MITIGATION, MONITORING, AND REPORTING PLAN

AMERICAN RIVER WATERSHED COMMON FEATURES

GENERAL REEVALUATION REPORT

SACRAMENTO COUNTY, CALIFORNIA

This mitigation monitoring or reporting plan (MMRP) is designed to fulfill Section 21081.6 (a) of the California Environmental Quality Act (CEQA). Which requires public agencies to adopt a reporting or monitoring program whenever a project or program is approved that includes mitigation measures identified in an environmental document for which the agency makes a finding pursuant to CEQA Section 21081 (a) (1). The mitigation measures and strategies described below and in the attached table are to be used to avoid, minimize, or reduce any potentially significant environmental impacts.

The MMRP table includes the following:

- Section and Impacts – identifies the issue area section of the EIR/EIS and corresponding impact.
- Mitigation Measures – lists the adopted mitigation measures from the EIR/EIS.
- Implementation Timing – identifies the timing of implementation of the action described in the mitigation measures.
- Responsible for Implementation – identifies the agency/party responsible for implementing the actions described in the mitigation measures.
- Responsible for Monitoring/Reporting Action – identifies the agency/party responsible for monitoring implementation of the actions described in the mitigation measures. Verification will be carried-out during the project and an MMRP completion report will be submitted to the CVFPB staff upon completion of the project.

Section and Impacts	Mitigation Measures	Implementation Timing	Responsible for Mitigation	Responsible for Monitoring/ Reporting Action
3.2 Geologic Resources Alternative 1 Excavation for borrow material or during construction could increase soil erosion or permanent loss of topsoil. Alternative 2 Similar impact as alternative 1, but a greater magnitude.	Both Alternatives Prior to construction, USACE or its contractor would be required to acquire all applicable permits for construction. Prior to construction, a Stormwater Pollution Protection Plan (SWPPP) would be prepared, and best management practices (BMPs) would be proposed to reduce potential erosion and runoff during rain events. Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations. Stockpile soil on the landside of the levee reaches, and install sediment barriers (e.g., silt fences, fiber rolls, and straw bales) around the base of stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion.	D,P,C	USACE	CVFPB Monitor measures applicable to site: Verify that all required permits have been acquired. Verify that SWPPP and BMP's have been prepared. Review plans to see that stockpiles will be on landside. Monitor construction periodically to assure ground and vegetation

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	Install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters. Install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Temporary structural BMPs, such as sediment barriers, erosion control blankets, mulch, and mulch tackifier, could be installed as needed to stabilize disturbed areas until vegetation becomes established.			disturbance is minimal. Verify use of sediment barriers and instillation of stabilizing plant materials. Verify establishment of vegetation.
3.3 Land Use Alternative 1 Acquisition of properties for levee easements along the Sacramento River and Arcade Creek. Alternative 2 Acquisition of properties for levee easements along the Sacramento River and Arcade Creek (fewer properties impacted than Alternative 1). Conversion of agricultural lands to floodway.	Coordination with Sacramento County Department of Parks and Recreation, the National Park Service, the other Federal and State agencies responsible for managing the resources of the Parkway, and non-governmental stakeholders will ensure consistency with existing plans. All property acquisitions would be conducted in compliance with Federal and State relocation law, and relocation services would be accomplished in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1960. Mitigation for the lands converted from parkway land to flood control uses will be mitigated by paying fees to the County under the Habitat Restoration Program Fees (HRP).	D	USACE	CVFPB Coordinate with stakeholders to ensure consistency. Verify that acquisitions are conducted in accordance with Uniform Relocation Act. Verify payment of fees.
3.4 Hydrology and Hydraulics				

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Alternative 1 No impact Alternative 2 Reduce water surface elevation in the Sacramento River downstream of the confluence of the American River without significantly increasing water surface elevation in the Yolo Bypass downstream of the confluence of the Sacramento Bypass.	None required.	D	USACE	CVFPB
3.5 Water Quality and Groundwater Resources Alternative 1 Increased turbidity during bank protection construction, runoff of exposed soils, and cement, slurry, or fuel spills during construction. Rock revetment placement in open water would result in significant indirect effects as the sediment and turbidity plume drifts further downstream and later effect the water qualify in those areas found further downstream of the project area. Alternative 2 Same impacts as alternative 1 plus, a potential for water quality impacts to occur if the weir is constructed in a way that debris or other construction materials could enter the Sacramento River.	Monitor turbidity in the adjacent water bodies, where applicable criteria apply, to determine whether turbidity is being affected by construction and to ensure that construction does not result in a rise in turbidity levels above ambient conditions, in accordance with the Central Valley RWQCB Basin Plan turbidity objectives Prepare a SWPPP, Spill Prevention Control and Countermeasures Plan (SPCCP), and a bentonite slurry spill contingency plan (BSSCP) • Conduct earthwork during low flow periods (July 1 through November 30). • To the extent possible, stage construction equipment and materials on the landside of the subject levee reaches in areas that have already been disturbed.	P, C	USACE	CVFPB Verify coordination with RWQCB. Review SWPPP, SPCCP, and BSSCP. Verify measures are in place during construction.

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	• Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations. • Stockpile soil on the landside of the levee reaches, and install sediment barriers (e.g., silt fences, fiber rolls, and straw bales) around the base of stockpiles to intercept runoff and sediment during storm events • Install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters. • Install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials could include an erosion control seed mixture or shrub and tree container stock. Temporary structural BMPs, such as sediment barriers, erosion control blankets, mulch, and mulch tackifier, could be installed as needed to stabilize disturbed areas until vegetation becomes established. • Conduct water quality tests specifically for increases in turbidity and sedimentation caused by construction activities.			

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	• Water samples for determining background levels shall be collected in the adjacent water body for each erosion construction site. • During working hours, the construction activity shall not cause the turbidity in the adjacent water body down current from the construction sites to exceed the Basin Plan turbidity objectives.			
3.6 Vegetation and Wildlife Alternative 1 The launchable rock trenches would result in the removal of a maximum of 65 acres of riparian habitats within the American River Parkway. Bank protection measure would result in impacts to a maximum of 31,000 linear feet of SRA habitat. The existing levee structure would be degraded by one half to create a working platform for slurry wall installation. As the levee is degraded, all vegetation located in the degraded area would be removed. The maximum degraded area (the upper one half of the levee) is approximately 110 acres and contains about 750 trees of various sizes and species. On the landside of the levee, where levee raises are required, all trees would	During the design refinement phase, plans will be evaluated to reduce the impact on vegetation and wildlife to the extent practicable. Refinements that could be implemented to reduce the loss of riparian habitat include: reduced footprint, constructing bank protection rather than launchable rock trench whenever feasible, and designing planting berms in areas where significant riparian habitat exists adjacent to the levee toe. To compensate for the removal of a maximum of 65 acres of riparian habitat, approximately 130 acres of replacement habitat would be created to account for the temporal loss of habitat while newly created habitat is growing. Surveys would be conducted prior to construction to determine if any birds are nesting within 0.5 miles of the construction activities. If nests are located within the vicinity of construction for any given year, coordination with the appropriate resource agencies would occur to determine what	D, P, C	USACE	CVFPB Verify impact refinement for smaller footprint. Verify replacement habitat creation. Verify and participate in nesting bird surveys. Verify that tree removal occurs outside of nesting season. Verify vegetation

