CVFPP

2017 UPDATE

Mitigation Monitoring and Reporting Plan for the Central Valley Flood Protection Plan Program Environmental Impact Report (2017 Update)

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STATE OF CALIFORNIA
THE NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

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This mitigation monitoring and 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.

This MMRP was originally adopted on June 29, 2012. This update has been prepared based on the Supplemental Program Environmental Impact Report (Supplemental PEIR) for the 2017 Central Valley Flood Protection Plan Update (2017 CVFPP Update), which added to and refined the prior mitigation measures. Changes to the mitigation measures pursuant to the Supplemental PEIR are presented in this updated MMRP using strikeout and underlined text. Additional editorial changes have been made throughout this updated MMRP to reflect current terminology and editorial standards (for example, references to the Conservation Framework have been changed to Conservation Strategy).

At a program level, a list of options of mitigation measures and strategies was developed to address the CVFPP's significant and potentially significant impacts on environmental resources. Because it was not possible to precisely assess project-level impacts and mitigation at the time, the CVFPP program environmental impact report (PEIR) treated a number of program-level impacts as potentially significant to ensure that mitigation is applied to avoid, minimize, or reduce these potentially significant impacts. Where it was anticipated that feasible mitigation measures may not be available to reduce these impacts to a less-than-significant level, the PEIR treated these impacts at the program level as significant and unavoidable or potentially significant and unavoidable. The Supplemental PEIR does not change the significance conclusions made in the PEIR. However, not all projects will result in all of the significant, potentially significant, significant and unavoidable, and/or potentially significant and unavoidable impacts identified in the PEIR and Supplemental PEIR.

Project-level activities will undergo future environmental analysis as applicable under CEQA. As part of these future environmental reviews, the lead agency for specific projects will consider the mitigation measures and strategies identified in the PEIR and Supplemental PEIR as starting points to determine their applicability to a specific project, and to consider developing additional mitigation measures for significant adverse impacts identified in the project-specific environmental analysis. Because all the potential actions, impacts, and mitigation measures for future projects cannot be anticipated at a program level, each project may require specific

strategies applicable to the impacts associated with the specific location and type of action. It is anticipated that a project-level MMRP will be developed as part of each future project-level environmental analysis. The project-level MMRP may include more specific timing for the mitigation measures, and additional parties may be identified as responsible for implementing the measures. Future mitigation measures may be modified, refined, or improved over time based on experience implementing various measures, on the results of scientific studies, or on other relevant sources of information.

The California Department of Water Resources (DWR) and/or the Central Valley Flood Protection Board (Board) will likely be the lead and/or responsible agencies for many of the future projects contemplated by the CVFPP. DWR directly undertakes a number of actions regarding the flood protection system and provides financial assistance for many projects undertaken by other agencies. The Board has regulatory authority, such as authorizing levee modifications or encroachments, over many of those activities. However, for some future projects, neither DWR nor the Board will be a lead or responsible agency. Accordingly, this MMRP focuses on those management actions within the discretionary responsibility of DWR or the Board. However, for management purposes information may be obtained from other flood system maintaining agencies (e.g., reclamation districts) and included in the periodic reports identified below. Generally, however, monitoring is not required for measures that address less-than-significant impacts, measures that are the responsibility of another agency, or measures that the agency has determined to be infeasible pursuant to CEQA Section 21081(a)(2) or 21081(a)(3).

The following table lists the applicable mitigation measures and strategies and includes a schedule for monitoring. Generally, construction projects will be monitored before, during, and after construction by the project manager. Program-level measures and strategies will generally be evaluated on an ongoing basis, with an emphasis on developing information relevant to the 5-year CVFPP revision process. Reports compiling this information will be prepared periodically.

Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
3.2 Aesthetics		
Impact VIS-4 (NTMA & LTMA): New Sources of Substantial Light and Glare	**Mitigation Measure VIS-4 (NTMA & LTMA): Establish and Require Conformance to Lighting Standards, and Prepare and Implement a Lighting Plan** Not all measures listed below may be applicable to each management action. Rather, these measures serve as an overlying mitigation framework to be used for specific management actions. The applicability of measures listed below would vary based on the lead agency, location, timing, and nature of each management action. The project proponent will ensure that the following measures are implemented where project activities occur in the vicinity of sensitive light receptors to reduce potentially significant adverse effects associated with light and glare: • If construction lighting is needed, contractors will be required to shield or screen lighting fixtures and direct lights downward onto the work site and prevent significant light spill onto adjacent properties. • Contractors will place and direct flood or area lighting needed for construction activities or for security so as not to significantly disturb adjacent residential areas, passing motorists, or other light-sensitive receptors. • The use of harsh mercury vapor, low-pressure sodium, or fluorescent bulbs or light fixtures that are of unusually high intensity or brightness will be prohibited unless there is no practicable alternative. • Where applicable and practicable, lighting fixtures will meet lighting standards of the local jurisdiction. Design features that will reduce the effects of nighttime lighting, namely directional shielding for all substantial light sources, will be included in the project designs. In addition, the use of automatic shutoffs or motion sensors for lighting features will be considered in the project designs to further reduce excess nighttime lighting. All nighttime lighting will be shielded to prevent the light from shining off the surface intended to be illuminated. • Materials with natural colors and low-reflection materials will be used on all new or replacement structures to the extent feasible so that the facilities appear more consistent with the existing character of the area and do not generate excessive glare.	D, C, O
3.3 Agriculture and Forestry Resources		
Impact AG-1 (NTMA & LTMA): Conversion of Substantial Amounts of Important Farmland to Nonagricultural Uses and Conversion of Land under Williamson Act Contracts to an Inconsistent	**Mitigation Measure AG-1a (NTMA & LTMA): Preserve Agricultural Productivity of Important Farmland to the Extent Feasible** In a May 4, 2005, memorandum to California Resources Agency departments, boards, and commissions, the Secretary stated that "in selecting and developing resource-related projects, departments under the Resources Agency should consider ways to reduce effects on productive agricultural lands" and encouraged departments to incorporate, where appropriate, the strategies identified in the CALFED	D, C, O

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
Use Resulting from Conveyance-Related Management Activities	Bay-Delta Program (CALFED) EIR to reduce the impact of the CALFED Ecosystem Restoration Program on agricultural land and water use. The measures listed below include the applicable strategies identified in the CALFED EIR and some additional measures. Not all measures listed below may be applicable to each management action. Rather, these measures serve as an overlying mitigation framework to be used for specific management actions. The applicability of measures listed below would vary based on the lead agency, location, timing, and nature of each management action. The project proponent will ensure that the following measures are implemented as applicable to reduce effects and preserve agricultural productivity on Important Farmland: • Site projects and project footprints to minimize the permanent conversion of Important Farmland to nonagricultural uses. • Identify and implement project design features that will benefit flood management, agriculture, and natural resources. • When selecting sites and methods for repair, reconstruction, and improvement of flood control facilities, minimize the splitting or fragmentation of parcels that are to remain in agricultural use. • Maximize contiguous parcels of agricultural land of a size sufficient to support their efficient use for continued agricultural production. • Where the construction or operation of a facility could limit access to ongoing agricultural operations, maintain a means of reasonably convenient access to these agricultural properties as part of project design, construction, and implementation. • At borrow sites to be returned to agricultural production, remove and stockpile, at a minimum, the upper 2 feet of topsoil and replace the topsoil after project completion as part of borrow site reclamation. Borrow site reclamation for agricultural production will also take into account the potential unique characteristics of soils for production of certain crops (e.g., clay pan soils for rice). • In areas permanently disturbed by program activities, and where topsoil is removed as part of project construction (e.g., stripping topsoil under a levee foundation) and not reused as part of the project, make the topsoil available to less productive agricultural lands that could benefit from the introduction of good-quality soil. By agreement between the project proponent or landowners of affected properties and the recipient(s) of the topsoil, the recipient(s) would use the topsoil for agricultural purposes. • Relocate and/or replace wells, pipelines, power lines, drainage systems, and other infrastructure that are needed for ongoing agricultural uses and would be affected by project construction or operation. • Minimize disturbance of Important Farmland and continuing agricultural operations during construction by implementing the following measures:	

