the Sacramento River winter-run Chinook salmon, Central Valley steelhead, Central Valley spring-run Chinook salmon, American shad, rainbow trout, striped bass, black bass, carp, Sacramento squawfish, Sacramento sucker, hardhead, and the threatened Sacramento splittail. Additional detailed information on fisheries in the lower American River is included in the 1996 SEIS/EIR.

The construction activities proposed along the lower American River for this project are in the proximity of Essential Fish Habitat for the Green sturgeon, the endangered Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), the threatened Central Valley spring-run Chinook salmon (*O. tshawytscha*), and the threatened Central Valley Steelhead (*O. mykiss*).

Essential Fish Habitat (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, the National Marine Fisheries Service (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.

The Act requires that federal agencies consult with NMFS when any activity proposed to be permitted, funded, or undertaken by a federal agency may have adverse impacts on designated EFH. According to NMFS, the proposed project sites are in the vicinity of EFH for the Green sturgeon, the endangered Sacramento River winter-run Chinook salmon, the federally threatened Central Valley spring-run Chinook salmon, and the threatened Central Valley steelhead.

3.4.2 Environmental Effects

Construction at site R1 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 canal. Mitigation measures for water quality would be implemented to reduce the impact on EFH at this site.

Construction at sites R5 and R6 would require the temporary closure of the Jedediah Smith Recreation Trail between Northrop Avenue and the Campus Commons Golf Course. A detour around the construction area has been proposed along the old recreational trail along the American River, which comes within 20 feet of the American River in some areas. Use of this recreational trail as a detour around the construction would result in higher numbers of bicycle and pedestrian traffic, possibly affecting fish habitat through an increase of trash and disturbance. There is also a possibility that this trail would be rehabilitated prior to opening to the public. This rehabilitation may result in construction activities near the edge of the American River.

Construction at Site L12 would be no closer than 200 feet to the American River, and the associated staging area is on the landside of the levee. Construction would not directly interfere with fisheries, including aquatic areas, underlying substrates or associated biological communities, or EFH.

There would be no in-water work; no bank stabilization; no removal of woody debris from the river; and no wetlands are within the proposed levee project sites. Water withdrawal would only be associated with pumping if deemed necessary, and USACE would coordinate with NMFS in compliance with necessary guidelines for such work. Construction would not directly interfere with fisheries, including aquatic areas, underlying substrates or associated biological communities, or the EFH of the Green Sturgeon, the endangered Sacramento River winter-run Chinook salmon, the threatened Central Valley spring-run Chinook salmon, and the threatened Central Valley Steelhead.

3.4.3 Mitigation Measures

Construction of the levee improvements is expected to only have indirect effects on the green sturgeon, endangered salmonids or their associated critical habitats. These effects would be minimized through mitigation measures proposed under Air Quality (3.6.3) and Water Quality (3.7.3). The contractor would be required to develop and submit a Storm Water Pollution Prevention Plan (SWPPP) to minimize the potential for soil or other contaminants to enter the river. At Site L12 and other areas where slurry

wall construction would involve pipe removal, a trench shield would be placed over the open ends of the pipe to prevent slurry bentonite leakage. Any bentonite spill or leakage would be cleaned up immediately, and NMFS would be alerted immediately if bentonite is observed leaking into water areas. Erosion/sediment controls such as hay bales, straw wattles and silt fencing would be utilized to prevent soil from entering the 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. The contractor would be required to develop and submit a Spill Prevention and Countermeasure Plan (SPCP) prior to initiating construction activities. The SWPPP and SPCP must be approved by USACE. With these Best Management Practices in place, this project is expected to have no effect on fisheries, fish habitat or Shaded Riverine Aquatic Habitat (SRA).

3.5 Special Status Species

3.5.1 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 (FESA) of 1973 (50 CFR 17) provides legal protection for plant and animal species in danger of extinction. This act is administered by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The California Endangered Species Act (CESA) of 1977 parallels FESA and is administered by the California Department of Fish and Game (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 Endangered Species Act (FESA) of 1973 (50 CFR 17).
- Listed or candidate for listing under the California Endangered Species Act of 1977.
- 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 Ordinance, Chapter 19.12, Tree Preservation and Protection.

- 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. Essential Fish Habitat is defined in the Magnuson-Stevens Act as “. . . those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity.” The act requires that Federal agencies consult with the National Marine Fisheries Service when any activity proposed to be permitted, funded, or undertaken by a Federal agency may have adverse effects on designated Essential Fish Habitat.

3.5.2 Special Status Species Evaluation

A list of Federally listed and candidate species and species of concern that may be affected by projects in USGS quads East Sacramento and West Sacramento was obtained on January 29, 2009 via the USFWS website. A search of the California Natural Diversity Database (CNDDDB) conducted on January 7, 2009 indicated that Swainson’s Hawks, Bank Swallows, and elderberry shrubs (*Sambucus sp.*) were identified in the vicinity of the project area. Surveys and stem counts for elderberry shrubs were conducted on March 26th with representatives from USFWS (Appendix A).

A total of 15 special-status species were identified as occurring within the USGS quadrangles West Sacramento and East Sacramento; however, 6 of those species are not known to occur or have habitat within the project area. 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 special-status species were identified as having the potential to occur in the vicinity of the project area and be impacted by construction activities:

- Valley elderberry longhorn beetle (Federal Threatened);
- White-Tailed Kite (CDFG Fully Protected);
- Swainson’s Hawk (State Threatened);
- Coopers Hawk (State Species of Concern);
- Bank Swallow (State Threatened);
- Giant Garter Snake (Federal Endangered);
- Central Valley Steelhead (Federal Threatened) and Critical Habitat
- Central Valley spring-run Chinook Salmon (Federal Threatened) and Critical Habitat
- Central Valley winter-run Chinook Salmon (Federal Endangered) and Critical Habitat.

Valley Elderberry Longhorn Beetle. The Valley elderberry longhorn beetle (VELB; *Desmocerus californicus dimorphus*) 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 1984). 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 only about 10 percent of all suitable elderberry shrubs.

The Parkway, with an abundance of elderberry shrubs in a well-connected corridor, provides high quality habitat for the VELB. During biological surveys conducted on March 26th, 2009, no elderberry shrubs were observed within the construction footprint of site R1. There were 7 elderberry shrubs observed at Site R5; 16 elderberry shrubs at Site R6; 4 elderberry shrubs at Site L12; and 48 elderberry shrubs on the detour recreational trail around sites R5 and R6 (Appendix A). It is assumed that many more elderberry shrubs exist in this section of the parkway; however, only those shrubs located within 100 feet of the project area were surveyed.

White-tailed Kite. White-tailed kite (*Elanus leucurus*) is a common to uncommon yearlong resident in coastal and valley lowlands and is rarely found away from agricultural areas. However, it does inhabit herbaceous and open stages of most habitats, mostly in cismontane California. The main prey of white-tailed kite is voles and other small, diurnal mammals, but it occasionally preys on birds, insects, reptiles, and amphibians. 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 6-20 m (20-100 ft) 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.

The CNDDDB recorded no sightings of White-tailed kites in the project area. Pre-construction surveys would be conducted by a qualified biologist 1-2 weeks prior to mobilization for construction. If White-tailed Kites are found in the project area or the immediate vicinity, CDFG would be contacted to coordinate the proper course of action for monitoring.

Swainson's hawk. Swainson's hawk (*Buteo swainsoni*) 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. They usually arrive in the Central Valley between March 1 and April 1, and migrate south between September and October. 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. Valley oak, Fremont cottonwood, walnut, and large willows with an average height of about 58 feet and ranging from 41 to 82 feet are the most commonly used nest trees in the Central Valley. 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 primarily feed on voles; however, they will feed on a variety of prey including small mammals, birds, and insects.

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, including a 2003 sighting at the Garden Highway/Natomas Main Drainage Canal junction, approximately 500 feet from Site R1. Pre-construction surveys will be conducted a qualified biologist 1-2 weeks prior to mobilization for construction in summer of 2009. Coordination with CDFG is ongoing for the proper course of action for monitoring.

Cooper's hawk. Cooper's hawks (*Accipiter cooperii*) 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. Pre-construction surveys would be conducted by a qualified biologist 1-2 weeks prior to mobilization for construction. If Cooper's Hawks are found in the project area or the immediate vicinity, CDFG would be contacted to coordinate the proper course of action for monitoring.