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be removed from the levee slope and within 15 feet of the levee toe to construct the levee raise. A landside maintenance easement would be required along the levee toe within the 8 miles of levee raise. This easement will be left in place after construction as access. There are approximately 1,300 trees of various species and size within this landside easement that once removed would not be replaced on-site. There would be a maximum of 200 trees removed from both the landside and waterside to construct the project. These trees compose approximately 2 acres of oak woodland habitat on NEMDC, and approximately 10.5 acres of riparian on Arcade Creek. Alternative2 Because the amount of levee raising is significantly reduced under Alternative 2 due to the widening of the Sacramento Weir and Bypass, effects to the landside vegetation on the levees would be less than under implementation of Alternative 1. This would result in the removal of approximately 750 trees of various species	action should be taken to reduce impacts. Trees would not be removed if an active nest is found; however, once the young have fledged, the tree can be removed for construction. If survey results determine that no nests are in the vicinity of construction scheduled for that year, construction may commence without further coordination on this issue. Avoidance and minimization measures incorporated as part of the Sacramento River design include: compliance with the USACE vegetation policy through a vegetation variance, installation of a planting berm where erosion protection is required, and narrowing of the levee footprint by construction of a retaining wall, when feasible. The vegetation variance would allow waterside trees on the lower half of the slope to remain in place. This would allow approximately 930 trees along 10 miles of the Sacramento River to continue to provide habitat for fish and wildlife species. Along with retaining the trees, additional plantings of small vegetation would be done on the newly constructed berm. Species of plants would be coordinated with NMFS, USFWS, and State and local partners. Off-Site mitigation for the removal of 50 trees in the Arcade Creek area would be done in compliance with the Sacramento City tree ordinance. It is estimated that 2 acres would be required to accommodate the planting of			variance is in place to minimize tree removal. Verify mitigation area for trees planted off-site.

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	approximately 450 trees. Alternative 2 Compensation was determined by evaluating other projects with similar impacts in the Central Valley, coordination with resource agencies, and evaluation of compensation plantings' ability to provide similar wildlife habitat. A total of 16 acres would be needed to compensate for the removal of the vegetation along the Sacramento River and within the new weir footprint, due to the temporal loss of habitat while the new habitat is establishing. Plantings could be accomplished within the expanded bypass, other nearby available lands, or through the purchase of credits at an approved mitigation bank.			
3.7 Fisheries Alternative 1 Rock placement would most likely disturb the native resident fish by increasing noise, water turbulence, and turbidity, causing them to move away from the area of placement. In some pelagic native juvenile species utilizing the near shore habitat for cover, moving away from that cover could put them at a slight risk of predation. Construction during the project may disturb soils and the nearshore	Mitigation measures for vegetation and wildlife, and water quality will also apply for fisheries. Additionally; • In-water construction would be restricted to the general estimated work window of August 1 through November 30. For the purpose of this study however, during PED, the work window will be adjusted on a site specific basis taking into account periods of low fish abundance, and in-water construction outside the principal spawning and migration season. Typical construction season generally corresponds to the dry	D, P, C	USACE	CVFPB Verify implementation of vegetation and wildlife mitigation measures. Verify implementation of water quality mitigation measures.

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environment, leading to increases in sediment in the nearshore aquatic habitat. This in turn may increase sedimentation (i.e., deposition of sediment on the substrate), suspended sediments, and turbidity. Alternative 2 By widening the Sacramento Weir and Bypass, the project would create additional floodplain habitat within the Sacramento Bypass, which could benefit native fish.	season, but construction may occur outside the limits of the dry season, only as allowed by applicable permit conditions. • Due to the deleterious effects of numerous chemicals on native resident fish used in construction, if a hazardous materials spill does occur, a detailed analysis will be performed immediately by a registered environmental assessor or professional engineer to identify the likely cause and extent of contamination. This analysis will conform to American Society for Testing and Materials standards, and will include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, the USACE and its contractors will select and implement measures to control contamination, with a performance standard that surface water quality and groundwater quality must be returned to baseline conditions. • If mitigation or compensation sites are planned within the Sacramento Bypass for the overall ARCF project, information gained from the 2013 Knaggs Ranch Pilot Study would be reviewed for potential beneficial habitat for native fish species to be			

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	incorporated into the sites.			
3.8 Special Status Species Alternative 1 <u>Valley Elderberry Longhorn Beetle</u> Within the surveyed study area, approximately 250 shrubs were located along the American River Parkway and 50 shrubs were located along the Sacramento River. Prior to project construction, a qualified biologist would conduct focused surveys of elderberry shrubs within 100 feet of the project area for construction in accordance with the USFWS guidelines.	Mitigation measures are similar for both Alternatives 1 and 2 <u>Valley Elderberry Longhorn Beetle</u> The following is a summary of measures that would be implemented during construction based on the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999a). These measures will be implemented to minimize any potential effects on valley elderberry longhorn beetles or their habitat, including restoration and maintenance activities, long-term, protection, and compensation if shrubs cannot be avoided: • When a 100-foot (or wider) buffer is established and maintained around elderberry shrubs, complete avoidance (i.e., no adverse effects) will be assumed. • Where encroachment on the 100-foot buffer has been approved by the USFWS, a setback of 20 feet from the dripline of each elderberry shrub will be maintained whenever possible. • During construction activities, all areas to be avoided will be fenced and flagged. • Contractors will be briefed on the need to avoid damaging elderberry shrubs and the possible penalties for not complying with	D, P, C , M	USACE	CVFPB Verify that all BMP's and mitigation measures are followed during construction. Verify setback distances Verify that environmental awareness training has been implemented

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VELB continued	these requirements. • Signs will be erected every 50 feet along the edge of the avoidance area, identifying the area as an environmentally sensitive area. • Any damage done to the buffer area will be restored. • Buffer areas will continue to be protected after construction. • No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant will be used in the buffer areas. • Trimming of elderberry plants will be subject to mitigation measures. • Elderberry compensation would be planted in the American River Parkway. The USACE has six existing sites which are offsetting previous USACE flood control projects along the lower American River and near Folsom Dam. The USACE will find areas within the lower American River parkway which will either expand existing compensation areas or provide for connectivity between conserved valley elderberry longhorn beetle habitat. Sites within the Parkway will be coordinated with County Parks and the Service during the design phase of the project. Sites will be designed and developed prior to any effects to valley elderberry longhorn beetle habitat. The USACE will create 69.91 acres of riparian habitat which supports valley elderberry longhorn beetle within the lower American			Verify sign placement.