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	– To the extent possible, locate construction laydown and staging areas on sites that are fallow, already developed or disturbed, or to be discontinued for use as agricultural land. – Use existing roads to access construction areas to the extent possible. • Coordinate with growers to develop appropriate construction practices to minimize construction-related impairment of agricultural productivity. Practices may include coordinating the movement of heavy equipment and implementing traffic control measures. • Support the testing and application of alternative crops (i.e., agroforestry or energy crops) on idle farmland. • Before an NTMA [or LTMA] is implemented, search the CNDDB to determine whether sensitive communities, habitats, and species observation records may be present in or near the project area. These communities, habitats, and species occurrences will be identified, mapped, and quantified as deemed appropriate. The project proponent, assisted by the primary engineering and construction contractors, will coordinate with a qualified biologist to ensure that implementation of NTMAs [or LTMAs] minimizes direct and indirect disturbance of sensitive communities, habitats, and species to the extent feasible. In consultation with USFWS and DFW, the project proponent will develop measures to minimize and, where appropriate, compensate for construction-related effects on sensitive communities, habitats, and species.	
	Mitigation Measure AG-1b (NTMA & LTMA): Minimize Impacts on Williamson Act–Contracted Lands, Comply with Government Code Sections 51290–51293, and Coordinate with Landowners and Agricultural Operators The project proponent will consider the following mitigation measures and implement them, as applicable, to reduce effects on lands under Williamson Act contracts: • The project proponent will comply with applicable provisions of California Government Code Sections 51290– 51295 with regard to acquiring lands under Williamson Act contract. Sections 51290(a) and 51290(b) specify that State policy, consistent with the purpose of the Williamson Act to preserve and protect agricultural land, is to avoid locating public improvements and any public utilities improvements in agricultural preserves, whenever practicable. If such improvements must be located within a preserve, they will be located on land that is not under contract, if practicable. • More specifically, the project proponent will comply with the following basic requirements stated in the California Government Code: – Whenever it appears that land within a preserve or under contract may be required for a public improvement, DOC and the city or county responsible for administering the preserve must be notified (Section 51291(b)).	D, P, C, O

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PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	– Within 30 days of being notified, DOC and the city or county must forward comments, which will be considered by the proponent of the public improvement (Section 51291(b)). – A public improvement may not be located within an agricultural preserve unless findings are made that (1) the location is not based primarily on the lower cost of acquiring land in an agricultural preserve and (2) for agricultural land covered under a contract for any public improvement, no other land exists within or outside the preserve where it is reasonably feasible to locate the public improvement (Sections 51291(a) and 51291(b)). If the land is acquired for the purpose of flood damage reduction measures, the project proponent(s) is exempt from the findings required in California Government Code Section 51292 (Section 51293(e)(1)). – The contract is normally terminated for lands acquired by eminent domain or in lieu of eminent domain (Section 51295). – DOC must be notified within 10 working days upon completion of the acquisition (Section 51291(c)). – DOC and the city or county must be notified before completion of any proposed work of any significant changes related to the public improvement (Section 51291(d)). – If, after acquisition, the acquiring public agency determines that the property would not be used for the proposed public improvement, DOC and the city or county administering the involved preserve must be notified before the land is returned to private ownership. The land will be reenrolled in a new contract or encumbered by an enforceable restriction at least as restrictive as that provided by the Williamson Act (Section 51295). • The project proponent will coordinate with landowners and agricultural operators to sustain existing agricultural operations, at the landowners' discretion, until the individual agricultural parcels are needed for project construction.	
	Mitigation Measure AG-1c (NTMA & LTMA): Establish Conservation Easements Where Potentially Significant Agricultural Land Use Impacts Remain after Implementation of Mitigation Measures AG-1a (NTMA) and AG-1b (NTMA) As discussed in Mitigation Measures AG-1a (NTMA) and AG-1b (NTMA), in general, where there is a reduction or termination of agricultural activities to undertake flood protection, environmental protection, or other conservation measures, project proponents should consider other measures before considering purchasing easements or other measures of compensation (collectively referred to as "easements" below). If after implementing all other applicable measures, the proposed project could still result in a potentially significant environmental impact, easements should be considered. Easements are most likely appropriate where there would be serious degradation or elimination of the physical conditions or natural processes that provide the land's resource qualities for agriculture. In this situation, there would normally also be other impacts on the environment. Where easements are applicable, the following factors will be considered:	D, O

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	• Where easements are considered for other resources such as terrestrial biological resources, purchase of easements should be coordinated where possible so that agricultural resources are also addressed. For example, if it were determined that a project would permanently terminate agricultural activities on a piece of land that served as Swainson's hawk foraging habitat, if an easement on another property were determined appropriate to address losses of Swainson's hawk foraging habitat, the replacement land could also support the same kind of agricultural activity as the original converted property. • Applicable methods established in the area of the specific project activity will be considered. Methods for compensation may include but are not limited to establishing agricultural conservation easements, paying in-lieu fees toward agricultural conservation easements, supporting agricultural land trusts, and participating in habitat conservation plans or natural communities conservation plans that include conservation of agricultural lands. The appropriate ratio of purchase or establishment of agricultural conservation easements relative to conversion of Important Farmland will be established on a case-by-case basis for each project. Depending on the specifics of the impact, available agricultural conservation programs in various locations, and local or regional regulatory standards, there are some circumstances where less than a 1-to-1 compensation ratio may be appropriate and other circumstances where greater ratios may be required. Where conservation easements are established by the project proponent, they may be held by land trusts, local governments, or other appropriate agencies that are responsible for ensuring that these lands are maintained in agricultural use. When determining whether effects on agricultural land warrant purchase of an easement, the following factors should be considered: • Whether the change would affect the use of the land for agricultural purposes (i.e., ceasing agricultural activities and allowing land to be fallowed or be used for resource restoration in such a way that land could be returned to agricultural production) • Whether the change would permanently take land out of production (i.e., depositing sediment on agricultural lands) • Whether the land could be used for agricultural production but has not been or is not likely to be able to be used for such purposes because of flooding, bad soils, lack of dependable water supplies, or other reasons • Whether the land is currently being used for agricultural production and would not be able to be used for similar purposes in the future because of the project, but the project would provide benefits to nearby or other land that could be or is being used for agricultural purposes • Whether the land is currently being used for agricultural production and would not be able to be used for similar purposes in the future because of the project, but the land is not Prime Farmland, Unique Farmland, or Farmland of Statewide Importance	

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	• Whether the land is currently being used for agricultural production and would not be able to be used for similar purposes in the future because of physical changes brought about by the project, and the land is Prime Farmland, Unique Farmland, or Farmland of Statewide Importance • Whether the land would be converted to a use that would reduce ancillary environmental benefits	
Impact AG-3 (NTMA &LTMA): Effects of Other NTMAs [& LTMAs] on Important Farmland and Williamson Act Contract Land	**Mitigation Measure AG-3 (NTMA & LTMA): Implement Mitigation Measures AG-1a (NTMA), AG-1b (NTMA), and AG-1c (NTMA)**	D, P, C, O
Impact AG-4 (NTMA & LTMA): Conversion of Forest Land to Nonforest Uses Resulting from Conveyance-Related Management Activities	**Mitigation Measure AG-4 (NTMA & LTMA): Implement Mitigation Measure BIO-T-1a (NTMA), "Conduct Biological Resources Surveys to Quantify Sensitive Natural Communities in Project Areas, and Avoid, Minimize, and, Where Appropriate, Compensate for Construction-Related Effects"**	D, P, C
Impact AG-6 (NTMA & LTMA): Effects of Other NTMAs [& LTMAs] on Forest Land	**Mitigation Measure AG-6 (NTMA & LTMA): Implement Mitigation Measure BIO-A-2b (NTMA), "Ensure Full Compensation for Losses of Riparian Habitat Functions and Values Caused by Implementing the Vegetation Management Strategy Along Levees"**	D, P, C, M, O
3.4 Air Quality		
Impact AQ-1 (NTMA & LTMA): Construction-Related Emissions of Criteria Air Pollutants and Ozone Precursors Resulting from Conveyance and Other Components that Could Exceed Local CEQA Thresholds of Significance	**Mitigation Measure AQ-1 (NTMA & LTMA): Implement Measures to Reduce Construction-Related Emissions** The following measures will be considered during project-level evaluation of specific management actions. Not all measures listed below may be applicable to each management action. Rather, these measures serve as an overlying mitigation framework to be used for specific management actions. The applicability of measures listed below would vary based on the lead agency, location, timing, and nature of each management action. The mitigation measures described below are grouped according to whether they address construction in general, fugitive dust emissions, or exhaust emissions. **GENERAL CONSTRUCTION MITIGATION** The following measures are designed to reduce all construction-related emissions: • Comply with and implement applicable air district rules and regulations that pertain to construction activities (e.g., asphalt ROG requirements, administrative requirements, fugitive dust management practices). As applicable, implement construction-related requirements from air districts or local	D, P, C