Bank Swallow. Bank Swallows (*Riparia riparia*) 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. The closest record of nesting Bank Swallows in CNDDDB is located on the south side of the American River, upstream from Cal Expo approximately 1000 feet from the Business 80 Bridge. Pre-construction surveys would be conducted by a qualified biologist 1-2 weeks prior to mobilization for construction. If nesting Barn Swallows are found in the project area or the immediate vicinity, CDFG would be contacted to coordinate the proper course of action for monitoring.

Giant Garter Snake. Giant Garter Snakes (*Thamnophis gigas*) inhabit agricultural wetlands and other waterways such as rice fields, irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley. Giant garter snakes feed primarily on small fishes, tadpoles, and frogs. They inhabit small mammal burrows and other soil crevices above prevailing flood elevations throughout the winter dormancy period, and require emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season (early April to mid-October).

The Natomas Main Drainage Canal is considered marginal habitat for the Giant Garter Snake. While there have been no recorded sightings of the Giant Garter Snakes in the vicinity of the project, the riparian habitat along the American River should be considered valuable habitat from the lower water line up to 200 feet of adjacent uplands. Coordination with USFWS is ongoing for this area.

Central Valley Steelhead. Central Valley Steelhead (*Oncorhynchus mykiss*) and its critical habitat occur along the American River. 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 2 ft/s with gravel-sized material. Juveniles usually rear in freshwater from one to three years, and require water temperatures less than 66°F.

Naturally spawning stocks of Central Valley Steelhead are known to occur in the Sacramento River, the American River, and tributaries.

Central Valley spring-run Chinook Salmon. Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) and its critical habitat occur along the American River. Spring-run Chinook enter the Sacramento River from late March through September. Adults hold in cool water habitats through the summer, and then spawn in the fall from mid-August through early October. Spring-run juveniles either migrate soon after emergence as young-of-the-year, or remain in fresh water and migrate as yearlings.

Central Valley winter-run Chinook Salmon. Central Valley winter-run Chinook salmon (*Oncorhynchus tshawytscha*) and its critical habitat occur along the American River. Winter-run salmon are distinguished from other runs of Chinook salmon in the Sacramento River by the timing of their upstream migration and spawning season. They return almost exclusively as 3-year olds to the river for spawning, after maturing in the ocean. 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.

3.5.3 Environmental Effects

Basis of Significance. Adverse effects on special status species were considered significant if an alternative would result in any of the following:

- 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.
- 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.
- 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.

- Have an adverse effect on a species' designated critical habitat.

No-Action Alternative. Under the no action alternative, there would be no effects on existing special status species or critical habitat. The types of special status species and their associated habitat 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.

Construct Levee Improvements. Construction of the Phase 1 levee improvements would directly and indirectly affect the habitat (elderberry shrubs) of the Federally-listed Valley Elderberry Longhorn Beetle. The project could also result in direct and indirect affects to white-tailed kites, Swainson's hawks, Cooper's hawks, Bank Swallows, and Giant Garter Snakes. These effects could be considered significant to these special status species.

Effects to Valley Elderberry Longhorn Beetle. Construction of the Phase 1 levee improvements would potentially result in direct and indirect affects to several elderberry shrubs. Direct effects would include removal or damage of the plants during site preparation and construction activities. Indirect effects would include physical vibration and increase in dust during operation of equipment and trucks during construction activities. Elderberry stem counts were conducted by USACE representative Robin Rosenau and USFWS representatives Doug Weinrich and Harry Kahler on March 26th. Survey results and maps are in Appendix A.

Site R1.

No elderberry shrubs were observed within 100 feet of the construction site; however, it is assumed that there are many shrubs outside the survey area. In order to avoid damage to the shrubs, security fencing would be set up around the construction site to prevent potential disturbance of the Valley Elderberry Longhorn Beetle. K-rails would also be set up to maintain a hard barrier between construction equipment and the canal.

Site R5.

There are 7 elderberry shrubs located at this site near the waterside toe of the levee. The shrubs would not be directly impacted by the construction work, but to avoid damage to the shrubs, they would be protected in place with concrete barriers. The barriers would protect the shrubs from damage by the equipment, as well as from soil that may slide down the slope. The barriers would be placed as far from the dripline of the shrubs as possible; however, it is likely that the 100 foot minimum buffer zone would not be able to be met in all cases.

Site R6.

There are 16 elderberry shrubs located at this site near the waterside toe of the levee. The shrubs would not be directly impacted by the construction work, but to avoid

damage to the shrubs, they would be protected in place with concrete barriers. The barriers would protect the shrubs from damage by the equipment, as well as from soil that may slide down the slope. The barriers would be placed as far from the dripline of the shrubs as possible, however, it is likely that the 100 foot minimum buffer zone would not be able to be met in all cases.

Construction of Sites R5 and R6 would involve the temporary closure of the Jedediah Smith Recreational Trail in this area. In order to allow recreational access to remain available during construction activities from Northrop Avenue to Campus Commons Golf Course, an alternate detour path has been proposed along the old recreational trail that is closer to the American River. This recreational trail contains more than 48 elderberry shrubs, some of which contain exit holes from the Valley Elderberry Longhorn Beetle. The trail also comes within 20 feet of the American River in some areas. Use of this recreational trail as a detour around the construction area would result in higher numbers of bicycle and pedestrian traffic, possibly affecting sensitive species through an increase of trash and disturbance. There is also a possibility that this recreational trail will be rehabilitated prior to opening to the public. Rehabilitation of the recreational trail would result in direct impacts to elderberry shrubs. Best Management Practices would be utilized for the rehabilitation of this trail. Any trimming required by the rehabilitation of this detour recreational trail would be mitigated as recommended by USFWS. Consultation with USFWS to assess impacts to elderberry shrubs and Valley Elderberry Longhorn Beetle habitat is ongoing.

Site L12.

There are 4 elderberry shrubs located at this site near the waterside toe of the levee. The shrubs would not be directly impacted by the construction work, but to avoid damage to the shrubs, they would be protected in place with concrete barriers. The barriers would protect the shrubs from damage by the equipment, as well as from soil that may slide down the slope. The barriers would be placed as far from the dripline of the shrubs as possible, however, it is likely that the 100 foot minimum buffer zone would not be able to be met in all cases.

Effects to White-tailed kite. No white-tailed kite nests are known to occur in the vicinity of the project area along the American River. However, construction of the levee improvements could potentially result in direct and/ or indirect affects to white-tailed kite if this species begins nesting in or adjacent to the project area prior to construction. Construction activities in the vicinity of a nest have the potential to result in forced fledging or nest abandonment by adult White-tailed Kites.

Effects to Swainson's Hawk. During biological surveys conducted on March 26, 27, and 30, 2009, a nesting pair of Swainson's Hawks was sighted just outside the ½ mile disturbance area near Site R1. The nest is located on the left (south) side of the Sacramento River in a large cottonwood tree near a housing development on the levee (see map, Appendix A). During biological monitoring conducted during drilling operations April 1-8 and April 20-28, biologists from USACE and SAFCA did not

observe signs of distress in the nesting pair. Pre-construction surveys will be conducted a qualified biologist 1-2 weeks prior to mobilization for construction in summer of 2009. Coordination with CDFG is ongoing for the proper course of action for monitoring.

Effects to Cooper's Hawk. No Cooper's Hawk nests are known to occur in the vicinity of the project area. However, construction of the levee improvements could potentially result in direct and/ or indirect affects to Cooper's hawk if this species begins nesting in or adjacent to the project area prior to 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. In 1986, a colony of nesting bank swallows on the south bank of the American River (approximately 6,000 feet from site R5) was recorded in the CNDDDB. 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 Giant Garter Snake. Construction activities may remove vegetative cover and basking sites necessary for thermoregulation, fill or crush burrows or crevices, and remove the prey base. The disturbance from construction activities may also cause Giant Garter Snakes to move into areas of unsuitable habitat where they would experience greater risk of predation or other sources of mortality.

Effects to Central Valley Steelhead, Central Valley spring-run Chinook Salmon, and Central Valley winter-run Chinook Salmon. This section of the American River is considered Critical Habitat for the Central Valley Steelhead, the Central Valley spring-run Chinook salmon, and the Central Valley winter-run Chinook salmon. Construction of the levee improvements is expected to only have indirect effects on these salmonids or their associated critical habitats. 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. There is potential for fugitive dust and construction runoff to enter the canal. These indirect effects would be minimized through mitigation measures proposed under Air Quality (3.6.3) and Water Quality (3.7.3).

3.5.4 Mitigation Measures

Valley Elderberry Longhorn Beetle. Consultation with USFWS is ongoing to assess potential impacts and required compensation. To avoid potential take of the valley elderberry longhorn beetle, 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 shrub, avoidance areas and measures taken by the workers during construction, and contact information.
- 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.