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<u>VELB continued</u>	River parkway. • If possible, elderberry shrubs would be transplanted during their dormant season (approximately November, after they have lost their leaves, through the first two weeks in February). If transplantation occurs during the growing season, increased mitigation ratios will apply. • Any areas that receive transplanted elderberry shrubs and elderberry cuttings will be protected in perpetuity. • The USACE will work to develop off-site compensation areas prior to or concurrent with any take of valley elderberry longhorn beetle habitat. • Management of these lands will include all measures specified in USFWS's conservation guidelines (1999a) related to weed and litter control, fencing, and the placement of signs. • Monitoring will occur for ten consecutive years or for seven non-consecutive years over a 15-year period. Annual monitoring reports will be submitted to USFWS.			
<u>Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp</u> There is approximately 0.25 acre of land within the construction footprint of the new levee and floodwall that could potentially include vernal pool habitat. This 0.25 acre could be adversely affected from ground disturbing activities, operation of construction	<u>Vernal Pool Fairy Shrimp and Tadpole Shrimp</u> The following measures from the 2004 Biological Opinion from the Magpie Creek Flood Control Project would be implemented to avoid and minimize impacts to potential vernal pools in the vicinity of the Magpie Creek construction area: • Preservation component: For every acre of			

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vehicles, by construction of the new levee and maintenance road, or due to the alteration of the natural flows of the area due to construction of the new levee. Prior to initiation of any construction activities, field surveys and a wetland delineation would occur to verify the occurrence of vernal pools in the construction footprint and to determine if any nearby vernal pools could be indirectly affected by construction.	habitat directly or indirectly affected, at least two vernal pool credits will be dedicated within a Service-approved ecosystem preservation bank or, based on Service evaluation of site-specific conservation values, three acres of vernal pool habitat may be preserved on the project site or another nonbank site as approved by the Service. • Creation component: For every acre of habitat directly affected, at least one vernal pool creation credit will be dedicated within a Service-approved habitat creation bank or, based on Service evaluation of site-specific conservation values, two acres of vernal pool habitat will be created and monitored on the project site or another non-bank site as approved by the Service. • Listed vernal pool crustacean habitat and associated uplands utilized as on-site compensation will be protected from adverse effects and managed in perpetuity or until the USACE, the applicant, and the Service agree on a process to exchange such areas for credits within a Service-approved conservation banking system. Off-site conservation at a Service-approved non-bank location will be protected and managed in perpetuity through a Service-approved conservation easement, Service-approved management plan, and a sufficient endowment fund to manage the site in perpetuity in accordance with the management plan. • If habitat is avoided (preserved) on site, then a Service-approved biologist (monitor) will			Verify that preconstruction bird surveys have occurred.

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Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp continued	inspect any construction-related activities at the proposed project site to ensure that no unnecessary take of listed species or destruction of their habitat occurs. The biologist will have the authority to stop all activities that may result in such take or destruction until appropriate corrective measures have been completed. The biologist also will be required to immediately report any unauthorized impacts to the Service and the California Department of Fish and Game. • Adequate fencing will be placed and maintained around any avoided (preserved) vernal pool habitat to prevent impacts from vehicles. • All on-site construction personnel will receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat. • The applicant will ensure that activities that are inconsistent with the maintenance of the suitability of remaining habitat and associated on-site watershed are prohibited. This includes, but is not limited to: (i) alteration of existing topography or any other alteration or uses for any purposes, including the exploration for or development of mineral extraction; (ii) placement of any new structures on these parcels; (iii) dumping, burning, and/or burying of rubbish, garbage, or any other wastes or fill materials; (iv) building of any new roads or trails; (v) killing, removal, alteration, or replacement of any existing native vegetation; (vi) placement of storm			

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<u>Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp continued</u>	water drains; (vii) fire protection activities not required to protect existing structures at the project site; and (viii) use of pesticides or other toxic chemicals. The proposed project will result in 0.25 acre of indirect effects to vernal pools/swales of potentially suitable vernal pool shrimp and vernal pool tadpole shrimp habitat. The applicant has identified and agreed to purchase 0.5 vernal pool preservation credits at a Service-approved conservation bank or Service-approved fund. Credits will be purchased prior to the effect on any vernal pool habitat. The agreed upon conservation responsibilities of the applicant are as follows: • Prior to any earth-moving activities at the proposed project site, the applicant shall purchase at least 0.5 vernal pool preservation credits within a Service-approved ecosystem preservation bank or fund account.			
<u>Giant Garter Snake (GGS)</u> The East Side Tributaries (NEMDC, Magpie Creek, and Arcade Creek) have some potential GGS habitat, however, the creeks in this area lack year round water and connectivity to rice fields, a major component of GGS habitat. The closest rice fields are about 5 miles away up the NEMDC and above a pump plant	<u>Giant Garter Snake</u> The following measures will be implemented to minimize effects on giant garter snake habitat that occurs within 200 feet of any construction activity. These measures are based on USFWS guidelines for restoration and standard avoidance measures included as appendices in USFWS (1997).			

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located on the NEMDC just above Dry/Robla Creek. Additionally, Arcade Creek and NEMDC both have segments that include large cover vegetation that would make them undesirable for GGS.	• Unless approved otherwise by USFWS, construction will be initiated only during the giant garter snakes' active period (May 1 to October 1, when they are able to move away from disturbance). • Construction personnel will participate in USFWS-approved worker environmental awareness program. • A giant garter snake survey would be conducted 24 hours prior to construction in potential habitat. Should there be any interruption in work for greater than two weeks, a biologist would survey the project area again no later than 24 hours prior to the restart of work. • Giant garter snakes encountered during construction activities will be allowed to move away from construction activities on their own. • Movement of heavy equipment to and from the construction site will be restricted to established roadways. Stockpiling of construction materials will be restricted to designated staging areas, which will be located more than 200 feet away from giant garter snake aquatic habitat.			

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GGS continued	• Giant garter snake habitat within 200 feet of construction activities will be designated as an environmentally sensitive area and delineated with signs or fencing. This area will be avoided by all construction personnel. • Habitat temporarily affected for more than three or more seasons will be restored and twice as much habitat will be created. • The USACE has estimated that approximately 15 acres of aquatic habitat (drainage ditches and irrigation canals) and 30 acres of associated upland habitat would be permanently affected due to the widening of the Sacramento Weir and Bypass. Habitat permanently affected in the Sacramento Bypass will be compensated for through the purchase of 135 acres of credits at a USFWS-approved conservation bank. Due to the spatial and temporal loss of habitat, and the lack of permanent on-site replacement, the ecological value associated with doing all mitigation at an off-site location was reduced to an overall 70% habitat value. This reduction is offset by the increase of mitigation credits at ratios specified by USFWS in the Biological Opinion included as Appendix J.			

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GGS continued Western Yellow-Billed Cuckoo The project area is unlikely to support western yellow-billed cuckoo nesting habitat due to the narrow riparian corridors along the waterways, with the exception of the American River Parkway. However, migrant individuals are likely to pass through the area in transit to breeding sites along the Sacramento River north of Colusa. Potential long-term effects to the cuckoo could result from the loss of 65 acres of riparian habitat in the footprint of the rock trench sites within the American River Parkway. For the American River, impacts to trees would be the width of the launchable rock trenches (currently proposed at approximately 40-feet wide) for a total of approximately 65 acres. Additionally, approximately 110 acres of riparian habitat would be impacted along the Sacramento River. Swainson's Hawks	• One year of monitoring will be conducted for the 80.5 acres that are temporarily affected. • The USACE will purchase credits at a conservation bank prior to any permanent disturbance of giant garter snake habitat. Western Yellow-Billed Cuckoo, Swainson's Hawk, White-Tailed Kite, and Purple Martin The following BMPs will be implemented: • Before ground disturbance, all construction personnel would participate in a CDFW-approved worker environmental awareness program. A qualified biologist would inform all construction personnel about the life history of Swainson's hawk and the importance of nest sites and foraging habitat. • A breeding season survey for nesting birds would be conducted for all trees and shrubs that would be removed or disturbed which are located within 500 feet (0.5 mile for Swainson's hawk) of construction activities, including grading. Swainson's hawk surveys would be completed during at least two of the following survey periods: January 1 to March 20, March 20 to April 5, April 5 to April 20, and June 10 to July 30 with no fewer than three surveys completed in at least two survey periods, and with at least one of these surveys occurring immediately prior to project initiation (Swainson's Hawk Technical Advisory Committee 2000). Other			