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	governments with authority over the project at the commencement of and during each construction activity. • Do not use open burning to dispose of any excess materials generated during site preparation or other project activities. **FUGITIVE DUST EMISSIONS** The following measures may be used to reduce fugitive dust emissions: • Submit a dust control plan to the local air district, and obtain approval of the plan before the grading permit is issued. Implement the plan during construction. The dust control plan will specifically identify measures that would demonstrate that earth-moving activities in areas of the site would comply with applicable requirements of the local air district. • Phase long-duration construction activities to reduce the size of the disturbed area at any given time. • Water all exposed surfaces three times a day or sufficiently to prevent visible dust emissions from exceeding 20 percent opacity beyond the construction boundaries. • Apply water, nontoxic chemical stabilizers, or dust suppressants or use tarps or other suitable material (e.g., vegetative ground cover) in all disturbed areas that will not be used for 10 days or more. • Suspend excavation and grading activities when winds exceed 15 mph. • Restrict the speed of construction vehicles to 15 mph on any unpaved surface. • Prevent carryout and trackout of fugitive dust on construction vehicles. Methods to limit carryout and trackout include using wheel washers; sweeping any trackout on adjacent public streets at the end of each workday; and lining access points with gravel, mulch, or wood chips. • Cover access roads within 100 feet of paved roads with a 6- to 12-inch layer of wood chips or mulch or a 6-inch layer of gravel to reduce the generation of road dust and road dust carryout onto public roads. • Clean up carryout and trackout using any of the following methods: – Manually sweeping and picking up – Operating a rotary brush or broom accompanied or preceded by sufficient wetting to limit visible dust emissions to 20 percent opacity – Operating a PM_{10}-efficient street sweeper that has a pickup efficiency of at least 80 percent – Flushing with water if curbs or gutters are not present and if using water would not either result in a source of trackout material, result in adverse impacts on stormwater drainage systems, or violate any National Pollutant Discharge Elimination System permit program • Cover or wet the filled cargo compartment of material transport trucks to limit visible dust emissions during transport, and maintain at least 2 feet of freeboard from the top of the container.	

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PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	• Clean or cover the cargo compartment of empty material transport trucks before they leave the site. • Install sandbags or other erosion control measures on sites with a slope greater than 1 percent to prevent runoff of silt to public roadways. • Limit the number of areas subject to excavation, grading, and other ground-disturbing activities at any given time. **EXHAUST EMISSIONS** The following measures may be used to reduce exhaust emissions: • Develop a comprehensive construction-activity management plan to minimize the amount of large construction equipment operating at any given time. • Implement a shuttle service to and from retail services and food establishments during lunch hours, or employ a catering service to bring lunch to the project site. • Use diesel-powered construction equipment that meets CARB's 1996 or newer certification standard for off-road heavy-duty diesel engines. • Schedule construction truck trips during nonpeak traffic hours to reduce peak-hour emissions and traffic congestion to the extent feasible. • Use alternative-fueled (e.g., compressed natural gas (CNG), liquefied natural gas (LNG), propane, biodiesel) or electricity-powered construction equipment, where feasible. Project-specific analysis should confirm that using any alternative fuel would not increase NO_X emissions. • Install diesel oxidation catalysts, catalyzed diesel particulate filters, or other applicable air district–approved emission reduction retrofit devices where feasible. • Use the newest equipment available to try to maintain a Tier 1 fleet equipment average. The following measures from Mitigation Measure CLM-1a (NTMA) in Section 3.7, "Climate Change and Greenhouse Gas Emissions," could help to further reduce exhaust emissions of criteria air pollutants and ozone precursors: • *BMP 6.* Minimize idling time by requiring that equipment be shut off after 5 minutes when not in use (as required by the State airborne toxics control measure (Title 13, Section 2485 of the California Code of Regulations)). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement. • *BMP 7.* Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions	

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	systems in proper operating condition. Maintenance schedules shall be detailed in an air quality control plan prior to commencement of construction. • *BMP 8.* Implement a tire inflation program on jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on-site and every 2 weeks for equipment that remains on-site. Check vehicles used for hauling materials off-site weekly for correct tire inflation. Procedures for the tire inflation program shall be documented in an air quality management plan prior to commencement of construction. • *BMP 9.* Develop a project-specific ride share program to encourage carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes. • Schedule maintenance trips during nonpeak traffic hours to reduce peak-hour emissions and traffic congestion to the extent feasible. • Use alternative-fueled (e.g., CNG, LNG, propane), electricity-powered, or catalyst-equipped diesel vehicles where feasible. The following measures from Mitigation Measure CLM-1b (NTMA) in Section 3.7, "Climate Change and Greenhouse Gas Emissions," could help to further reduce operational emissions of criteria air pollutants and ozone precursors: • Implement all current standards and/or requirements as part of any DWR sustainability plan or guidelines. • Use renewable energy generated on site (i.e., solar, wind, hydroelectric) where feasible. • Use alternative fuels for maintenance vehicles and equipment. • Use energy-efficient equipment for operation and maintenance of proposed facilities (e.g., pumps, hydraulic equipment, maintenance equipment). Equipment and operation of equipment will conform to U.S. Department of Energy best practices, Consortium for Energy Efficiency initiatives and guidance, and National Electrical Manufacturers Association standards where feasible. • Require proposed buildings to exceed California Building Standards Code Title 24 energy efficiency standards by 20 percent or more.	

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PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
Impact AQ-4 (NTMA & LTMA): Construction-Related and Operational Emissions from Conveyance and Other NTMAs [or LTMAs] that Could Result in Cumulatively Considerable Net Increases in Criteria Air Pollutants for Which the Project Region is Nonattainment under Applicable Federal or State Ambient Air Quality Standards	**Mitigation Measure AQ-4 (NTMA & LTMA): Implement Mitigation Measure AQ-1 (NTMA)**	D, P, C
Impact AQ-6 (NTMA & LTMA): Potential Construction-Related Exposure of Sensitive Receptors to Substantial Pollutant Concentrations through Diesel PM and Naturally Occurring Asbestos or Potential Generation of Substantial Concentrations of TACs during Operations	**Mitigation Measure AQ-6 (NTMA & LTMA): Implement Strategies to Protect Sensitive Receptors from Substantial Construction-Related Emissions of Naturally Occurring Asbestos** Not all measures listed below may be applicable to each management action. Rather, these measures serve as an overlying mitigation framework to be used for specific management actions. The applicability of measures listed below would vary based on the lead agency, location, timing, and nature of each management action. It will be assumed that any construction within one-half mile of State-identified NOA areas is operating in serpentine or ultramafic rock and will comply with all requirements outlined in CARB's Asbestos Air Toxic Control Measures for Construction, Grading, Quarrying, and Surface Mining Operations. These requirements include all of the following: • Prepare and implement an asbestos dust mitigation plan, which must be approved by the local air district before construction begins and must be implemented at the commencement and maintained throughout the duration of construction and grading activities in known NOA areas. • Prepare and implement an asbestos health and safety program in known NOA areas, if required under California Code of Regulations Title 8, Section 1529(4), Asbestos. The asbestos dust mitigation plan, as required by Title 17, Sections 93105(e)(2) and 93105(e)(4) of the California Code of Regulations, will identify dust mitigation practices that are sufficient to ensure that no equipment or operations emit dust that is visible and crossing property lines. The plan will also identify trackout prevention and control measures, control measures for disturbed surface areas and storage piles that would remain inactive for more than 7 days, postconstruction stabilization measures, and asbestos monitoring measures, if required. Examples of these measures include wetting, covering, or crusting the surface; applying chemical dust suppressants or stabilizers; installing wind barriers; enforcing speed limits	D, P, C