Swainson’s Hawk. A qualified biologist would survey the project area and all areas within one-half mile of the project prior to initiation of construction. If the survey determines that a nesting pair is present, USACE would coordinate with CDFG, and the proper avoidance and minimization measures would be implemented. To avoid potential effects to nesting Swainson’s hawks, CDFG typically requires the avoidance of nesting sites during construction activities. These measures include avoiding construction during the breeding season and monitoring of the nest site by a qualified biologist.

The proposed mitigation measures would reduce the effects on the Swainson’s hawk to less than significant.

White-tailed kite. A qualified biologist would survey the project area and vicinity prior to initiation of construction. If the survey determines that a nesting pair is present, USACE would coordinate with CDFG, and the proper avoidance and minimization measures would be implemented.

The proposed mitigation measures would reduce the effects on the white-tailed kite to less than significant.

Cooper’s hawk. A qualified biologist would survey the project area and vicinity prior to initiation of construction. If the survey determines that a nesting pair is present, USACE would coordinate with CDFG, and the proper avoidance and minimization measures would be implemented.

The proposed mitigation measures would reduce the effects on the Cooper’s hawk to less than significant.

Giant Garter Snake. USACE is consulting with USFWS to assess potential impacts and required compensation. To avoid potential take of the giant garter snake, the following measures taken from USFWS’s “Standard Avoidance and Mitigation Measures

During Construction on Giant Garter Snake Habitat,” November 1997 would be incorporated into the project:

- Construction activity within habitat should be conducted between May 1 and October 1. If this is not feasible, the Sacramento Fish and Wildlife Office would be contacted to determine if additional measures are necessary to minimize and avoid take.
- Confine clearing to the minimal area necessary to facilitate construction activities. Flag and designate avoided giant garter snake habitat within or adjacent to the project area as Environmentally Sensitive Areas. This area should be avoided by all construction personnel.
- Construction personnel should receive USFWS-approved worker environmental awareness training. This training instructs workers to recognize giant garter snakes and their habitat(s).
- The project area should be surveyed for giant garter snakes 24-hours prior to construction activities. Survey of the project area should be repeated if a lapse in construction activity of two weeks or greater has occurred. If a snake is encountered during construction, activities shall cease until appropriate corrective measures have been completed or it has been determined that the snake would not be harmed. Report any sightings and any incidental take to USFWS immediately by telephone at (916) 414-6600.
- Any dewatered habitat should remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.
- After completion of construction activities, remove any temporary fill and construction debris and, wherever feasible, restore disturbed areas to pre-project conditions. Restoration work may include such activities as replanting species removed from banks or replanting emergent vegetation in the active channel.
- Follow the mitigation measures as listed by USFWS to minimize the effects of loss and disturbance of habitat on giant garter snakes. Replacement ratios are based on the acreage and on the duration of disturbance.

The mitigation measures to be implemented under Air Quality (3.6.3) and Water Quality (3.7.3) would also serve to mitigate potential indirect effects on Giant Garter Snakes. The proposed mitigation measures would reduce the effects on the Giant Garter Snake to less than significant.

Central Valley Steelhead, Central Valley spring-run Chinook Salmon, and Central Valley winter-run Chinook Salmon. The mitigation measures to be implemented under Water Quality (3.7.3) would also serve to mitigate the potential indirect effects on the

Central Valley Steelhead, the Central Valley spring-run Chinook salmon, and the Central Valley winter-run Chinook salmon. The proposed mitigation measures would reduce the effects on the Central Valley Steelhead to less than significant.

Prior to ground disturbance, all on-site construction personnel shall be given instruction regarding the presence of sensitive species and the importance of avoiding these species and their habitats. The proposed mitigation measures would reduce the effects on sensitive species to less than significant.

3.6 Air Quality

3.6.1 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 Federal standards and local thresholds for 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 _x	100	85
CO	100	*
SO	100	*
PM ₁₀	100	*
ROG	100	65

NO_x = nitrogen oxides PM₁₀ = particulate matter
 CO = carbon monoxide ROG = reactive organic gases
 SO = sulfur oxides

* = default to State standard

SMAQMD = Sacramento Metropolitan Air Quality Management District

Source: SMAQMD, 2008; U.S. Department of Energy, Safety and Health Office of NEPA Policy and Assurance, 2000.

On November 3, 1993, the U.S. 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. 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 exceeds *de minimus* threshold levels listed in the rule (40 CFR 93.153).

Local Air Quality Management. 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) and is also subject to regulations, attainment goals, and standards of the U.S. and California EPA's.

With two exceptions, the SFNA is in attainment for all National and State AAQS. However, the area is designated a "serious" nonattainment area for the National 8-hour AAQS for ozone and is a "serious" nonattainment area for the State's 1-hour ozone standard. As a part of the SFNA, Sacramento County is out of compliance with the State and Federal ozone standards.

With respect to the State and Federal 24-hour particulate matter 10 microns or larger (PM₁₀) AAQS, Sacramento County is designated as a nonattainment area. Additionally, in June 2004, the U.S. EPA proposed to classify Sacramento County in attainment of the new Federal PM_{2.5} standard (SMAQMD, 2004). The California Clean Air Act of 1988 requires nonattainment areas to achieve and maintain the State ambient air quality standards by the earliest practicable date and local air districts to develop plans for attaining State ozone standards.

Sources of Pollutants/Sensitive Receptors. The main sources of emissions contributing to elevated ozone and PM₁₀ concentrations in this area of the Sacramento 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.

3.6.2 Environmental Effects

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

No Action. Under the no action alternative, the project would not affect air quality in the project area. Air quality would continue to be influenced by climatic and geographic conditions, and local and regional emissions from vehicles, and local commercial and industrial land uses. However, air quality is expected to improve in the future. The CARB and the SMAQMD will be implementing stricter ozone precursor and PM₁₀ standards.

Construction of Levee Improvements. Emissions associated with the project would be short-term 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 reactive organic gases (ROG), carbon monoxide (CO), nitrogen oxides (NO_x), PM₁₀, and carbon dioxide (CO₂). 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 6.3.1 (Nov 2008), 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, NO_x, CO, PM₁₀, PM_{2.5}, and CO₂. 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. The emission calculations are based on standard vehicle emission rates built into the model.

The emissions were calculated separately for the work at Sites R1, R5, R6, and L12. Details and results of the calculations for each reach are provided in Appendix B. However, because of the regional nature of the resource and because construction may be conducted at all sites concurrently, the results of the calculations were combined to determine compliance with standards and thresholds, and significance of effects. The estimated combined emissions are shown in Table 2.

Table 2. Combined Estimated Air Emissions for All Sites

	ROG	NO_x	CO	PM₁₀	PM_{2.5}	CO₂
Site Preparation & Construction						
Total emissions (lbs/day)	44.1	363.0	348.8	33.1	17.9	36,221.6
SMAQMD thresholds (lbs/day)	65	85	N/A	N/A	N/A	N/A
Total (tons/construction project)	0.8	6.8	6.3	0.6	0.5	670.3
Total (tons/year)	8.0	66.3	63.7	6.0	3.3	6610.0
Federal standards (tons/year)	100	100	100	100	N/A	N/A

ROG = reactive organic gases

PM = particulate matter

NO_x = nitrogen oxides

CO₂ = Carbon Dioxide

CO = carbon monoxide

Note: Estimates rounded.

Sites R1, R5, R6, and L12. Table 2 summarizes the combined estimated emissions (in pounds per day, total tons for the project and total tons per year) for the project and compares them to the Federal standards and local thresholds. The results show that the combined NO_x emissions would exceed the SMAQMD threshold of 85 pounds per day. Standard Construction Mitigation procedures for projects with construction emissions above the CEQA threshold of significance would be followed as recommended by SMAQMD (Appendix B).

The table also shows that construction emissions of PM₁₀ and ROG would each be less than the *de minimis* thresholds established by the U.S. EPA for conformity analyses. In addition, the best management practices listed in Section 3.6.3 would be implemented to reduce the NOx emissions by 20%. 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. As these emissions are short term in nature, USACE has determined that the proposed action is exempt from the conformity rule.

Global Warming and Climate Change. The construction activities associated with the project would contribute to global warming by using equipment that uses carbon-based fuel that releases some greenhouse gases. The term “Greenhouse gas” or “greenhouse gases” includes but is not limited to: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride (Reference: Health and Safety Code section 38505(g)).

Based on the air emissions calculations, the CO emissions related to the construction only account for 6.3% of the Federal standard. The construction period and the type and quantities of equipment are limited and the overall contribution would be minor. After completion of construction, there would be no change from the current operation of the project and no long term increase on CO emissions. Mitigation measures implemented during construction would reduce impacts to air quality and would also reduce impacts to global warming.