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Approximately 175 acres of riparian habitat used by Swainson's hawk for roosting and nesting could be affected by project construction. Additionally, approximately 2.5 acres of non-native grassland intermixed with barren ground would be removed or disturbed as a result of construction activities at levees. Much of this habitat is within the Sacramento urban area, where Swainson's hawks nest and forage along the American and Sacramento Rivers. <u>White-Tailed Kite</u> Construction activities conducted during nesting season, including vegetation removal, could significantly impact the white-tailed kite by removing nesting habitat or causing the species to abandon any active nests. In addition, the short-term loss of approximately 175 acres of riparian habitat on the landside of the levees that could support white-tailed kite nesting and foraging could result in significant effects to this species. <u>Purple Martin</u> Construction activities conducted during	migratory bird nest surveys could be conducted concurrent with Swainson's hawk surveys with at least one survey to be conducted no more than 48 hours from the initiation of project activities to confirm the absence of nesting. If the biologist determines that the area surveyed does not contain any active nests, construction activities, including removal or pruning of trees and shrubs, could commence without any further mitigation. • If active nests are found, the USACE would maintain a 0.25-mile buffer between construction activities and the active nest(s). In addition, a qualified biologist would be present on-site during construction activities to ensure the buffer distance is adequate and the birds are not showing any signs of stress. If signs of stress that could cause nest abandonment are noted, construction activities would cease until a qualified biologist determines that fledglings have left an active nest. • Tree and shrub removal, and other areas scheduled for vegetation clearing, grading, or other construction activities would not be conducted during the nesting season (generally February 15 through August 31 depending on the species and environmental conditions for any given year) . These construction activities could affect them by removing or causing abandonment of active nests of migratory birds protected under the Migratory Bird Treaty Act and California Fish			

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nesting season, including vegetation removal, could significantly impact the purple martin by removing nesting habitat or causing the species to abandon any active nests. In addition, the short-term loss of approximately 175 acres of riparian habitat on the landside of the levees that could support purple martin nesting and foraging could result in significant effects to this species. <u>Burrowing Owl</u> Construction activities, including grading and clearing activities within or adjacent to potential burrowing owl habitat, could result in nesting failure, death of nestlings, or loss of eggs. In addition, the short-term loss of approximately 175 acres of riparian habitat on the landside of the levees that could support burrowing owl nesting and foraging could result in significant effects to this species.	and Game Code To reduce the impact on migratory birds habitat the USACE will seek a vegetation variance on lower half of the waterside levee slope. Additionally, where bank protection work is performed the sites would be planted with vegetation and trees that over time will provide habitat for the hawks. To compensate for the removal of 134 acres of riparian habitat supporting Western yellow-billed cuckoos, Swainson's hawks, and other migratory birds approximately 268 acres of replacement habitat will be created, as discussed in the vegetation and wildlife section. <u>Burrowing Owl</u> • Prior to the implementation of construction, surveys will be conducted to determine the presence of burrows or signs of burrowing owl presence within the project area. The survey would be conducted in accordance with Appendix D of CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012). • If burrowing owls are observed, coordination would occur with CDFW to determine the appropriate actions to take or any additional avoidance and minimization measures that may need to occur. These measures may include creating a protective buffer around occupied burrows during the duration of the breeding season and biological monitoring of			

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	active burrows to ensure that construction activities do not result in adverse effects on nesting burrowing owls. • If potential burrows are present, all on-site construction personnel shall be instructed regarded the potential presence of burrowing owls, identification of these owls and their habitat, and the importance of minimizing impacts on burrowing owls and their habitat.			
<u>Listed Fish Species:</u> <u>Winter-Run Chinook Salmon</u> Implementation of the bank erosion protection measures may result in adverse effects to juvenile and smolt winter-run Chinook salmon, their critical habitat, and EFH. Construction activities that increase noise, turbidity, and suspended sediment may disrupt feeding or temporarily displace fish from preferred habitat. Physical damage or harassment to listed fish species would be low during the months of construction. Winter-run Chinook salmon are expected to show a long term positive response to project actions in the Sacramento River and American River SAM analysis reaches over the lifetime of the project when both IWM and planted benches are incorporated into the with-project conditions. Chinook	<u>Listed Fish Species</u> USACE proposes to develop a green sturgeon habitat, mitigation, and monitoring plan (HMMP) (Appendix I) to address the long-term negative impacts to green sturgeon designated critical habitat with the specific elements that are described below: • The green sturgeon HMMP shall be developed in coordination with the Interagency Ecological Program (IEP) green sturgeon project work team and consulted on with NMFS prior to the construction of any work within the designated critical habitat of sDPS green sturgeon related to the ARCF GRR. • The USACE shall either refine the SAM or develop an alternative green sturgeon survival and growth response model based on using and updating the existing Hydrologic Engineering Center Ecosystem Function Model (HEC-EFM) that reflects			

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salmon should exhibit a positive response by year 5 in the winter-spring when most juvenile Chinook salmon are expected in the ARCF GRR project area. <u>Spring-run Chinook Salmon</u> Adult spring-run Chinook salmon migrate up the Sacramento River from March through September although most individuals have entered tributary streams by mid-June and will not be affected by construction activities. Therefore, potential for construction-related ARCF GRR project effects will be similar to that described for winter-run Chinook salmon. <u>Central Valley Fall-/Late Fall–Run Chinook Salmon</u> Fall-/Late Fall-Run Chinook salmon are expected to show a long term positive response to project actions in the Sacramento River and American River SAM analysis reaches over the lifetime of the project when both IWM and planted benches are incorporated into the with-project conditions. Chinook salmon should exhibit a positive response by year 5 in the winter-spring	green sturgeon's preference for benthic habitat. • The green sturgeon HMMP shall also be developed with measurable objectives for completely offsetting all adverse impacts to all life stages of sDPS green sturgeon (as modeled using refined approaches described above and considering design refinements that occur in the PED phase of project implementation. • The HMMP shall also, restore or compensate for the number of acres of soft bottom benthic substrate for sDPS green sturgeon permanently lost to project construction. This mitigation shall be coordinated with the Interagency Working Group (IWG) or a Bank Protection Working Group (BPWG) and must be carried out within the lower Sacramento River/North Delta in order to offset the adverse modification to designated critical habitat. • Mitigation actions shall be initiated prior to the construction activities affecting sDPS green sturgeon and their critical habitat. • The sDPS green sturgeon HMMP will include measurable performance standards at agreed upon intervals and will be monitored for a period of at least ten years following construction. The following additional conservation measures would be implemented to reduce the adverse effects to listed Chinook, steelhead, delta smelt, and green sturgeon:			