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	in construction areas; controlling truck spillage; and establishing vegetative covers. In addition, the asbestos dust mitigation plan will include recordkeeping and reporting requirements that will be used to document the results of any air monitoring, geologic evaluation, and asbestos bulk sampling. The asbestos health and safety program will be implemented if permissible exposure limits for airborne asbestos are found to be exceeded within the study area. Implementation will include applicable measures to protect construction employees as defined under Title 8, Section 1529(g) of the California Code of Regulations, and any additional measures required by the California Occupational Safety and Health Administration to reduce exposure of construction employees to airborne asbestos.	
3.5 Biological Resources—Aquatic		
Impact BIO-A-2 (NTMA & LTMA): Effects on Special-Status Fish, Fish Movement, Nursery Ground Usage, Riparian Habitat, Designated Critical Habitat, and Essential Fish Habitat Caused by Loss of Overhead Cover and Instream Woody Material as Part of the Vegetation Management Strategy	**Mitigation Measure BIO-A-2a (NTMA & LTMA): Secure Applicable State and/or Federal Permits and Implement Permit Requirements** Not all measures listed below may be applicable to each management action. Rather, these measures serve as an overlying mitigation framework to be used for specific management actions. The applicability of measures listed below would vary based on the lead agency, location, timing, and nature of each management action. The project proponent will ensure that the following measures are implemented to reduce the effects of repairing, reconstructing, and improving levees on trees within stream zones, shaded riverine aquatic habitat, IWM, listed fish species, and designated critical habitat: • A Section 1602 streambed alteration agreement will be obtained from DFW before any trees are removed from a stream zone that is under DFW jurisdiction unless the activity is implemented by the USACE. The project proponent will comply with all terms and conditions of the streambed alteration agreement, including measures to protect habitat or to restore, replace, or rehabilitate any habitat. • The project proponent will consult or coordinate with USFWS and NMFS as required under the federal ESA, and with DFW as required under the CESA, regarding potential impacts on listed fish species, including the loss of habitat. The project proponent will implement any additional measures developed through the ESA and CESA consultation processes, including the conditions of Section 7 biological opinions, Section 10 HCPs, and Section 2081 permits. Where an existing approved HCP, NCCP, or similar plan covers an NTMA [or LTMA] and provides for compliance with applicable State or federal regulations, the project proponent may participate in and comply with the terms of such a plan to achieve the permit compliance measures listed above. Any mitigation plantings in the floodway will not be permitted if they would result in substantial increases in flood stage elevations, or alter flows in a manner that would have a substantial adverse effect on the opposite bank.	D, P, C

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	Mitigation Measure BIO-A-2b (NTMA & LTMA): Ensure Full Compensation for Losses of Riparian Habitat Functions and Values Caused by Implementing the Vegetation Management Strategy Along Levees DWR will coordinate with the Board and levee maintenance agencies tasked with implementing the vegetation management strategy to develop and implement a plan to record data on riparian vegetation lost or removed due to implementation of the vegetation management strategy, and to ensure adequate compensation for losses of riparian habitat functions and values. Although this mitigation measure is written as if a single plan is prepared, multiple plans addressing individual regions, watersheds, river corridors, or other geographic subdivisions are also acceptable. The plan will be completed and suitable for implementation before the start of riparian habitat removal under the vegetation management strategy. The plan will include mechanisms to, at a minimum, record and track the acreage, type, and location of riparian habitat to be removed through implementation of the vegetation management strategy or lost over time through LCM. The plan will also address compensation for the loss and degradation of riparian habitat through the enhancement, restoration, or creation of riparian habitat in other locations. Assessment of the value of lost or degraded habitat and of compensation habitat will take into account issues such as the differing functions of waterside and landside riparian habitat, continuity and connectivity of habitat, types of riparian habitat removed vs. type of compensation habitat (e.g., riparian scrub vs. cottonwood riparian forest), and ability of habitat to support special-status species. DWR will track habitat compensation efforts and only authorize implementation of vegetation removal under the vegetation management strategy at a rate and in locations consistent with the volume and type of compensation habitat that has been established. This habitat compensation tracking program will be included in the program MMRP prepared to support this PEIR. The plan must, at a minimum, meet the following basic performance standard: • Authorized losses of habitat do not exceed the function and value of available compensation habitat. DWR will coordinate with USFWS, NMFS, and DFW during preparation and implementation of the plan to incorporate into the plan appropriate compensation for effects on special-status species from vegetation management along the levee system. Various mechanisms may be employed to provide compensation habitat under the plan, as long as the performance standard identified above is met. The mechanisms include but are not limited to the following: • Implementation of the CVFPP Conservation Strategy • Participation in existing NCCPs, HCPs, or other conservation plans • Purchase of habitat credits at an established mitigation bank • Habitat restoration implemented by a levee maintenance agency or other entity	D, P, C, M, O

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	Any mitigation plantings in the floodway will not be permitted if they would result in substantial increases in flood stage elevations, or alter flows in a manner that would have a substantial adverse effect on the opposite bank.	
Impact BIO-A-3 (NTMA & LTMA): Effects on Special-Status Fish, Fish Movement, Nursery Ground Usage, Riparian Habitat, Designated Critical Habitat, and Essential Fish Habitat Caused by Loss of Overhead Cover and Instream Woody Material during Construction	**Mitigation Measure BIO-A-3 (NTMA & LTMA): Inventory and Replace Shaded Riverine Aquatic Habitat** The project proponent will require that the following measures be implemented to reduce the effects of program construction activities on special-status fish, fish movement, nursery sites, riparian habitat, designated critical habitat, and EFH. These measures may already be incorporated into the conditions of permits identified above in Mitigation Measure BIO-A-2a. • An inventory of shaded riverine aquatic habitat will be conducted before construction activities begin. Any shaded riverine aquatic habitat that is removed will be replaced, with replacement to occur on site when feasible. This includes IWM and other instream structures, overhead shade, and shallow-water habitat. • Mitigation credits may be purchased from a public or private mitigation bank approved by DFW, USFWS, and/or NMFS. The final number of credits to be purchased will be determined by agency staff. • A mitigation and monitoring plan will be developed and implemented to ensure that the proposed bank treatments and any off-site mitigation treatments fully compensate for losses of shaded riverine aquatic habitat. On-site revegetation is the preferred method of compensation, and could reduce the impact to a less-than-significant level, and even potentially to a beneficial level. If on-site compensation is not feasible, off-site mitigation will be established either before or as soon as feasible after existing vegetation is removed, or mitigation bank credits will be purchased before existing vegetation is removed. As much of the mitigation habitat as feasible will be created at or near the project site. If off-site mitigation is necessary, a location that does not currently support riparian vegetation and is capable of supporting riparian habitats will be preferred. Revegetation requirements may be accomplished as part of implementation of the CVFPP Conservation Strategy. Any mitigation plantings in the floodway will not be permitted if they would result in substantial increases in flood stage elevations, or alter flows in a manner that would have a substantial adverse effect on the opposite bank.	D, P, C, M, O