Within the discussion of concerns related to global warming, carbon dioxide (CO₂) is now being tracked as one of the contributors to greenhouse gas emissions. For projects that occur in, and around, the Sacramento Valley area, SMAQMD has emissions models that will calculate several air emissions based on various input criteria (construction phase, duration, type of equipment, project area, etc.). Due to the linear nature of many of the levee repair projects being undertaken by the USACE, SMAQMD has suggested the use of their Road Construction Emissions Model. The outputs of these models address criteria pollutants associated with the National Ambient Air Quality Standards (NAAQS) as well as those associated with California AAQS, which are considered to be more stringent than the Federal standards.

In response to the concerns regarding greenhouse gas emissions, the most recent version of the SMAQMD Road Construction Emissions Model (v. 6.3.1) now generates an output for CO₂. The results from the emissions model in Table 2 include CO₂. It should be noted that although CO₂ 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 under NEPA and CEQA. Also, as the focus on CO₂ emissions is relatively recent, specific mitigation measures, as they relate to construction, are not fully developed. For these reasons, the Best Management Practices (BMPs) and Mitigation Measures listed in Section 3.6.3 will also be employed to minimize CO₂ and other greenhouse gas emissions.

The project would improve flood protection along the American River by meeting current requirements to safely convey an emergency release of 160,000 cfs. The current design requirements would bring equity to the levee system within the lower American River and are based on recent data and trends. More current data regarding the changes in seasonal weather patterns may ultimately determine that the current design requirements may no longer be adequate. USACE will evaluate these trends in consideration for flood risk management in this region.

3.6.3 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 sites. Implementation of the Best Management Practices listed below would reduce air emissions. These emissions are short-term in nature and would not result in any significant, long-term effects on air quality; therefore, no other mitigation measures would be required.

- 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.
- 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 should not be excessive or result in runoff into storm drains.
- Suspend all grading, earth moving, or excavation activities when winds exceed 20 miles per hour.
- Water or cover all material transported offsite to prevent generation of dust.
- 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.

Prior to construction, the contractor must apply for a permit with SMAQMD. The permit requirements include submitting a list of equipment to be used on the project, and a plan indicating how the activities would, or would not, meet agency standards. If the project air emissions calculations indicate that the project would not meet SMAQMD thresholds, the contractor would be required to follow the requirements of SMAQMD's standard mitigation program (Appendix B) which is intended to reduce NOx emissions

by 20%. Any remaining emissions over the NO_x threshold should be reduced via a mitigation fee payment. The cost of reducing one ton of NO_x as of July 1, 2008 is \$16,000 (\$8.00/lb) (SMAQMD 2008). The contractor would be responsible for payment of any required mitigation and administrative fees.

3.7 Water Resources and Quality

3.7.1 Existing Conditions

The Sacramento metropolitan area is situated at the confluence of the American and Sacramento Rivers in a low-lying flood basin. Levees along these rivers provide flood protection and convey water from the Sierra Nevada to the Sacramento-San Joaquin Delta. Winter rains and spring snow melt can cause high flows in the valley rivers. High flow levels stress levees and berms, weakening them and causing them to erode and possibly fail. To maintain the flood control system, areas with existing or potential erosion and seepage damage are identified and repaired.

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 by-passes, and upstream tributaries. Folsom Dam has the greatest effect on water flow in this section of the river. In 2008, the mean water level for the American River at the confluence of the Sacramento River was 16.55 feet. The maximum water level of the American River was 18.26 feet and the minimal water level was 13.46 feet (DWR 2009).

American River water quality 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. Water quality studies by U.S. Geological Survey determined that urban runoff from the metropolitan area of Sacramento is a potential source of contaminants that enter the lower Sacramento River. Contamination by volatile organic compounds, especially contamination of ground water, can occur in any large urban setting. (Domagalski, Joseph 2007).

The local rivers, lakes, and rainfall recharge the ground water table in the project area. The City of Sacramento utilizes the ground water to supply drinking water to businesses and residential homes. The ground water table is approximately 75 feet below the surface. Average ground water depth can be affected by seasonal changes in water volume in the valley rivers and lakes, local rainfall, and urban demand on the ground water (DWR 2005).

The ground water quality is affected by chemicals that seep into the ground by surrounding land uses. Ground water testing resulted in low concentrations of eight volatile organic compounds, four pesticides, and one pesticide transformation product. The ground water table had high concentrations of nitrates and nitrogen. Arsenic concentrations exceed the EPA maximum concentration level of 10 milligrams per liter. Manganese, iron, chloride, total dissolved solids, and specific conductance exceeded the

California Department of Health Services recommended secondary maximum contaminant levels (Shelton, Jennifer L. 2005).

3.7.2 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 not change.

Construct Levee Improvements

Site R1. Construction at site R1 would consist of a conventional slurry wall under Garden Highway. There is potential for fugitive dust and construction runoff to enter the Natomas Main Drainage Canal.

Sites R5 and R6. Construction at sites R5 and R6 would require the temporary closure of the Jedediah Smith Recreation Trail between Northrop Avenue and the Campus Commons Golf Course. A detour around the construction area has been proposed along the old recreational trail along the American River. This recreational trail comes within 20 feet of the American River in some areas. Use of this recreational trail as a detour around the construction would result in higher numbers of bicycle and pedestrian traffic. This recreational trail would also be rehabilitated prior to opening to the public, which may result in minor construction activities near the edge of the American River.

Site L12. Construction at site L12 would be no closer than 200 feet to the American River, and the associated staging area is on the landside of the levee. Construction would not directly affect water quality at this site.

Approximately 85,000 square feet (about 2 acres) of bare soil (combined sites) would be exposed until construction is completed and the levee slope is reseeded. Dust control measures would be implemented on the levee crown, side slopes, maintenance roads and stockpiles to avoid dust and soil from entering the river or other drainages as a result of construction activities. Precautions would be followed to avoid erosion and movement of soils into the drainage system.

In addition, inadvertent spills of oil or fuels from construction equipment could be a source of contamination at work or staging areas. Precautions would be followed to avoid contamination. Fuels and hazardous materials would not be stored at the site, and the contractor would be required to properly store and dispose of any hazardous waste generated at the site. Riparian vegetation and best management practices would prevent sediment and erosion runoff from entering the river.

3.7.3 Mitigation Measures

Since the project would disturb more than 1 acre of land, the contractor would be required to obtain a National Pollution Discharge Elimination System (NPDES) 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), identifying best management practices to be used to avoid or minimize any adverse effects during construction to surface waters.

The following Best Management Practices would be incorporated into the project:

- The contractor would prepare a spill control plan and a SWPPP prior to initiation of construction. The SWPPP would be developed in accordance with guidance from the RWQCB, Central Valley Region. These plans would be reviewed and approved by the USACE before construction begins.
- 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 can not 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 2009. If rains are forecasted during construction, erosion control measures would be implemented as described in the RWQCB Erosion and Sediment Control Field Manual.
- 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.

3.8 Traffic and Circulation

3.8.1 Existing Conditions

Streets in the project area consist primarily of minor residential streets maintained by the City of Sacramento and Sacramento County. City sidewalks are located on each side of the residential streets, which are used by local residents. The American River Parkway provides recreation trails used for pedestrian traffic (running and walking); horseback riding and bicycling are located throughout the project area.

Roadways that parallel site R1 include Garden Highway, La Lima Way, Toronja Way, Trigo Way, and River Plaza Drive. Garden Highway is an important connecting roadway on the levee crown that connects local residential and commercial areas to state highways and other parts of the metropolitan area. Construction at this site would involve the temporary closure of one lane on Garden Highway, and the temporary total closure of Garden Highway for no more than two nights.

Streets that parallel sites R5 and R6 include Howe Avenue, Feature Drive and Cadillac Drive. The nearest major road to the project area is Howe Avenue. This roadway is a major, four-lane urban roadway that connects local residential and commercial areas to state highways and other parts of the metropolitan area. Howe Avenue is outside of the project area, but would be used to access the project area during construction.

Streets that parallel site L12 include La Riviera Drive and Grand Rio Circle. Traffic on the residential streets includes private automobiles and bicycles. Traffic on the residential roads tends to be light through out the day with a peak during the morning and evening rush hour (Sacramento County, 2007).

Streets that cross or end at the levee at site R1 include Orchard Lane and Gateway Oaks. Both of these small, two lane roads would be used as truck haul routes during construction, as well as detour routes for traffic during the temporary closure of Garden Highway.