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when most juvenile Chinook salmon are expected in the ARCF GRR project area. <u>Central Valley Steelhead</u> Steelhead are expected to show a long term positive response to project actions in the Sacramento River and American River SAM analysis reaches over the lifetime of the project. Steelhead should exhibit a positive response by year 4 in the winter-spring when most juvenile steelhead will be migrating and rearing through the project area. <u>Green Sturgeon</u> If larvae or juveniles are present during construction, in-water activities could result in localized displacement and possible injury or mortality to individuals that do not readily move away from the channel or nearshore areas. Project actions associated with bank protection measures may increase sediment, silt, and pollutants, which could adversely affect rearing habitat or reduce food production, such as aquatic invertebrates, for larval and juvenile green sturgeon.	• In-water construction activities (e.g., placement of rock revetment) will be limited to the work window of August 1 through November 30. If the USACE wants to work outside of this window they will consult with USFWS and NMFS. • The USACE will purchase delta smelt credits from a USFWS-approved conservation bank to off-set the loss of 14 acres of shallow water habitat, and 13 acres of spawning habitat. This mitigation is assumed to occur through the purchase of credits at a mitigation bank due to the lack of available real estate in the study area for on-site mitigation. Due to the spatial and temporal loss of habitat, the ecological value associated with doing all mitigation at an off site location was reduced to an overall 70% habitat value. This reduction is offset by the increase of mitigation credits at ratios specified by USFWS and NMFS in the Biological Opinions. The USACE proposes to purchase a total of 72 credits to ensure that impacts to Delta smelt are fully mitigated. • Erosion control measures will be implemented (BMPs), including Storm Water Pollution Prevention Program and Water Pollution Control Program, that minimize soil or sediment from entering the river. BMPs shall be followed, monitored for effectiveness, and maintained throughout construction operations to minimize effects to Federally listed fish and their designated			

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Due to these adverse effects to juvenile green sturgeon, USACE is proposing to adaptively manage the project in a number of ways in order to minimize impacts to this species. In particular, preconstruction physical modeling is proposed to assist in determining potential methods of implementing the proposed measures to minimize impacts to salmon. Additionally, new habitat modeling is proposed to better define what those impacts may be. Monitoring would be conducted during and post-construction in order to confirm the impacts estimated to result from the project, and to allow for improvement in minimizing impacts for future construction throughout the estimated 10 year construction period. <u>Delta Smelt</u> Potential spawning habitat includes shallow channel edge waters in the Delta and Sacramento River. Construction-related effects include disruption of spawning activities, disturbance or mortality of eggs and newly hatched larvae, and alteration of spawning and incubation habitat. As a result, potential construction-related effects to delta smelt physical habitat would include disruption of spawning activities, disturbance or mortality of	critical habitat. • Screen any water pump intakes, as specified by NMFS and USFWS screening specifications. Water pumps will maintain an approach velocity of 0.2 feet per second or less when working in areas that may support delta smelt. • No grading or altering of the lands within the existing Sacramento Bypass will occur as part of the project. • The USACE shall participate in an existing IWG or work with other agencies to participate in a new BPWG to coordinate stakeholder input into future flood risk reduction actions associated with the ARCF GRR. • The USACE shall coordinate with NMFS during PED as future flood risk reduction actions are designed to ensure conservation measures are incorporated to the extent practicable and feasible and projects are designed to maximize ecological benefits. • The USACE shall include as part of the Project, a Riparian Corridor Improvement Plan with the overall goal of maximizing the ecological function and value of the existing levee system within the Sacramento Metropolitan Area. • The USACE shall develop a HMMP with an overall goal of ensuring the conservation measures achieve a high level of ecological function and value. The HMMP shall include:			

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eggs and newly hatched larvae, alteration of spawning and incubation habitat, and loss of shallow water habitat for spawning. Juvenile delta smelt may be subject to disturbance or displacement caused by construction activities that increase noise, turbidity, and suspended sediment. Delta smelt may not be readily able to move away from channel or nearshore areas that are directly affected by construction activities (i.e., placement of rock revetment). Larvae may be disrupted during summer months as they migrate downstream to rear in the Delta. Incidental take of delta smelt may occur from direct mortality or injury during a construction activity, or by the impairment of essential behavior patterns (i.e., feeding, escape from predators). In addition, physiological impairment could be caused by toxic substances (i.e., gasoline, lubricants, oil) entering the water. Construction related effects on delta smelt rearing and migration will be minimized by restricting in-water construction activities on the Sacramento River to a general estimated work window between August 1 and November 30. For the purpose of this study however, during PED, the work window will be adjusted on a site specific basis taking into account presence of juvenile and	▪ Specific goals and objectives and a clear strategy for maintaining all of the project conservation elements for the life of the project. ▪ Measures to be monitored by the USACE for 10 years following construction and shall update their O&M manual to ensure the HMMP is adopted by the local sponsor to ensure the goals and objectives of the conservation measures are met for the life of the project. ▪ Include specific goals and objectives and a clear strategy for achieving full compensation for all project-related impacts to listed fish species. ▪ The USACE shall continue to coordinate with NMFS during all phases of construction, implementation, and monitoring by hosting annual meetings and issuing annual reports throughout the construction period as described in the HMMP. ▪ The USACE shall host an annual meeting and issue annual reports for five years following completion of project construction. • The USACE shall ensure that, for salmon and			

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adult delta smelt as well as any other condition that could impact delta smelt rearing and migration. Listed Fish Species continued	steelhead, the maximum SAM WRI deficits for each seasonal water surface elevation as determined appropriate with input from the IWG or the BPWG are fully offset through the purchase of credits at a NMFS approved conservation bank (as described in this BA). • The USACE shall minimize the removal of existing riparian vegetation and IWM to the maximum extent practicable, and where appropriate, removed IWM will be anchored back into place or if not feasible, new IWM will be anchored in place. • The USACE shall ensure that the planting of native vegetation will occur as described in the HMMP. All plantings must be provided with the appropriate amount of water to ensure successful establishment. • The USACE shall provide a copy of the BO, or similar documentation, to the prime contractor, the prime contractor is responsible for implementing all requirements and obligations on behalf of USACE included in the documents and to educate and inform all other contractors involved in the project as to the requirements of the BO. • A NMFS-approved Worker Environmental Awareness Training Program for construction personnel shall be conducted by the NMFS-approved biologist for all construction workers prior to the commencement of construction activities. Written documentation of the training will be submitted to NMFS within 30 days of the			

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Listed Fish Species continued	completion of training. • The USACE shall consider installing IWM along future flood risk reduction projects associated with the ARCF GRR at 40 to 80 percent shoreline coverage at all seasonal water surface elevations in coordination with the IWG or the BPWG. The purpose is to maximize the refugia and rearing habitats for juvenile fish. • The USACE shall protect in place all riparian vegetation on the lower waterside slope of any levee unless removal is specifically approved by NMFS. • The USACE shall develop a Vegetation Variance for all elements of the ARCF GRR that are adjacent to habitat that is occupied by federally listed salmon, steelhead and green sturgeon, including the main channel of the Sacramento River (as proposed) and the Sacramento Bypass. • The USACE shall ensure the widening of the Sacramento Bypass is designed and constructed to minimize stranding of fish in the depressions wound within the bypass though grading or construction of drainage channels. • The USACE, in coordination with the local sponsor, shall ensure that the Habitat Mitigation and Monitoring Plan for the Sacramento Bypass includes baseline post-project monitoring of fish stranding. The monitoring plan shall be developed in coordination with NMFS.			