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
Impact BIO-A-4 (NTMA & LTMA): Effects on Special-Status Fish, Fish Movement, Nursery Ground Usage, Designated Critical Habitat, and Essential Fish Habitat Caused by an Increase in Hydrostatic Pressure, Underwater Noise, and Vibrations during Construction	**Mitigation Measure BIO-A-4 (NTMA & LTMA): Conform to NMFS Guidelines for Pile-Driving Activities** Several measures may be effective in reducing potential impacts on listed fish species, either by decreasing the level of underwater sound or by decreasing the number of fish exposed to the sound. The project proponent and construction contractors will implement the following measures to the extent feasible, as construction activities and site-specific conditions allow: • Use fewer piles, smaller piles, or a different type of pile to minimize the number and/or intensity of pile hammer impacts. • Drive piles when species of concern are not present, as determined either from surveys or by known migration and use patterns for species occurring in the project area. • Use a vibratory hammer rather than an impact hammer. • Use a cushioning block between the hammer and pile. • Use a confined or unconfined air bubble curtain. • Drive piles during periods of reduced currents. Pile-driving activities at project sites will be monitored to ensure that the effects of pile driving on listed fish species are minimized. If any injury or mortality to fish is observed, DFW, NMFS and/or USFWS will be immediately notified and in-water pile driving will cease.	D, C
Impact BIO-A-5 (NTMA & LTMA): Effects on Special-Status Fish, Fish Movement, Nursery Ground Usage, Riparian Habitat, Designated Critical Habitat, and Essential Fish Habitat Caused by Rock Placement	**Mitigation Measure BIO-A-5 (NTMA & LTMA): Implement Mitigation Measures BIO-A-2a (NTMA) and BIO-A-2b (NTMA)**	D, P, C, M, O
Impact BIO-A-6 (NTMA & LTMA): Effects on Special-Status Fish, Fish Movement, Nursery Ground Usage, Riparian Habitat, Designated Critical Habitat, and Essential Fish Habitat Caused by the Increased Availability of	**Mitigation Measure BIO-A-6 (NTMA & LTMA): Design and Implement Floodplain Habitat to Minimize Stranding** To avoid or minimize the potential for fish stranding associated with the creation of new floodplain habitat, the existing topographic and hydrologic characteristics of the floodplain will be examined to define the flooding regime, drainage patterns, water depths, and potential risks of fish stranding. Potential floodplain habitat will slope to a main channel or slough to facilitate complete drainage and avoid depressions or other low-lying floodplain features that may strand fish. Periodic recontouring (e.g., filling and excavation) of floodplain surfaces may be required to avoid stranding fish.	D, C, M

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
Floodplain Habitat Generated by Setback Levees		
3.6 Biological Resources—Terrestrial		
Impact BIO-T-1 (NTMA & LTMA): Construction-Related Effects on Sensitive Natural Communities and Habitats	**Mitigation Measure BIO-T-1a (NTMA & LTMA): Conduct Biological Resources Surveys to Quantify Sensitive Natural Communities in Project Areas, and Avoid, Minimize, and, Where Appropriate, Compensate for Construction-Related Effects** Not all measures listed below may be applicable to each management action. Rather, these measures serve as an overlying mitigation framework to be used for specific management actions. The applicability of measures listed below would vary based on the lead agency, location, timing, and nature of each management action. The project proponent will ensure that applicable elements of the following measures are implemented to reduce construction-related effects of proposed NTMAs [or LTMAs] on sensitive natural communities. Where measures below call for field surveys, the project proponent may be able to rely on previous surveys that were conducted for the project area if these surveys meet the applicable agency guidelines. • Before an NTMA [or LTMA] is implemented, the CNDDB will be searched and other sources (which may include species experts, species recovery plans, and other monitoring or research studies) will be consulted to determine whether sensitive communities, habitats, and species observation records may be present in or near the project area. These communities, habitats, and species occurrences will be identified, mapped, and quantified as deemed appropriate. The project proponent, assisted by the primary engineering and construction contractors, will coordinate with a qualified biologist to ensure that implementation of NTMAs [or LTMAs] minimizes direct and indirect disturbance of sensitive communities, habitats, and species to the extent feasible. In consultation with USFWS and DFW, the project proponent will develop measures to minimize and, where appropriate, compensate for construction-related effects on sensitive communities, habitats, and species. • Before an NTMA [or LTMA] is implemented and if the project so warrants, waters of the United States will be delineated according to methods established in the USACE wetlands delineation manual and Arid West Supplement (Environmental Laboratory 1987, 2008). The delineation will map and quantify the acreage of wetland habitats in the area, and will be submitted to USACE for verification. Not all projects involving construction activities may require a delineation of waters. • If wetlands are found within the proposed construction site or any other area to be disturbed, a wetland delineation report will be prepared and submitted to USACE. After USACE verifies the acreage of waters and wetlands, the project proponent will determine how many acres of waters of the United States and waters of the State would be affected by the NTMA [or LTMA]. The verified wetland delineation, field observation, and as needed, hydraulic modeling will be used to make this	D, P, C

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	determination. Where feasible, impacts will be avoided and minimized by establishing a buffer around wetlands and waterways. • The project proponent will replace, restore, or enhance the acreage of all wetlands, other waters of the United States, and waters of the State that cannot be avoided and will be removed and/or degraded. Thus, the project will achieve "no net loss" of wetland functions and values, in accordance with the requirements of USACE and the Central Valley RWQCB. Wetland habitat will be restored, enhanced, and/or replaced at an acreage and location agreed upon by the project proponent, USACE, and the Central Valley RWQCB, as appropriate. The acreage, location, and methods will be determined during the Section 401 and Section 404 permitting processes, and will be based on a USACE-verified wetland delineation. Methods to be used will be approved by the agency with jurisdiction over the area. • In consultation with the appropriate resource agency (typically DFW), native woodland areas will be identified, mapped, and quantified as deemed appropriate. The project proponent, assisted by the primary engineering and construction contractors, will coordinate with a qualified biologist to ensure that construction activities of NTMAs [& LTMAs] minimize disturbance of native woodlands, including riparian habitats, to the extent feasible. Temporary fencing will be installed during construction to prevent avoidable disturbance of native trees that are located adjacent to construction areas. In consultation with DFW, the project proponent will develop measures to minimize and, where appropriate, compensate for effects on native woodlands. • Protected areas that are managed by federal, State, and local governments or agencies and private entities will be identified, mapped, and quantified as deemed appropriate. The project proponent will coordinate with the appropriate government or agency manager to minimize disturbance of the protected habitats, to the extent feasible.	
	Mitigation Measure BIO-T-1b (NTMA & LTMA): Minimize Construction-Related Effects on Critical Habitat and Compensate for Unavoidable Adverse Effects Before an NTMA [or LTMA] is implemented, USFWS-designated critical habitat in the project area will be identified, mapped, and quantified by a qualified biologist. The project proponent will consult with USFWS to develop and implement measures to avoid, minimize, and, where necessary, compensate for construction-related effects on primary constituent elements and potential adverse modification of critical habitat. Compensation would likely consist of enhancement, restoration, and/or creation of habitat types and vegetation communities that serve as primary constituent elements for the critical habitat affected. Compensation habitat would be enhanced/restored/created within the geographic range of critical habitat for the species in question.	D, P, C

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
Impact BIO-T-3 (NTMA & LTMA): Construction-Related Effects on Special-Status Plants and Wildlife	**Mitigation Measure BIO-T-3a (NTMA & LTMA): Conduct Focused Surveys for Special-Status Plants and Wildlife, and Avoid Impacts** Not all measures listed below may be applicable to each management action. Rather, these measures serve as an overlying mitigation framework to be used for specific management actions. The applicability of measures listed below would vary based on the lead agency, location, timing, and nature of each management action. The project proponent will verify whether species survey and avoidance protocols have been established for species that might be affected by the specific project, or will coordinate with the appropriate regulatory agency (e.g., USFWS or DFW) to determine an acceptable alternative method for surveying and avoiding effects on a species. To avoid effects of proposed construction activities on special-status plants and wildlife, the project proponent will ensure that the following measures are implemented before commencement of ground-disturbing activities. Where measures below call for field surveys, the project proponent may rely on previous surveys that were conducted for the project area if these surveys meet the applicable agency guidelines. If avoidance consistent with these measures cannot be achieved, the project proponent will implement the minimization and compensation measures included in Mitigation Measure BIO-T-3b described below. Where surveys for special-status species may be necessary, the project proponent may be able to rely on previous surveys that were conducted for the project area if these surveys meet the applicable agency guidelines. • The CNNDB will be searched to determine whether any records describe species observations and indicate the presence of habitat for those species in or near the project area. These habitats and species occurrences will be identified, mapped, and quantified as deemed appropriate. The project proponent, assisted by the primary engineering and construction contractors, will coordinate with a qualified biologist to ensure that disturbance of sensitive communities, habitats, and species is minimized during construction to the extent feasible. In consultation with USFW and DFW, the project proponent will develop measures to minimize and, where appropriate, compensate for construction-related effects on sensitive habitats and special-status species. • A qualified botanist will conduct surveys for special-status plants (as listed in Table 3.6-3) with potential to occur in appropriate habitat within the project area. The surveys will follow applicable guidelines established by USFWS and/or DFW, and will be conducted at the appropriate time of year when the target species would be clearly identifiable. If no special-status plants have the potential to occur in the project area or none are found during focused surveys, no further action is required. If special-status plants are found, areas of occupied habitat will be identified. The construction contractor will avoid these areas where feasible. Temporary fencing will be installed to protect all occupied habitat that is located adjacent to construction areas but can be avoided.	D, P, C