Streets that cross or end at the levee at sites R5 and R6 include Spanos Court and Northrop Avenue. Spanos Court is a two-lane street that ends at the levee. There is a locked gated access road at this point. Northrop Avenue is a two-lane street that bends to parallel the levee at the intersection point, leading to the currently unused Sacramento Suburban Water District and SRCSD parking lot areas. These areas are proposed as staging areas for sites R5 and R6. There is a gated access road from Northrop Avenue to the levee crown.

The Glenbrook River Access recreational trail intersects the levee at site L12. Other roadways that cross or intersect the L12 project site include Water Glen Circle and Grand Rio Circle.

Traffic volume peaks during the morning and evening rush hour, and becomes a steady but lower volume during the day. Recreational traffic in the American River Parkway and levee bicycle trail is the highest in the early evening till dusk. The American River Parkway trail is a paved two-lane recreational trail, and the levee maintenance road is either a paved or a gravel road on top of the levee.

The City of Sacramento and the County of Sacramento post traffic counts on their web sites for roadways in the project area. The traffic count for Garden Highway at the intersection of Gateway Oaks averages 8,500 cars per day. The traffic count for Howe Avenue north of Fair Oaks Boulevard averages 52,386 cars per day (Sacramento County 2007), and the traffic count for La Riviera at the intersection of Howe Avenue averages 34,028 cars per day (City of Sacramento 2007).

3.8.2 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.

Construct Levee Improvements

The project would temporarily affect local residential roads and major urban connector roads that would be used as a haul route during construction. Haul trucks would cause an increase in traffic volume and reduce traffic speeds on local residential roads. There would also be a temporary lane closure as well as a temporary total closure of Garden Highway at Site R1.

Site R1. Construction of the conventional slurry wall at site R1 would require the temporary alternate closures of both lanes of Garden Highway for approximately eight weeks. Flagmen would be stationed on either side of the construction zone to enable progressive one-way traffic crossing. There would also be a total closure of Garden Highway that is proposed to take place for two nights in order to minimize the impacts of this closure. Detour routes from Garden Highway to West El Camino would be set up to direct traffic away from the area of closure (see Plate 4). This closure should last for no more than two nights. During the curing stage of the slurry wall, temporary steel plates would be placed on Garden Highway to enable the re-opening of both lanes of traffic for a period of time.

During construction, haul trucks would travel between the construction site and the commercial disposal site. For the purposes of this discussion the following scenario

would be used to describe the haul routes and traffic impacts: Haul trucks would use Interstate 5 to Garden Highway and access the construction area from the east. After on loading the material for disposal, the haul trucks would exit west on Garden Highway, turning north on Orchard Lane to West El Camino and Interstate 80. A flagman would direct construction traffic as the haul trucks enter and leave the construction site (Plate 3). During the height of construction, it is estimated that approximately 5 haul trucks would be accessing the site per hour. Construction at site R1 would impact traffic conditions on Garden Highway. The temporary lane closure and total closure of Garden Highway would impact the residential traffic, and the presence of construction vehicles on small residential streets may cause disruption to regular traffic flow.

Sites R5 and R6. The directional flow of construction has not been determined for the project; however, roads and access points have been identified. For the purposes of this discussion the following scenario would be used to describe the haul routes and traffic impacts: To access the construction site, haul trucks would use the access point at Howe Avenue and Northrop Avenue to enter the levee. After offloading the material, the haul trucks would either turn around at the designated turn-around point near the Campus Commons Golf Course and exit through the Northrop access point or travel south on the levee maintenance road to exit through the access point at the Fair Oaks/H Street Bridge. Construction trucks would then use Howe Avenue to exit the construction site to US Highway 50 (Plate 8). It is reasonable to assume that the material would be acquired from sites within 10 to 15 miles of the project site. Flagmen would be positioned at all access points to direct traffic through the construction site. During the height of construction, it is estimated that approximately 30 haul trucks would be accessing the site per hour.

Assuming soil deliveries would be made for 8 hours a day during the height of construction, approximately 250 truck trips would occur per day. The haul routes are designed to minimize the occurrences of two-way travel on the same street or road. The access roads at Northrop Avenue and the Fair Oaks/H Street Bridge would see a significant increase in vehicular traffic, as these access roads are not typically used for vehicular access. Assuming that both sites would be constructed concurrently, Howe Avenue could experience as many as 750 vehicles per day during the height of construction, as it is a common thoroughfare for both haul routes. However, based on the traffic counts for Howe Avenue north of Fair Oaks, this would be less than a 2% increase in vehicles and would not be significant. Traffic patterns would return to normal once construction is completed.

Access to the Jedediah Smith Recreation Trail at Northrop Avenue, Spanos Court, Cadillac Drive, and other formal and informal pedestrian access trails scattered along the project site would be closed during construction. An alternate recreational route has been proposed around the construction site as discussed in Recreation (3.2.3).

Site L12. During construction, haul trucks would travel between the commercial borrow pit and the construction site. For the purposes of this discussion the following scenario would be used to describe the haul routes and traffic impacts: Haul trucks

would take US 50 to Watt Avenue to La Riviera Drive to the Glenbrook River Access area, entering the levee at the east access point. After offloading the material, the haul trucks would either turn around at the designated turn-around point at the west end of the site or travel west on the levee road to exit the project area at the Howe Avenue River Access point, and from there use Howe Avenue to US 50 (Plate 10). A flagman at the start of the Glenbrook River Access would direct construction traffic as the haul trucks enter and exit the construction site. During the height of construction, it is estimated that approximately 30 haul trucks would be accessing the site per hour. Assuming soil deliveries would be made for 8 hours a day during the height of construction, approximately 250 truck trips would occur per day. La Riviera Drive would see a significant increase in traffic due to construction vehicles in a residential area.

3.8.3 Mitigation Measures

The contractor would be required to develop a Traffic Control Plan, which would be reviewed and approved by the City of Sacramento, Sacramento County, CALTRANS, and the 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 provided by the contractor would be used when truck trips coincide with schools hours and when haul routes cross student travel path.
- Obey all speed limits, traffic laws, and transportation regulations during construction.
- 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.
- Construction employee parking will be restricted to the designated staging areas.
- Prior to construction, notify local residents, business, schools, and the City of Sacramento if road closures would occur during construction.
- Contractor would repair roads damaged by construction.

As construction of Site R1 would cause a temporary closure of Garden Highway, public outreach including public meetings would inform the residents of the area in a

timely manner. Hours of construction would be clearly marked with signs prior to construction, and detour routes would be clearly marked. To further minimize impacts to traffic, construction would be conducted at night for no more than two nights. Noise impacts are discussed in Section 3.10.

The proposed mitigation measures would reduce the effects on traffic and circulation to less than significant.

3.9 Public Utilities and Services

3.9.1 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, a force sewer main, drainage pipeline and gate structure, and a bridge. Site R1 contains underground electric lines, a pumping station and interior drainage conduits. Site R5 contains a force sewer main crossing. Site R6 contains high voltage overhead power lines. Site L12 contains Florin-Perkins interior drainage conduits.

3.9.2 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.

Construct Levee Improvements

Sites R1, R5, R6, and L12. No utilities or public services are expected to be interrupted during construction. Construction would not access or realign existing potable water supply, sanitary sewerage, or storm sewer system. All utilities located adjacent to, or passing through, the project areas would be protected in place. Natural gas supply or electrical transmission lines would not be augmented except to provide temporary electrical power to the contractor's construction trailer. Employee vehicles would park in project staging areas to avoid interrupting public services.

3.9.3 Mitigation measures

Prior to initiating ground disturbing activities, the contractor would coordinate with Underground Service Alert (USA) to insure that all underground utilities are identified and marked. Utilities would be protected in place.

Since no significant adverse affects to public utilities and services are anticipated, no additional mitigation measures are required.

3.10 Noise

3.10.1 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 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.

Sites R1, R5, R6, and L12 are relatively quiet areas of single family residential homes and apartment complexes. Currently the main source of noise includes motor vehicles, human activity, and natural sounds.

Sites R1 and L12 are located within the City of Sacramento. The City has established policies and regulations concerning the generation and control of noise that could adversely affect their citizens and noise-sensitive land uses. The General Plan is a document required by state law that serves as the city's "blueprint" for land use and development. The General Plan provides an overall framework for development in the City and protection of its natural and cultural resources. The Noise Element of the General Plan contains planning guidelines relating to noise.

In addition, the Sacramento Municipal Code, Title 8 (Health and Safety) establishes the enforcement mechanism for controlling noise in the City. Specifically, the Noise Ordinance in the Municipal Code is described under Chapter 8.68 (Noise Control), Article II (Noise Standards). Section 8.68.060 sets the standards, Section 8.68.060B discusses the length of exposure, and Section 8.68.080 details the exemption, including the exemption for construction.