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Listed Fish Species continued	• The USACE shall update the O&M manual to incorporate without detrimental effects to flood operations 1) operations of the Sacramento Weir include a plan that allows for ramp down flows in a manner that minimize juvenile fish stranding in the Sacramento Bypass, (2) integration of Sacramento Weir operations with the Yolo Bypass. • During Preconstruction Engineering and Design, the USACE, in coordination with the local sponsor, shall coordinate with NMFS to provide an operation of the Sacramento Weir to allow without detrimental effects to flood management operations, for controlled ramp down rates of water into the Sacramento Bypass following peak flows. • Additional concerns about mitigation, not considered in a SAM analysis, will be included in the MMP (See Appendix I) along the Sacramento Bypass reach, including potential adult and juvenile passage issues, loss of shoreline riparian vs. gain in floodplain, and contradicting ESA species habitat requirements. These issues will be considered and appropriate actions will be taken where possible in coordination with other agencies. For SRA habitat impacted by construction, the following measures would be implemented to compensate for the habitat loss:			

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Listed Fish Species continued	• Compensation timing refers to the time between the initiation of construction at a particular site and the attainment of the habitat benefits to protected species from designated compensation sites. In general, compensation time is the time required for on-site plantings to provide significant amounts of shade or structural complexity from instream woody material recruitment. Significant long-term benefits have often been considered as appropriate to offset small short-term losses in habitat for listed species in the past, as long as the overall action contributes to recovery of the listed species. The authority to compensate prior to or concurrent with project construction is given under WRDA 1986 (33 United States Code [USC] §§ 2201–2330). • For identified designated critical habitat, where feasible all efforts will be made to compensate for impacts where they have occurred or in close proximity. Impacts to designated critical habitat, SRA and instream components combined and the compensation value of replacement habitat will be based on the interagency approved Standard Assessment Model (SAM) used throughout the Sacramento River basin and Delta flood control system. • Compensation sites would be monitored and vegetation would be replaced as necessary based on performance standards in the Mitigation Monitoring Plan (MMP) as detailed in Appendix I of the EIS/EIR.			

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	Depending on the species of interest (e.g., delta smelt), the severity of the short-term habitat losses due to bank erosion repair actions may not be compensated by long-term gains, whereas longer lived species (e.g., steelhead, Chinook) have longer periods for compensation to be provided. The following compensation time periods (based loosely on life expectancy) should be considered as guidelines for compensation: • Green sturgeon, 15 years; • Chinook salmon, 5 years; • Central Valley steelhead, 4 years; and • Delta smelt, 1 year.			
<u>Special Status Plant Species: Sanford's Arrowhead</u> Sanford's arrowhead is known to occur in the Arcade Creek and NEMDC channels. Levee work in these reaches is proposed to remain within the levee prism and would not encroach into the channel; therefore, construction activities in this reach would not result in direct impacts to Sanford's arrowhead. Indirect effects to Sanford's arrowhead could occur during construction due to dust disturbance. However, the mitigation measures proposed in the air quality section.	<u>Special Status Plant Species</u> The following avoidance and minimization measures would be implemented during construction to reduce potentially significant effects to Sanford's arrowhead and wooly rose-mallow to less than significant. Additionally, the avoidance and minimization measures to address invasive plant species in Section 3.6.6 would also reduce potential impacts to special status plant species. • Preconstruction surveys would be conducted by a qualified botanist in suitable habitat to determine the presence of any special status plants. Surveys would be conducted at an			

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Wooly Rose-Mallow There are no known populations of wooly rose-mallow in the study area, however since they are known to occur on levee banks with riprap, they could potentially be adversely impacted by construction of the proposed project. Clearing and grubbing of the levee slopes, and some long-term O&M activities, such as mowing of the levees, could also remove populations of this plant, if present. **Alternative 2** A maximum of 15 acres of aquatic GGS habitat (drainage ditches and farm canals) would be permanently removed and incorporated into the Sacramento Bypass. To the east of the bypass, there are approximately 8 acres of riparian vegetation growing along the Sacramento River that would be removed to construct the new weir structure. The 8-acre area contains both the Old River Road and Union Pacific Railroad (UPRR) tracks. Prior to construction this area would be surveyed to determine if any avian species have nested in the area. If there is nesting Swainson's Hawks	appropriate time of year during which the species are likely to be detected, which would likely be during the blooming period. • If special status plant species are found during preconstruction surveys, the habitat would be marked or fenced as an avoidance area during construction. A buffer of 25 feet would be established. If a buffer of 25 feet is not possible, the next maximum possible distance would be fenced off as a buffer. • If special status plant species cannot be avoided during construction, the USACE would coordinate with the resource agencies to determine additional appropriate mitigation measures. **Alternative 2** Same mitigation ratios and BMPs as alternative 1			

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construction would be delayed until fledglings have left the nest. Fish in the area would likely disperse with the disturbance to the water. The expansion of the Sacramento Weir and Bypass could have a positive beneficial effect on special status wildlife such as the giant garter snake and its riparian vegetation once construction is complete and lands are converted from farming activities to open space where wetlands and shrubby riparian habitat is expected to naturally regenerate with the increased area that is periodically inundated from flooding during the rainy season. Widening of the weir and bypass will increase the entrainment and stranding exposure and rates of juvenile green sturgeon. When the weir is overtopping and water is flowing down the bypass, adult fish are attracted to the flow and follow it upstream in an attempt to reach their holding and spawning habitat. Widening the weir and bypass would increase the amount of water going over the weir and increase the attraction rate of sturgeon, salmon and steelhead.				
3.9 Cultural Resources The effects of the erosion repair on the	Avoidance of adverse effects to historic properties is the preferred treatment approach.	D, P, C	USACE	CVFPB

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American River, levee geometry measures, cutoff walls, and bank protection on the Sacramento River and construction of cutoff walls, correction of the levee geometry, installation of floodwalls, installation of a conduit or box culvert, raising of floodwalls and existing levees, construction of maintenance roads, installation of floodgates, and creation of a detention basin on the East Side Tributaries would likely result in an adverse effect to some historic properties located within the APE for the project. The records and literature search conducted for the project identified 69 known prehistoric and historic resources in the total project APE. For the purposes of this EIS/EIR, the USACE assumes that all of these resources would be impacted by the levee improvement alternatives. Site specific determinations of effect and impact cannot be made at this time because each site within the APE would need to be field checked, the previous recordation (included site boundary, associated features, integrity) verified, and each site would need to be considered for eligibility for listing in the NRHP. The process for field checking cultural resources sites and making determinations of eligibility for listing in	The USACE will consider design refinements of project elements in order to avoid historic properties and project effects that may be adverse. Avoidance of adverse effects to historic properties is a significant part of the USACE planning and cultural resources management for this project as described in the PA. The PA includes a framework to identify historic properties, evaluate NRHP eligibility, and assess effects. Although specific effects to historic properties cannot be determined at this time, effects could include, but is not limited to, the following: temporary visual and auditory effects caused by construction activities, temporary lack of access and/or privacy to areas traditionally used by Native American tribes for ceremonies, temporary and/or permanent effects to the viewshed of TCPs caused by construction activities and associated noise levels, vibration or compression effects caused by construction activities to historic properties located in proximity to construction activities, alteration or destruction of built environment resources, removal of trees and vegetation that may represent plants significant to Native American tribes and used in ceremonies or for other traditional uses.			Verify that the PA is in place

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the NRHP are outlined in the Programmatic Agreement (PA). Specific individual determinations of effect for historic properties that may be affected by Alternative 1 would be completed under the stipulations of the PA, which includes a framework to identify historic properties, evaluate NRHP eligibility, and assess effects. Although specific effects to historic properties cannot be determined at this time, effects could include, but is not limited to, the following: temporary visual and auditory effects caused by construction activities, temporary lack of access and/or privacy to areas traditionally used by Native American tribes for ceremonies, temporary and/or permanent effects to the viewshed of TCPs caused by construction activities and associated noise levels, vibration or compression effects caused by construction activities to historic properties located in proximity to construction activities, alteration or destruction of built environment resources, removal of trees and vegetation that may represent plants significant to Native American tribes and used in ceremonies or for other traditional uses. Alternative 2				