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	• A qualified biologist will conduct a survey in areas where elderberry shrubs could occur within 100 feet of construction and inundation areas. Surveys and stem counts will follow the USFWS conservation guidelines for the valley elderberry longhorn beetle (USFWS 1999). If elderberry shrubs are found, the project proponent will implement avoidance measures that are consistent with the USFWS conservation guidelines for this species (USFWS 1999). Where feasible, effects will be avoided by establishing and maintaining a 100-foot-wide buffer around elderberry plants. Where a 100-foot buffer is not feasible, effects may be minimized by providing a minimum setback, with a buffer around elderberry plants measuring at least 20 feet wide. • Protocol surveys of all potential nesting trees and habitat in the area will be completed during the raptor nesting season (generally February 15–September 15 but may be adjusted for individual species), particularly if any construction activity is to occur during that season. Potential nesting trees and other nesting habitats (e.g., grasslands for northern harriers and burrowing owls) that are within one-half mile of proposed activity will be surveyed. To avoid the loss of active raptor nests, if the project proponent elects to remove trees suitable for nesting, the trees will be removed during the non-nesting season (generally between September 15 and February 15), to the extent practicable. Where feasible and depending on the species (particularly for Swainson's hawk), construction activities within one-quarter mile of active nests will be avoided during the raptor nesting season. Other nesting raptors may tolerate a much smaller buffer (e.g., one-tenth mile). • Surveys for other special-status wildlife listed in Table 3.6-4 with potential to occur in the project area will be conducted by a qualified biologist at the appropriate time of year when the target species would be clearly identifiable. Not all wildlife species require surveys, because their presence may be assumed based on habitat components and known locality records or they clearly will not be present in the area. USFWS and DFW will be consulted to determine for which species surveys should be conducted; appropriate species protocols will be followed. Occupied and potentially suitable habitat will be avoided where feasible by installing temporary exclusionary fencing. • If potentially suitable ~~aquatic~~ habitat for giant garter snake is identified in or within 200 feet of disturbance areas by a qualified biologist, DWR will establish a 200-foot~~, a~~ buffer ~~area of 200 feet will be established~~ around the ~~aquatic~~ habitat, where feasible. ~~These b~~Buffers will be ~~indicated by~~ marked in the field with guidance from a qualified biologist using temporary fencing, high-visibility flagging, or other equally effective means for clearly delineating the buffers. Disturbance activities will not occur within the buffer, and workers will avoid entering the buffer at all times. If avoidance buffers are observed, no other mitigation measures for impacts on giant garter snakes will be required. If work must occur within 200 feet of potentially suitable habitat, DWR will implement mitigation measures included in Mitigation Measure BIO-T-3b, as determined to be necessary by a qualified biologist.	

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	• If nesting areas for pond turtles are identified, a buffer area of 300 feet will be established between the nesting site and nearby wetlands, where feasible. (The nesting site may be adjacent to wetlands or extend up to 400 feet away from wetland areas in uplands.) These buffers will be indicated by temporary fencing if construction has begun or will be established before nesting periods are ended (the period from egg laying to emergence of hatchlings is normally April to November). • Preconstruction surveys for special-status bat species will be conducted to determine the presence of roosts. When colonial roosting sites located in trees or structures must be removed, removal will occur outside of the nursery and/or hibernation seasons. Unless otherwise approved by DFW, such removal will occur during dusk and/or evening hours after bats have left the roosting site. When hibernation sites are identified on the project site, nursery and hibernation sites will be sealed before the hibernation season (November–March). Additional measures, such as monitoring and on-site mitigation roosts, will be implemented, as feasible (see H.T. Harvey & Associates 2004). Participation in and compliance with an existing approved HCP, NCCP, or similar plan applicable to an NTMA [or LTMA] may replace the specific survey and avoidance actions listed above if all of the following conditions are met: • The existing approved HCP, NCCP, or similar plan is applicable to the NTMA [or LTMA]. • The NTMA [or LTMA] is within the permit area. • The NTMA [or LTMA] is a covered activity under the existing plan. • The plan addresses methods to identify, avoid, minimize, and compensate for effects on special-status species.	
	Mitigation Measure BIO-T-3b (NTMA & LTMA): If Avoiding Construction-Related Effects on Special-Status Plants and Wildlife is Infeasible, Minimize and, Where Appropriate, Compensate for Effects on Special-Status Species and Loss of Habitat If the focused surveys described above in Mitigation Measure BIO-T-3a have been completed and avoiding effects on special-status species is infeasible, the project proponent will coordinate with the appropriate regulatory agency (e.g., USFWS or DFW) to determine acceptable methods for minimizing or compensating for effects on a species. Various minimization and compensation measures are described below. The CVFPP Conservation Strategy may be a suitable source of compensation habitat. The project proponent will ensure that the following measures are implemented to minimize and compensate for effects of proposed levee improvements on special-status plants and wildlife: • If special-status plants cannot be avoided, the project proponent will coordinate with USFWS and/or DFW (depending on which agency has jurisdiction over the particular species) to determine appropriate minimization and compensation measures. Some local plans and policies, if applicable to the project being implemented, may require that the project proponent completely avoid effects on a special-status plant species or pay a fee to mitigate impacts. Where feasible and applicable, the project proponent will	D, P, C

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	consult and/or coordinate with local agencies on these plans and policies. In some instances, sensitive plants may be relocated to an area approved by DFW or USFWS. • If ground-disturbing activities are to occur within 20 feet of the dripline of an elderberry shrub, minimization and compensation measures consistent with the USFWS conservation guidelines (USFWS 1999) will be implemented. These measures include transplanting elderberry shrubs and planting compensatory elderberry seedlings and associated native plantings. • If an active raptor nest is found, a biologist, in coordination with DFW, will determine an appropriate buffer that minimizes the potential for disturbing the nest. Setbacks will be marked by brightly colored temporary fencing. Based on the coordination with DFW, no construction activities will begin in the buffer area until a qualified biologist has confirmed that the nest is no longer active or that the birds are not dependent on it. A qualified biologist will monitor construction to ensure that project activities will not substantially adversely affect the nesting pair or their young. The size of the buffer may vary, depending on the nest location, nest stage, construction activity, and monitoring results. If establishing the buffer becomes infeasible or construction activities result in an unanticipated nest disturbance, DFW will be consulted to determine the appropriate course of action. • Minimization and compensation measures for other special-status wildlife species will be developed in consultation with DFW and/or USFWS. DFW and USFWS provide standardized minimization measures for several species; for example, the giant garter snake has specific minimization measures, such as restrictions on the construction season, ~~and~~ a requirement for biological surveys and monitoring<u>, exclusionary fencing, permitted capture and relocation, aquatic habitat dewatering, and restoration</u>. Participation in and compliance with an existing approved HCP, NCCP, or similar plan applicable to an NTMA [or LTMA] may replace the specific minimization and compensation actions listed above if all of the following conditions are met: • The existing approved HCP, NCCP, or similar plan is applicable to the NTMA [or LTMA]. • The NTMA [or LTMA] is within the permit area. • The NTMA [or LTMA] is a covered activity under the existing plan. • The plan addresses methods to identify, avoid, minimize, and compensate for effects on special-status species. All construction-related activities will be subject to all applicable permitting requirements. The mitigation measures described above, when combined with applicable permit requirements, must, at a minimum, meet the following basic performance standard: • Authorized losses of habitat will not exceed the function and value of available compensation habitat.	