The City's Noise Ordinance establishes 60 A-weighted decibels (dBA) Ldn as the maximum acceptable exterior noise level for schools and single and multi-family residential areas. The City's Noise Ordinance also states that exterior noise limits must not exceed 50 dBA between 10:00 p.m. and 7:00 a.m. and 55 dBA between 7:00 a.m. and 10:00 p.m. for residential and agricultural areas. However, Section 8.68.080 of the Sacramento Municipal Code exempts construction activities between the hours of 7:00

a.m. and 6:00 p.m., Monday through Saturday, and 9:00 a.m. and 6:00 p.m. on Sunday. The ordinance further states that internal combustion engines in use on construction sites must be equipped with “suitable exhaust and intake silencers which are in good working order.”

Sites R5 and R6 are located within Sacramento County. The County of Sacramento General Plan Noise Element (1993) has established noise standards for various land use categories. These standards are broken out into Acceptable, Conditionally Acceptable and Unacceptable noise exposure ranges based on A-weighted decibel (dBA) Ldn measurements.

Although construction equipment may cause 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 0 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. The residences in this project area are located approximately 50 feet from the construction area. 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 should provide for some attenuation of the noise.

3.10.2 Environmental Effects

Basis of Significance. Adverse effects on noise are considered significant if an alternative would result in any of the following:

- 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.
- Substantial short-term or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- Substantial long-term increase in ambient noise levels in the project vicinity above levels existing without the project.
- Vibration exceeding 0.2 inch per second within 75 feet of existing buildings.

The significance criteria for changes in noise from project operations are listed below. These criteria are based on the County of Sacramento Noise Ordinance.

- A 3-dBA increase in noise if the existing noise level already exceeds the “normally acceptable range” for the land use (60 dBA or less for residential uses).

- A 5-dBA increase in noise if the existing noise level is in the “normally acceptable range” and the resulting level is within the “normally acceptable range” for the land use.
- A resulting offsite exterior noise level that exceeds 55 dBA for a cumulative duration of 30 minutes in an hour (L50) during the daytime (7:00 a.m. to 10:00 p.m.) or 50 dBA L50 during the nighttime (10:00 p.m. to 7:00 a.m.).

No-Action Alternative. Under the no action alternative, there would be no effects on noise. Sources of noise and noise levels would continue to be determined by local activities, development, and natural sounds.

Construct 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), which can be particularly annoying. Pile driving, however, is not proposed for project development. 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

Construction Phase	Noise Level (dBA, Leq) ^a
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

^a 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: U.S. Environmental Protection Agency, 1971.

Table 4. Typical Noise Levels From Construction Equipment

Construction Equipment	Noise Level (dBA, Leq at 50 feet)
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, Environmental Noise Pollution, 1977.

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 are located adjacent to the project area, the nearest having approximately 50 feet between their backyard and excavation areas. These residences would experience noise levels at about 86 dBA during excavation, the loudest of construction activities that would occur. Other residences located around the project area are further away and thus would receive lower levels of noise. During the height of construction, there may be as many as 250 haul truck round trips per day for some sites. A receptor at 50 feet from a dump truck would experience noise levels up to approximately 88 dBA during a pass by.

Construction noise at these levels would be substantially greater than existing noise levels at nearby sensitive receptor locations. Construction activities associated with the project would be temporary in nature and related noise impacts would be short-term. However, since construction activities could substantially increase ambient noise levels at noise-sensitive locations, especially if they were to occur during the nighttime hours, noise from construction would be potentially significant without mitigation.

Site R1. Construction activities would result in short-term increases in ambient noise. Sensitive receptors that could be affected by this increase include residents, wildlife, and recreationists. Construction of the project would occur between the hours of 8:00 a.m. to 6:00 p.m., Monday through Friday, and 7:00 a.m. to 8:00 p.m. on Saturdays with the exception of two nights of construction between the hours of 7:00 p.m. and 5:00 a.m. during the total closure of Garden Highway. Construction during these two nights would utilize as many noise reducing actions as practicable, including but not limited to pre-cutting the asphalt during daylight hours before the total closure of Garden Highway.

Sites R5, R6, and L12. Construction activities would result in short-term increases in ambient noise. Sensitive receptors that could be affected by this increase include residents, wildlife, and recreationists. Construction of the project would occur between the hours of 8:00 a.m. to 6:00 p.m., Monday through Friday, and 7:00 a.m. to 8:00 p.m. on Saturdays.

The noise associated with the construction activities would typically fall within the County of Sacramento's construction exemption for noise, limited to the hours described above (Sacramento County Municipal Code, 6.68.090 Exemptions). Because construction would be short-term, and construction activities would be limited to these times, this effect would be less than significant.

Since construction at site R1 would require the temporary closure of Garden Highway, construction designs have been altered to reduce the impacts to traffic and noise. The majority of construction would involve a one-lane closure of Garden Highway. Total closure of Garden Highway would take place at night in order to reduce impacts to traffic. To reduce impacts to noise, construction would occur for no more than

two nights. Prior to construction at night, the asphalt would be pre-cut to minimize the loudest noise impacts.

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 to the construction activities will be just beyond this 50-foot limit; however, most residences will be 70 feet away or greater. Due to the transitional nature of the construction activities, exposure at any one location will be intermittent. The most common activity throughout each reach will result from truck traffic. Additionally, vibration from these activities would be short term and would end when construction is completed. Because construction activity would not involve high-effect activities like pile driving, and is short-term in nature, this effect would be less than significant.

3.10.3 Mitigation Measures

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

- Construction activities shall be limited to between 8:00 a.m. and 6:00 p.m. Monday through Friday and 7:00 a.m. and 8:00 p.m. on Saturdays. This will be in accordance with the Sacramento County Noise Ordinance exemptions for construction (Sacramento County Municipal Code, 6.68.090 Exemptions).
- Construction equipment noise shall 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.
- Turn off all equipment, haul trucks, and worker vehicles when not in use for more than 30 minutes.
- Notify residences about the type and schedule of construction.

Compliance with the local noise ordinance would minimize the exposure of residents to excessive noise. Construction is scheduled to be completed within 3 months. Therefore, the impact after mitigation is less than significant.

3.11 Esthetics/Visual Resources

3.11.1 Existing Conditions

The lower American River is a 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 is designated under this act for its recreational values pertaining to fishing and parkway activities.

It is National policy that esthetic resources be protected along with other natural resources. Esthetic 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. Esthetic quality is the significance given to esthetic 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 esthetic value. The American River is located between 150 and 500 feet from sites R5, R6, and L12; site R1 is within 150 feet of the Sacramento River and within 50 feet of the Natomas Main Drainage Canal. This area provides valuable riparian habitat as well as recreational opportunities. Nearer to the project area the esthetic components include residential development, the project levee, American River access points and parking lots, and the Jedediah Smith Recreation Trail (bike trail).

3.11.2 Environmental Effects

Basis of Significance. An alternative would be considered to have a significant effect on esthetics 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 esthetics. The views and esthetic quality of all sites would remain the same.

Construct Levee Improvements

Construction of the levee repairs at all sites would temporarily affect the esthetics in the project area. Short-term effects would include the presence and activities of construction equipment and workers in the project area.

Short-term activities would include preparing the sites, degrading the top of the levee and in the case of site R6 and L12 degrading and trenching the levee, and constructing the levee improvements.

After completion of construction, the site would be landscaped consistent with the preconstruction conditions. The reconstructed levee would remain consistent with the preconstruction visual resources of the project area.

3.11.3 Mitigation Measures

Mitigation measures would consist of the replacement of any removed trees with native tree species. The ratios for tree replacement would be coordinated with USFWS and County Parks. All areas impacted by the project would be revegetated and restored to remain consistent with preconstruction conditions. Because there would be no significant long-term effects on esthetics or visual resources in the project area, no other mitigation measures would be required.

3.12 Cultural Resources

3.12.1 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 (PA) among the Corps of Engineers, Bureau of Reclamation, California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Implementation of the American River Watershed Project. The PA requires that USACE consult with the State Historic Preservation Officer (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 (Parker and King, n.d.). 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.

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/Environmental Impact Statement/Environmental Impact Report, 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. The study identified no cultural resources that fall within the Phase 1 of the Remaining Sites Project APE.