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Effects to cultural resources from the construction of levee improvements under Alternative 2 would be consistent with those analyzed for Alternative 1 with the addition of effects resulting from construction of the Sacramento Weir and Bypass widening. Effects to historic properties may also result from disturbance of cultural resources sites due to remediation of a hazardous, toxic, and radiological waste (HTRW) site near the existing north levee, which may consist of historic era debris.				
3.10 Transportation and Circulation Increased traffic on public roadways.	Preparation of a traffic control and Road Management Plan BMP's below will be implemented to reduce the impacts from traffic: • The contractor would be required to prepare a Traffic Control and Road Maintenance Plan. A traffic control plan describes the methods of traffic control to be used during construction. All on-street construction traffic would be required to comply with the local jurisdiction's standard construction specifications. The plan would reduce the effects of construction on the roadway system in the project area throughout the construction period.	P, C	USACE	CVFPB Verify traffic plan

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	• Construction contractors would follow the standard construction specifications of affected jurisdictions and obtain the appropriate encroachment permits, if required. The conditions of the encroachment permit would be incorporated into the construction contract and would be enforced by the agency that issues the encroachment permit. • If rock or other materials are transported by barge on the Sacramento River, appropriate water safety measures would be utilized in order to reduce impacts to recreational boaters. • The construction contractor would provide adequate parking for construction trucks, equipment, and construction workers within the designated staging areas throughout the construction period. If inadequate space for parking is available at a given work site, the construction contractor would provide an off-site staging area and, as needed, coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site. • Proposed lane closures would be coordinated with the appropriate jurisdiction and would be minimized to the extent possible during the morning and evening peak traffic periods. Standard construction specifications also typically limit lane closures during commuting hours. Lane closures will be kept as short as possible. If a road must be closed, detour routes and/or			Verify barge usage when appropriate.

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	temporary roads would be made to accommodate traffic flows. Detour signs would be provided to direct traffic through detours. Advance notice signs of upcoming construction activities would be posted at least 1 week in advance so that motorists are able to avoid traveling through the study area during these times. Within the Parkway, detours would be used to allow for continued use by bicycle commuters. • Safe pedestrian and bicyclist access would be maintained in or around the construction areas at all times. Construction areas would be secured as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and all stationary equipment would be located as far away as possible from areas where bicyclists and pedestrians are present. • The construction contractor would notify and consult with emergency service providers to maintain emergency access and facilitate the passage of emergency vehicles on city streets. • Emergency vehicle access would be made available at all times. Coordination with local emergency responders by the contractor to inform them of the construction activities would be required by the contractor. • The construction contractor would assess damage to roadways used during construction and will repair all potholes, fractures, or other damages.			Verify pedestrian and cyclist detour routes.

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	• Trains utilizing the Yolo Shortline Railroad would be detoured to a different rail line during construction. If an alternative rail line is not available, railroad services would be continued by transporting goods on public roads using cargo trucks during the extent of closures required by the construction and realignment of the railroad on the new portion of the Sacramento Weir.			
3.11 Air Quality Emissions of criteria pollutants from construction equipment, haul trucks, and barges. Construction of the proposed project would result in short-term dust emissions from grading and earth moving activities at the project construction sites and the soil borrow sites. Construction of the proposed project would result in short-term diesel particulate emissions from onsite heavy duty equipment and on-road haul trucks. DPM, which is classified as a carcinogenic TAC by CARB, is the primary pollutant of concern with regard to indirect health risks to sensitive receptors. Nearby land uses, especially those residences and schools located downwind of the project sites could be exposed to DPM generated during construction activities, indirectly	SMAQMD's Basic Construction Emissions Control Practices The SMAQMD requires construction projects to implement basic construction emission control practices to control fugitive dust and diesel exhaust emissions (SMAQMD 2015). The USACE would comply with the following control measures for the project: • Water all exposed surfaces twice daily. Exposed surfaces include but are not limited to: soil piles, graded areas, unpaved parking areas, staging areas, and access roads. • Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would travel along freeways or major roadways should be covered. • Use wet power vacuum street sweepers to remove any visible trackout mud or dirt from adjacent public roads at least once a day.	D, P, C	USACE	CVFPB Verify that emissions control guidance is followed. Verify that dust control measures are in place.

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resulting in potential adverse health effects. The proposed project would not result in any major sources of odor, and the project would not involve operation of any of the common types of facilities that are known to produce odors (e.g., landfill, wastewater treatment facility). Odors associated with diesel exhaust emissions from the use of onsite construction equipment may be noticeable from time to time by adjacent receptors. Alternative 2 Construction of the Sacramento Weir and Bypass Widening would occur in YSAQMD and include clearing of trees and vegetation, construction of the new levee, construction of the new portion of the weir, construction of new sections of road and railroad on the top of the new portion of the weir and the new levee, relocation of utilities, degrading and excavating the existing levee, and delivery and installation of rip-rap on the waterside slope of the new levee. Materials for the construction of the new levee would be reused from the existing levee to the greatest extent possible.	Use of dry power sweeping is prohibited. • Complete all roadways, driveways, sidewalks, or parking lots to be paved as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the site entrances. • Maintain all construction equipment in proper working condition according to the manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated. <u>Fugitive Dust Emission Mitigation Measures</u> Fugitive dust mitigation would require the use of adequate measures during each construction activity and would include frequent water applications or application of soil additives, control of vehicle access, and vehicle speed restrictions. The USACE would implement the dust mitigation measures listed below. • Water exposed soil with adequate frequency for continued moist soil. • Suspend excavation, grading, and/or			

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	demolition activity when wind speeds exceed 20 mph. • Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas. • Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. • Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site. • Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads. • Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance. The project will ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. The use of USEPA adopted Tier 3 and Tier 4 standards for newly-built marine engines in 2008 would be encouraged under the barge delivery scenario. The Tier 3 standards reflect the			

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	application of technologies to reduce engine PM and NO_X emission rates. Tier 4 standards reflect application of high-efficiency catalytic after-treatment technology enabled by the availability of ultra-low sulfur diesel. These Tier 4 standards would be phased in over time for marine engines beginning in 2014 (USEPA 2008). The USACE will require that all off-road construction equipment comply with SMAQMD's enhanced exhaust controls (20% NO_X and 45% PM reductions). The USACE will encourage their construction contractors to use off-road diesel-powered construction equipment greater than 50 horsepower that meets Tier-4 off-road emission standards under the barge delivery scenario. As of July 1, 2015, the mitigation fee rate is $18,030 per ton of emissions. The Contractor would provide payment of the appropriate SMAQMD-required NO_x mitigation fee to offset the project's NO_x emissions when they exceed SMAQMD's threshold of 85 lbs/day. The USACE would consult with the BAAQMD in good faith to enter into a mitigation contract for an emission reduction incentive program (e.g., TFCA or Carl Moyer Program). The current emissions limit is $17,080/weighted ton of criteria pollutants (NO_X + ROG + [20*PM]). An administrative fee of 5 percent would be paid to the BAAQMD to implement the program. The contractor would conduct daily and annual emissions monitoring to ensure onsite emissions			

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	reductions are achieved and no additional mitigation payments are required. The contractor would be required to ensure the requirement is met. This requirement would be incorporated into the construction contracts as part of the project's specifications.			
3.12 Climate Change Increased GHG emissions from construction equipment, haul trucks, and barges.	The following measures may be considered to lower GHG emissions during the construction: • Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes. • Recycle at least 75% of construction waste and demolition debris. • Purchase at least 20% of the building materials and imported soil from sources within 100 miles of the project site. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (5 minute limit is required by the state airborne toxics control measure [Title 13, sections 2449(d)(3) and 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site. • Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified	P, C	USACE	CVFPB Verify mitigation measures are being implemented.