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	DWR will also track these habitat compensation efforts as part of the MMRP for this PEIR. These measures will be designed to ensure that construction activities will not result in a substantial reduction in the population size or range of any special-status plants or wildlife.	
	Mitigation Measure BIO-T-3c (NTMA & LTMA): Secure Applicable State and/or Federal Permits and Implement Permit Requirements The project proponent will ensure that the following measures are implemented to reduce construction-related effects of proposed levee or other repairs, remediation, and improvements on trees and shrubs within stream zones, listed plant and wildlife species, and wetlands: • A streambed alteration agreement, as required under Section 1602 of the California Fish and Game Code, will be obtained from DFW before any vegetation is removed from a stream zone under DFW jurisdiction unless the activity is being implemented by USACE. The project proponent will comply with all terms and conditions of the streambed alteration agreement, including measures to protect habitat or to restore, replace, or rehabilitate any habitat. • The project proponent will consult or coordinate with USFWS under the federal ESA and DFW under the CESA regarding potential impacts on listed plant and wildlife species and associated critical habitat. The project proponent will implement any additional measures developed through the ESA and CESA consultation processes, including conditions of Section 7 biological opinions and Section 2081 permits. • Before ground-disturbing activities begin on a project reach that contains waters of the United States, authorization for fill of such waters will be secured from USACE through the Section 404 permitting process. This permitting process will include providing compensatory mitigation for affected wetlands to ensure no net loss of wetland functions and values. Participation in and compliance with an existing approved HCP, NCCP, or similar plan applicable to an NTMA [or LTMA] may be used to achieve the permit compliance measures listed above if all of the following conditions are met: • The existing approved HCP, NCCP, or similar plan is applicable to the NTMA [or LTMA]. • The NTMA [or LTMA] is within the permit area. • The NTMA [or LTMA] is a covered activity under the existing plan. • The plan provides for compliance with applicable State or federal regulations.	D, P, C
Impact BIO-T-4 (NTMA & LTMA): Construction-Related Effects on Wildlife Movement	**Mitigation Measure BIO-T-4 (NTMA & LTMA): Implement Mitigation Measures BIO-T-1a (NTMA), BIO-T-3a (NTMA), BIO-T-3b (NTMA), and BIO-T-3c (NTMA)**	D, P, C

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
Impact BIO-T-5 (NTMA & LTMA): Potential for Construction-Related Effects to Conflict with Local Plans and Policies	**Mitigation Measure BIO-T-5a (NTMA & LTMA): Implement Mitigation Measures BIO-T-1a (NTMA), BIO-T-3a (NTMA), BIO-T-3b (NTMA), and BIO-T-3c (NTMA)**	D, P, C
	Mitigation Measure BIO-T-5b (NTMA & LTMA): Identify Local Plans and Policies and Develop Strategy to Maintain Plan Consistency, Minimize Effects, or Compensate for Construction-Related Effects on Local Plans Before an NTMA [or LTMA] is implemented, the project proponent will identify applicable local conservation plans in the area and evaluate the plans to determine whether the NTMA [or LTMA] is within the plan area. As feasible, the project proponent will consider developing a strategy to maintain plan consistency and will consult and/or coordinate with the appropriate entity or plan administrator to develop and implement measures to avoid, minimize, and where necessary, compensate for effects on local plans. In some instances, the NTMA [or LTMA] may be a covered activity under the plan.	D
Impact BIO-T-7 (NTMA & LTMA): Effects of the Vegetation Management Strategy on Sensitive Natural Communities and Habitats, Special-Status Plants and Wildlife, and Wildlife Movement	**Mitigation Measure BIO-T-7a (NTMA & LTMA): Implement Applicable Elements of Mitigation Measures BIO-T-1a (NTMA), BIO-T-3a (NTMA), BIO-T-3b (NTMA), and BIO-T-3c (NTMA) to Minimize Impacts during Vegetation Removal**	D, P, C
	Mitigation Measure BIO-T-7b (NTMA & LTMA): Implement Mitigation Measure BIO-A-2b (NTMA), "Ensure Full Compensation for Losses of Riparian Habitat Functions and Values Caused by Implementing the Vegetation Management Strategy Along Levees"	D, P, C, M, O
3.7 Climate Change and Greenhouse Gas Emissions		
Impact CLM-1 (NTMA & LTMA): Net Construction-Related and Operational Greenhouse Gas Emissions	**Mitigation Measure CLM-1a (NTMA & LTMA): Implement Greenhouse Gas–Reducing Construction BMPs** DWR has developed preconstruction, construction, and final design BMPs for reduction of GHG emissions. These preconstruction and final design and construction BMPs are designed to ensure that individual projects are evaluated and their unique characteristics taken into consideration when determining if specific equipment, procedures, and or material requirements are feasible and efficacious for reducing GHG emissions from the project. As applicable and appropriate, the following BMPs would be applied:	D, P, C

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	• *BMP 1.* Evaluate project characteristics, including location, project work flow, site locations, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high-efficiency technologies are appropriate and feasible for the project or specific elements of the project. • *BMP 2.* Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines. • *BMP 3.* Ensure that all feasible avenues have been explored for providing an electrical server drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane or solar, to power generators to the maximum extent feasible. • *BMP 4.* Evaluate the feasibility and efficacy of producing concrete on-site and specify that batch plants be set up on-site or as close to the site as possible. • *BMP 5.* Evaluate the performance requirements for concrete used on the project, and specify concrete mix designs that minimize GHG emissions from cement production and curing while preserving all required performance characteristics. • *BMP 6.* Minimize idling time by requiring that equipment be shut off after 5 minutes when not in use (as required by the State airborne toxics control measure (Title 13, Section 2485 of the California Code of Regulations)). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement. • *BMP 7.* Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed in an air quality control plan prior to commencement of construction. • *BMP 8.* Implement a tire inflation program on jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on-site and every 2 weeks for equipment that remains on-site. Check vehicles used for hauling materials off-site weekly for correct tire inflation. Procedures for the tire inflation program shall be documented in an air quality management plan prior to commencement of construction. • *BMP 9.* Develop a project-specific rideshare program to encourage carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes. • *BMP 10.* Reduce electricity use in temporary construction offices by using high-efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.	

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	• *BMP 11.* For deliveries to project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box-type trailer is used for hauling, a SmartWay certified truck will be used to the maximum extent feasible. • *BMP 12.* Minimize the amount of cement in concrete by specifying higher levels of cementitious material alternatives, larger aggregate, longer final set times, or lower maximum strength where appropriate and while preserving all required performance characteristics. • *BMP 13.* Develop a project-specific construction debris recycling and diversion program to achieve a documented 50 percent diversion of construction waste.	
	Mitigation Measure CLM-1b (NTMA & LTMA): Implement Greenhouse Gas–Reducing Operational Practices Incremental operational GHG emissions would likely be reduced in the near term relative to existing conditions through the replacement of older equipment, buildings, and vehicles. Even so, although Impact CLM-1 (NTMA [or LTMA]) would be less than significant, the project proponent will implement the measures listed below—where needed, feasible, and appropriate—to minimize operational GHG emissions for replacement and new CVFPP facilities associated with NTMAs [or LTMAs]. Not all mitigation measures listed below may be applicable to each management action. Rather, these mitigation measures serve as an overlying mitigation framework to be utilized for specific management actions. The applicability of mitigation measures would vary based on the lead agency, location, timing, and nature of each management action. • Implement all current standards and/or requirements as part of any DWR sustainability plan or guidelines. • Use renewable energy generated on site (i.e., solar, wind, hydroelectric). • Use alternative fuels for maintenance vehicles and equipment. • Use energy-efficient equipment for operation and maintenance of proposed facilities (e.g., pumps, hydraulic equipment, maintenance equipment). Equipment and operation of equipment will conform to U.S. Department of Energy best practices, Consortium for Energy Efficiency initiatives and guidance, and National Electrical Manufacturers Association standards where possible. • Require proposed buildings to exceed California Building Standards Code Title 24 energy efficiency standards by 20 percent or more.	D, M, O