Records and Literature Search. On April 1, 2009, a Records and Literature search was conducted at CSU, Sacramento. The record search was negative for cultural resources. In spite of the fact that portions of the American River Levee were recorded, there is no evidence that it is eligible for listing in the National Register of Historic Places. The area of potential effects (APE) has been surveyed for cultural resources seven times since 1978 for various projects. In 1995 Dames & Moore, Inc. conducted a survey of the Lower American River for the American River Watershed Investigation project. Other surveys have been conducted for the American River Parkway (Peak 1978), Sprint PCS cell towers (Peak 1999), the Western Area Power Administration Transmission Line Corridor (JRP 2001), and most recently a survey for Cingular Wireless, American River Site in 2004 (Losee 2004). All surveys were negative for cultural resources. With the exception of the Losee and Dames & Moore surveys, all projects were done pursuant to the California Environmental Quality Act. The information from the Dames & Moore report was used to obtain clearance under Section

106 of the National Historic Preservation Act on June 17, 1998 for the American River Project, Lower American River Slurry Wall, North Bank.

Field Survey. On April 7, 2008, USACE Archeological staff conducted a survey of the APE for the present remaining sites project. The USACE survey was negative for cultural resources. Beginning mid-September 2007 until April 30th, 2008 statistical Research, Inc was contracted to monitor the geotechnical boring of 26 locations (Zelazo 2008). The bore holes from the four sites being considered were all negative for cultural materials. Additionally, on April 7, 2009, a USACE Historian conducted additional archival research at the State Archives and reviewed maps that went back as far as 1853, and the results were negative for historical resources as well.

3.12.2 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, or alteration; 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 and there would be no effects to these resources.

Construct Cutoff 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.

3.12.3 Mitigation Measures

Because there are no 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 a less-than-significant level.

3.13 Hazardous, Toxic, and Radioactive Waste

3.13.1 Existing Conditions

A Phase I Site Assessment was conducted to identify and evaluate potential hazardous and toxic waste issues associated with all sites in and near the project area. If any evidence of hazardous and toxic waste were 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 I site assessment was completed in April 2009 and concluded that there is no apparent hazardous and toxic waste contamination within the study area.

3.13.2 Environmental Effects

Basis of Significance. The effect of those substances identified as potentially hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); 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. The sites would not be disturbed, and any hazardous materials would continue to be present in the same amounts.

Construct Slurry Walls

One of the constituents associated with the construction of the slurry wall is cement. The cement would be delivered in large bags, which would be offloaded at the batch plant for mixing with bentonite and soil. 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 as well as all applicable spill prevention measures associated with the batch plant and avoiding slurry or soil/concrete/bentonite mixture from entering the Sacramento and

American Rivers. All spoils would be properly 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.

3.13.3 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.

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 draft Sacramento County General Plan (2003a). The goal of Phase 1 of the proposed action alternative is to construct levee improvements at four sites along the American River in order to meet USACE requirements for levee stability. 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. 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. 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 Long-Term Reoperation of Folsom Reservoir

The current water control manual for Folsom Reservoir requires 400,000 acre-feet of flood storage capacity during the flood season. However, the reservoir is currently operated for additional flood storage capacity through an agreement between the U.S. Bureau of Reclamation and SAFCA. This “interim reoperation” requires a variable flood storage capacity of 400,000 to 670,000 acre-feet, depending on upstream storage conditions. An additional component of the long-term reoperation plan is to reconfigure the penstock intake shutters to improve water temperature control operations. An EIR was prepared by SAFCA for this action (SAFCA, 2000).

A long-term reoperation plan is currently being prepared to update the approved flood control diagram to a variable 400,000 to 600,000 acre-feet of required flood storage capacity. Implementation of this plan would require completion of physical improvements to Folsom Dam's outlet works that would allow more efficient use of the storage space allocated to flood control. SAFCA's EIR included a quantitative analysis of operational changes from a fixed 400,000 acre-foot flood control diagram to a variable 400,000 to 600,000 acre-foot diagram. The assumptions for this analysis included the completion of the outlet modifications and surcharge storage projects.

5.1.2 Folsom Dam Mini Raise

The Folsom Dam Mini Raise Project was authorized by Congress in 2003. As part of this project, USACE would raise and strengthen the dam. These components, when combined with the other authorized components of the American River Watershed Project, would reduce the annual probability of flooding in Sacramento from 1 in 90 to 1 in 230. The Mini-Raise Project also includes environmental restoration features for wildlife habitat along the lower American River Parkway. In addition, temperature control shutters at Folsom Dam would be mechanized to improve the regulation of water temperature to increase native salmon and steelhead populations.

5.1.3 Folsom Bridge Project

As part of the Mini-Raise Project authorization, Congress has directed USACE to construct a new bridge downstream of Folsom Dam Road. Part of the American River Watershed Project, the new bridge would alleviate traffic congestion in downtown

Folsom associated with the closure of Folsom Dam Road. The road formerly accommodated 18,000 vehicles a day. Construction on the new bridge began February 2007 and opened to traffic flow March 28th, 2009.

5.1.4 Folsom Dam Advanced Release

USACE, in coordination with the Department of Interior, is in the process of updating the Flood Management Plan for Folsom Dam to increase flood protection by altering the timing of flood control releases from the dam, which would take advantage of the increased release capacity generated by the modification of the outlets at Folsom Dam. The flood control release diagram would be based on the Advanced Hydrologic Prediction System of the National Weather Service.

5.1.5 Lower American River Common Features Project

Based on congressional authorizations 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. The Lower American River Common Features WRDA 96 Remaining Sites Project involves four phases that would improve levee integrity at nineteen individual sites over a three-year time period. Phase 1 involves four sites; Phase 2A involves three sites; Phase 2B involves eight sites; and Phase 3 involves four sites.

Other construction projects expected to be completed this fiscal year include the WRDA 1999 R4 levee improvement project, the Howe Avenue levee improvement project, the Natomas East Main Drainage Canal project, and the Jacob Lane Reach B Levee Improvements (July 2008).

The Mayhew Drain Closure Structure project was also added as an authorized component of the American River Common Features project in WRDA 1999. The slurry wall component of the project was completed in 2008 and the drain structure component of the project is expected to be completed in 2009.

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. Design for approximately one mile of bank protection in the “Pocket” area of Sacramento is an ongoing project, and additional sites requiring maintenance would continue to be

identified indefinitely until the remaining authority of approximately 30,000 linear feet is exhausted.

These projects would help to improve flood risk management to residents in the Sacramento area by improving 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. 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 recreation access during construction. This project and other similar past, present, and reasonably foreseeable future projects are not expected to result in changes to recreation access or opportunities on the Parkway and therefore are not expected to result in adverse cumulative effects.

Aesthetics and Visual Resources

The project would result in short-term changes to the aesthetics in the project area. All areas that would be disturbed during construction would be restored and revegetated upon completion of construction activities. Any trees that would be removed during construction would be replaced with native tree species.

The project would temporarily affect local scenic views and contribute to adverse cumulative effects on local aesthetics based on the presence of construction equipment and the construction of levees, but is not expected to result in a significant long-term effects on aesthetics. Thus Phase 1 of this project would not significantly contribute to cumulative effects in the project vicinity.

Traffic and Circulation

During the eight week construction period at Site R1, the project would require alternate temporary lane closures on the Garden Highway, an important roadway in a

residential area with direct access to Interstate 5. Near the end of the eight week construction period, both lanes of the Garden Highway will be closed for two nights. This road closure would disrupt traffic flow in this area, requiring the routing of local traffic to West El Camino via Orchard Lane and Gateway Oaks. Regular construction hours would involve the closure of one lane of traffic, and flagmen would be stationed on either side of the construction zone to enable progressive one-way traffic crossing.

The project would also result in changes in the types, volumes, and movement of traffic in the residential area during construction. Large trucks transporting equipment and materials to the work area would not be consistent with the types of residential traffic using the neighborhood streets. These trucks, as well as worker vehicles, would use the neighborhood streets to access the work areas from Garden Highway, Howe Avenue, and Watt Avenue. The daily number of trips during construction would actually vary, depending on the work being conducted and the duration of the work. However, the increases in traffic would not be significant as compared with existing levels of neighborhood traffic. During construction, trucks and worker vehicles would be entering and exiting residential areas via Garden Highway, Northrop Avenue, Howe Avenue, La Riviera Drive and other neighborhood roadways. This could disrupt the traffic flow at these intersections and possibly pose a safety hazard to other motorists, pedestrians, and bicyclists on and along these roadways and access points to the Parkway. Implementation of measures in the Traffic Management Plan would minimize traffic congestion and delays and ensure public safety. Thus, due to the minimal increase in local traffic, the project would not contribute to adverse cumulative effects on local traffic.