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	mechanic and determined to be running in proper condition before it is operated. • Use equipment with new technologies (repowered engines, electric drive trains). • Perform on-site material hauling with trucks equipped with on-road engines (if determined to be less emissive than the off-road engines). • Use a CARB approved low carbon fuel for construction equipment. (NO_x emissions from the use of low carbon fuel must be reviewed and increases mitigated.) • Purchase GHG offset for program-wide GHG emissions (direct emissions plus indirect emissions from on-road haul trucks plus commute vehicles) exceeding SMAQMD or CEQ's significance thresholds applicable at the time of construction. Carbon offset credits shall be purchased from programs that have been approved by SMAQMD.			
3.13 Noise Construction activities in the American River Parkway, Sacramento River, East Side Tributaries and Sacramento Bypass could result in temporary significant impacts on residents, recreationists, and other noise sensitive groups.	During construction, noise-reduction measures would be employed in order to ensure that construction noise complies with local ordinances. Prior to the start of construction, a noise control plan would be prepared that would identify feasible measures to reduce construction noise, when necessary. The following measures would apply to construction activities within 500 feet of a sensitive receptor, including, but not limited to, residences. These measures may include, but are not limited to, the following:	P, C	USACE	CVFPB Verify noise control plan. Verify that residents have been notified in writing. Verify signage.

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	• Provide written notice to residents within 1,000 feet of the construction zone, advising them of the estimated construction schedule. This written notice would be provided within one week to one month of the start of construction at that location. • Display notices with information including, but not limited to, contractor contact telephone number(s) and proposed construction dates and times in a conspicuous manner, such as on construction site fences. • Schedule the loudest and most intrusive construction activities during daytime hours (7:00 a.m. to 7:00 p.m.), when feasible. • Require that construction equipment be equipped with factory-installed muffling devices, and that all equipment be operated and maintained in good working order to minimize noise generation. • Locate stationary noise-generating equipment as far as practicable from sensitive receptors. • Limit unnecessary engine idling (i.e., more than 5 minutes) as required by State air quality regulations. • Employ equipment that is specifically designed for low noise emission levels, when feasible. • Employ equipment that is powered by electric or natural gas engines, as opposed to those powered by gasoline fuel or diesel, when feasible.			

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	• If the construction zone is within 500 feet of a sensitive receptor, place temporary barriers between stationary noise equipment and noise sensitive receptors to block noise transmission, when feasible, or take advantage of existing barrier features, such as existing terrain or structures, when feasible. • If the construction zone is within 500 feet of a sensitive receptor, prohibit use of backup alarms and provide an alternate warning system, such as a flagman or radar-based alarm that is compliant with State and Federal worker safety regulations. • Locate construction staging areas as far as practicable from sensitive receptors. • Design haul routes to avoid sensitive receptors, to the extent practical. • If there are any occupied buildings with plaster or wallboard construction within 40 feet of construction equipment, a vibration control plan would be prepared prior to construction.			
3.14 Recreation Site-specific designs have not been conducted to determine which erosion protection measure is appropriate along each reach of the Parkway, certain assumptions can be made: • Access to the American River for	The following measures would be implemented to keep the public informed of construction activities to mitigate for effects to bike trail/recreation trail access: • Coordination with recreation user groups would occur prior to and during construction for input into mitigation measures that would reduce affects to the maximum extent practicable.	P,C	USACE	CVFPB Verify that notice is given about recreational impacts prior to closure.

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the purposes of erosion control construction would require some temporary closures of portions of the recreation trail during construction activities. • Haul trucks would use portions of the recreational trail to bring materials to the construction sites, reducing accessibility to recreationists. • Some areas within the Parkway itself would be construction staging areas. • The presence of construction equipment and haul trucks would reduce the quality of recreational experiences. Alternative 2 Possible closure of the Sacramento Bypass during portions of the hunting season.	• Advance notice would be given to recreation users informing them of anticipated activities and detours to reduce the effects. To ensure public safety: • Flaggers, • Signs restricting access would be posted before and during construction • Detour routes would be clearly marked, • Fences would be erected in order to prevent access to the project area. • In areas where recreational traffic intersects with construction vehicles, traffic control will be utilized in order to maintain public safety. • The public will have continued access to the Parkway and recreation facilities during construction, but bike and running trail users would likely be required to detour onto public roads or alternative trails. • If any access point needs to be closed during construction, notices will be posted providing alternative access routes.			Verify use of flaggers. Verify use of detour signs.
3.15 Visual Resources Vegetation loss and construction activities would disrupt the existing visual conditions in the Parkway and along the Sacramento River.	American River Trees will be planted along the outer portion of the rock trench where there is sufficient space. Sacramento River Trees will remain on the waterside lower third of the levee. The understory vegetation will be removed in order to place rock.	P, C, M	USACE	CVFPB Verify replanting of trees. Verify that lower one third of trees are not removed.

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	Sacramento Weir and Bypass Native trees and shrubs within the existing bypass would be avoided during construction as much as practicable to help minimize visual impacts. The loss of ground cover in the existing and expanded bypass would be mitigated by planting native grasses and forbs in areas disturbed by construction, except within the footprint of the extended weir. The loss of existing native trees and shrubs within the existing bypass, along the bank of the Sacramento River, and within small portions of the agricultural lands directly impacted by the project would be mitigated by planting native trees and shrubs within certain portions of the expanded bypass.			Verify tree mitigation.
3.16 Public Utilities and Services Temporary disruptions to utility services are possible particularly during relocation of utilities that penetrate the levee.	Consultation with all known service providers would take place prior to construction to identify specific infrastructure locations and appropriate protection measures. Consultation would continue during construction to ensure avoidance/protection of facilities to minimize service disruptions. Where feasible, replacement utility structures would be completed before demolition of existing facilities. Mitigation measures would include the following: • Notification of any potential interruptions in service shall be provided to the appropriate agencies and affected landowners. • Before the start of construction, utility locations shall be verified through field surveys and the use of the Underground Service Alert services. Any buried utility lines	D, P, C	USACE	CVFPB Verify coordination with appropriate service providers.

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	shall be clearly marked in the area of construction on the construction specifications in advance of any earthmoving activities. • Before the start of construction, a response plan shall be prepared to address potential accidental damage to a utility line. The plan shall identify chain of command rules for notification of authorities and appropriate actions and responsibilities to ensure the safety of the public and workers. Worker education training in response to such situations shall be conducted by the contractor. The response plan shall be implemented by the project proponent(s) and its contractors during construction activities. • Utility relocations shall be staged to minimize interruptions in service. • Construction activities will be coordinated with first responders within the study area so plans can be implemented to avoid response delays due to construction detours.			
3.17 Hazardous, Toxic, and Radiological Wastes No effect from construction activities. HTRW sites encountered would be removed and properly disposed of prior to construction.	Borrow material would be tested prior to use to ensure that no contaminated soils are used in project.	P, C	USACE	CVFPB Verify that import soils are tested prior to use in project.
3.18 Socioeconomics, Population, and Environmental Justice Disruption to residents alongside	Mitigation for relocation of people and their homes would be compensated under the Federal Relocation Act.	D,P	USACE	CVFPB Verify that Federal

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construction sites from traffic, noise, and dust. Acquisition of properties for levee easements.				relocation process is followed.

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