Noise

The project 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 neighborhood roadways that provide access through the residential area. Noise levels could reach the high 80s dBA, depending on the type of equipment or truck. Since ambient noise levels normally range in the low to mid-50s dBA, such an increase would be significant. However, the Sacramento City Code, Chapter 8.68 “Noise Control” contains a section specifically exempting construction activities from the standards between the hours of 7:00 a.m. and 6:00 p.m. Monday through Saturday, as well as between the hours of 9:00 a.m. and 6:00 p.m. on Sunday, provided that internal combustion engines would be “...equipped with suitable exhaust and intake silencers which are in good working order (City of Sacramento).” Sacramento County Code, Chapter 6.68 “Noise Control,” contains a section specifically exempting construction activities from the standards between the hours of 6:00 a.m. and 8:00 p.m. on weekdays, as well as between the hours of 7:00 a.m. and 8:00 p.m. on Saturdays and Sundays. Construction would take place between the hours of 8:00 a.m. and 6:00 p.m. Monday through Saturday, with the exception of two nights during the total closure of Garden Highway. Construction on these two nights would be between the hours of 7:00 p.m. and 5:00 a.m. and would utilize noise reducing practices. Since noise impacts would be short

term and would utilize best management practices for noise reduction, the project would not contribute significantly to cumulative effects on local noise.

Air Quality

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

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

Phase 1 of this project 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. However, construction would result in direct, short-term effects on air quality mainly related to combustion emissions and dust emissions. Implementation of mitigation measures and best management practices during construction would reduce emissions to the greatest extent possible. Since the project would not require a change in the existing land use designation, long-term projected emissions of criteria pollutants would be the same with or without the construction of the levee improvements. If the Remaining Sites project is scheduled to be constructed in 2009 it may overlap with the construction of the R4 levee improvement project, the Howe Avenue levee improvement project, the Jacob Lane Reach B levee improvement project, and the Mayhew Drain Closure Structure Project in connection with the Mayhew Levee Raise Project. The Mayhew Levee Raise project identified impacts to air quality that would be significant and unavoidable. The Mayhew Drain Closure Structure would not add significantly to this determination nor would it change the determination. The Remaining Sites project would not add significantly to this determination and it also would not change the determination; therefore, the project would not contribute significantly to cumulative effects on air quality.

Water Resources and Quality

Phase 1 of the Lower American River Common Features WRDA 96 Remaining Sites project could result in accidental spills or leaks that could affect surface and ground water resources. Measures included during the project construction would be implemented to avoid or reduce these effects to less than significant. As a result, the project would not contribute significantly to cumulative effects on water resources and quality.

In addition, the Remaining Sites project 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.

Vegetation and Wildlife

The project is not expected to require the removal of any large trees. If any tree trimming or removal is deemed necessary, all trimming and removal would be done by a certified arborist. The grassland habitat that would be occupied by staging areas and turn-around areas would be disturbed during project construction. The waterside slope of the levee would also be disturbed in order to implement the levee improvements. These areas would be restored and revegetated upon completion of project construction. The project would not remove any riparian habitat; however, there would be temporary disturbances to elderberry shrubs and potential disturbances to any beetles potentially occupying the shrubs. 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. Mitigation measures through the establishment of native vegetation on the Parkway for this and other projects including the R4 Levee Improvement Project, the Howe Avenue Levee Improvement Project, the Jacob Lane Project and the Mayhew Levee Raise Project cannot eliminate significant short-term effects on vegetation and wildlife associated with construction activities. Improved habitat would be provided by planting native tree species, such as valley oak and sycamore, for mitigation measures. Such measures are expected to result in a net, long-term improvement in native vegetation and wildlife habitat values in the Parkway primarily by restoring degraded areas at a ratio higher than what was removed.

Special Status Species

The Lower American River Common Features Project would result in direct and indirect effects on elderberry plants, which is the host plant for the Federally listed Valley Elderberry Longhorn Beetle. However, with the implementation of measures stated previously, effects to the elderberry longhorn beetle would be considered less than significant.

Other local projects including the WRDA 1999 R4 Levee Improvement Project, the Howe Avenue Levee Improvement Project, the Mayhew Levee Raise Project, the Mayhew Drain Closure Structure Project, and the Jacob's Lane Levee Improvements Project would result in the removal of elderberry shrubs. 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 this project. 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. As a result, the project would not contribute significantly to cumulative adverse effects on special status species.

Fisheries

Construction of the Lower American River Common Features WRDA 96 Remaining Sites Project could indirectly affect Green sturgeon, Central Valley steelhead, Winter-run Chinook salmon, and Central Valley Spring-Run Chinook salmon or their critical habitat. However, the project is not likely to adversely affect steelhead and salmon provided that erosion and sediment control measures implemented as part of the SWPPP are incorporated into the proposed project.

Construction of the slurry wall at site R1 would result in minor construction disturbances near the Natomas Main Drainage Canal, and the proposed detour recreational trail around sites R5 and R6 would come within 20 feet of the American River in some areas. This may result in construction activities near the edge of the American River.

Construction at Site L12 would be no closer than 200 feet to the American River, and the associated staging area is on the landside of the levee.

The Remaining Sites Project did not identify any potential impacts to fisheries. Whereas other local projects may result in potential impacts to fisheries, the construction of the Remaining Sites levee improvements is not expected to contribute significantly to cumulative adverse effects to fisheries.

Cultural Resources

Based on existing information from literature searches and field examination, no cultural resources were identified in the Remaining Sites Project area. If necessary, mitigation measures would be implemented to provide for any buried resources that might be uncovered during construction. Since the anticipated effects on known and potential archaeological sites would be less than significant, the project would not contribute significantly to cumulative effects on cultural resources.

Hazardous, Toxic and Radioactive Waste

The Phase I site assessment concluded that there is no apparent hazardous and toxic waste contamination within the study area. The construction of slurry walls would utilize cement, a hazardous material. The cement would be stored and handled in compliance with all Federal, state and local regulations, as well as in adherence to OSHA worker safety standards. 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. As a result, the project would not contribute significantly to cumulative adverse effects on hazardous, toxic and radioactive wastes.

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 U.S. EPA's general conformity *de minimis* threshold, or hinder the attainment of air quality objectives in the local air basin. Implementation of best management practices would reduce NO_x emissions to below local thresholds. Thus, USACE has determined that the proposed project would have no significant effects on the future air quality of 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 or deplete ground water supplies. Best management practices would be implemented to avoid movement of soils or accidental spills into the river. USACE has determined that the proposed project would have no significant effects on the future water quality of the area.

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 NPDES permit from the CRWQCB, Central Valley Region,. As part of the permit, the contractor would be required to prepare a SWPPP identifying best management practices to be used to avoid or minimize any adverse effects of construction on surface waters.

Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, et seq. *Partial 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 listed species directly affected by the project would be the Valley Elderberry Longhorn Beetle. Consultation with USFWS is ongoing in order to obtain a Biological Opinion (BO).

USACE as the action agency has made the determination that there would be no effect on any listed species under the jurisdiction of the National Marine Fisheries Service (NMFS). As a result, no formal consultation was 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. *Partial compliance.* USACE will coordinate with USFWS to determine the effects on vegetation and wildlife in the project area. The USFWS will prepare a Coordination Act Report (CAR) to address these 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 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. The final EA will be accompanied by a final FONSI. These actions will provide full compliance with this act.

National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq. *Partial Compliance.* The project is in partial compliance with Section 106 of the National Historic Preservation Act (36 CFR 800). USACE Archeological staff conducted a survey of the APE in September of 2008 for the present Remaining Sites Project. A Records and Literature search was also conducted at CSU, Sacramento on April 1, 2009. USACE survey was negative for cultural resources, and the record search was negative as well. In spite of the fact that portions of the American River Levee were recorded, there is no evidence that it is eligible for listing in the National Register of Historic Places.

A letter will be sent to the SHPO asking for their concurrence with a finding of no adverse effect in accordance with 36 CFR 800.4(c)(2).

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.* The SMAQMD determines whether project emission sources and emission levels significantly affect air quality based on Federal standards established by the U.S. 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.

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 EA/IS, as appropriate. The 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

The draft EA/IS and 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 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 EA/IS evaluated the environmental effects of the proposed project of constructing levee improvements at four sites along the American River in the West Sacramento and East Sacramento areas. Potential adverse effects to the following resources were evaluated in detail: recreation, special status species, vegetation and wildlife, air quality, water resources and quality, traffic and circulation, esthetics, noise, 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 best management practices.

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 will be prepared upon the completion of the draft phase of the Environmental Assessment.

9.0 List of Preparers

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