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
3.8 Cultural and Historic Resources		
Impact CUL-1 (NTMA & LTMA): Potential Damage to or Destruction of Known Archaeological Resources from Ground Disturbance or Other Construction-Related Activities	**Mitigation Measure CUL-1a (NTMA & LTMA): Conduct Cultural Resource Studies and Avoid Effects on Known Archaeological Resources** To minimize potential adverse effects on prehistoric and historic-era archaeological resources, the project proponent will conduct cultural resource studies before project approval (where feasible and appropriate) to identify the presence of such resources at all project sites. Where field surveys cannot be completed before project approval, such as in locations where access permission has not been received, field surveys will be completed before ground disturbance begins. These archaeological studies and surveys will be conducted by professionals who meet the Secretary of the Interior's standards for archaeology professionals. Should resources eligible for listing in the NRHP and CRHR be identified within the study area, effects on those resources resulting from any NTMA [or LTMA] will be avoided, if feasible. Methods of avoidance may include redesigning or relocating the project, such as moving an access road around an archaeological site instead of through it. Where avoidance is not feasible, see Mitigation Measure CUL-1b (NTMA [& LTMA]) below.	D, P
	Mitigation Measure CUL-1b (NTMA & LTMA): Conduct Additional Evaluations and Recover Sufficient Data to Compensate for Damage to or Destruction of Known Archaeological Sites If a substantial adverse change to an archaeological resource that has been determined as eligible for listing in the NRHP or the CRHR cannot be avoided, the project proponent will deploy a qualified archaeologist to conduct additional research and other tasks. These tasks will include preparing a research design; conducting additional archival and historical research, when appropriate; conducting an archaeological excavation; analyzing artifacts, features, and other attributes of the resource; and preparing a technical report documenting the methods and results of the investigation in accordance with the California Office of Historic Preservation's *Guidelines for Archaeological Research Design* (1991). The purpose of this work will be to recover a sufficient quantity of data to compensate for damage to or destruction of the resource. The procedures to be employed in this data recovery program will be determined in consultation with responsible agencies and interested parties, such as Native American tribes, as identified by the Native American Heritage Commission, as appropriate. The approved measures must be implemented before construction activities occur at the archaeological site. An alternative method to mitigate impacts on archaeological sites considered eligible for listing in the NRHP and CRHR is to have the primary construction contractor for the project proponent cap the site with soil, gravels, rock, or appropriate vegetation to protect the deposit. For example, sites subject to inundation and water-level fluctuations may be protected from erosion by application of a layer of gravel/rock or soil, or both. A layer of soil (i.e., sterile fill) may also be placed over a site where construction of a building is planned, such that all construction activities will occur in the fill material. For sites located in areas subject to looting, vegetation such as blackberry brambles or wild rose may be planted over the site as a useful	D, P, C

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	deterrent, but only in areas where operations and maintenance of facilities would not be impaired by the deterrent vegetation. If capping an archaeological site proves necessary, the project proponent will provide the materials and labor, regularly monitor and evaluate the efficacy of the mitigation, and refresh the protection, when necessary.	
Impact CUL-2 (NTMA & LTMA): Potential Damage to or Destruction of Previously Undiscovered Buried Archaeological Resources from Ground Disturbance or Other Construction-Related Activities	**Mitigation Measure CUL-2 (NTMA & LTMA): If Cultural Resources Are Discovered, Immediately Halt Construction and Implement an Accidental-Discovery Plan** Should cultural resources such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during construction activities, work will be suspended immediately at the location of the find and within a 100 ~~50~~-foot radius. A qualified archaeologist will conduct a field investigation of the specific site and recommend mitigation necessary to protect or recover any cultural resource determined by the archaeologist to represent a historical resource or unique archaeological resource. Based on the archaeologist's recommendations, the project proponent will develop measures in consultation with responsible agencies and, as appropriate, interested parties such as Native American tribes. The approved mitigation must be implemented before construction activities resume at the archaeological site, as identified by the Native American Heritage Commission. All of the steps identified above will be detailed in an accidental-discovery plan developed before construction so that all parties are aware of the process that must be implemented should buried archaeological resources be uncovered during construction. Construction monitoring by a qualified archaeologist in areas determined particularly sensitive for buried archaeological remains will be implemented by project proponents when warranted, as recommended by the archaeological professional. Reasons for providing an archaeological monitor may include but are not limited to the previous identification of buried cultural deposits in the project vicinity or the previous recordation of an archaeological site that could not be recently identified on the ground surface. Furthermore, some landforms, such as mounded areas in floodplains adjacent to water courses, are more likely to be sensitive for buried resources. Large-scale projects involving a great deal of ground disturbance (e.g., lengthy levee construction) could benefit from geoarchaeological studies to determine those areas most likely to contain buried cultural deposits. Discoveries of human remains will be treated as described in Mitigation Measure CUL-5c (NTMA [& LTMA]), below.	P, C
Impact CUL-3 (NTMA & LTMA): Potential Damage or Disturbance to or Change in Significance of Built-Environment Resources	**Mitigation Measure CUL-3a (NTMA & LTMA): Conduct Cultural Resources Studies and Avoid Effects on Built-Environment Resources** In areas potentially containing historic resources, the project proponent will ensure that architectural history studies and surveys will be conducted by professionals who meet the Secretary of the Interior's professional standards, to identify the presence of built-environment resources within a particular project	D, P

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	location. Should buildings or structures that are eligible for listing in the NRHP or CRHR be identified within the study area, impacts on those resources resulting from any NTMA [or LTMA] will be avoided, if feasible. Project relocation and redesign are appropriate avoidance measures. For example, should constructing a new levee require removal of a historic farmhouse, realigning the levee away from the structure would avoid a significant adverse change to the structure. If avoidance is not feasible, see Mitigation Measure CUL-3b (NTMA [& LTMA]) below.	
	Mitigation Measure CUL-3b (NTMA & LTMA): Follow the Secretary of the Interior's Standards for the Treatment of Historic Properties In some cases, completely avoiding an element of the built environment that qualifies as a historical resource or historic property may not be feasible, and the feature must be altered as part of project implementation. In such a scenario, any program-related alterations to historic-era buildings or structures, including relocations, will conform to the *Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (1995). The project proponent will develop and implement any plans necessary to mitigate alterations to historic properties in accordance with these standards. The plans will be submitted to the SHPO for approval before project implementation. If these standards cannot be met, see Mitigation Measure CUL-3c (NTMA) below.	D, P, C
	Mitigation Measure CUL-3c (NTMA & LTMA): Record Built-Environment Resources to Historic American Buildings Survey and Historic American Engineering Record Standards In some cases, avoiding or relocating a building or structure considered eligible for the NRHP or CRHR may not be feasible, and that resource must be demolished. These situations are expected to be rare occurrences. However, in such a scenario, the project proponent will retain a qualified architectural historian to document the affected historical built-environment resource according to Historic American Buildings Survey (HABS) or Historic American Engineering Record (HAER) standards, as appropriate. HABS and HAER documentation packages will be entered into the Library of Congress, as well as the appropriate Information Center of the California Historical Resources Information System.	D, P
Impact CUL-4 (NTMA & LTMA): Potential Damage or Disturbance to Traditional Cultural Properties during Ground Disturbance or Other Construction-Related Activities	**Mitigation Measure CUL-4a (NTMA & LTMA): Conduct Cultural Resources Studies and Avoid Effects on TCP/TCRs** In areas potentially containing ~~traditional cultural properties~~ TCPs or TCRs, an ethnographer or archaeologist who meets the Secretary of the Interior's standards as a professional cultural resource specialist will consult with appropriate populations (Native Americans or otherwise) before approval of any project and identify the presence of any TCP/TCRs at the project location. Native American TCP/TCRs may be identified by an ethnographer who has worked intensively with community members (often, but not always, elders) possessed of considerable knowledge about places important to the community. Efforts to identify TCP/TCRs may include the engagement of tribal monitors.	D, P

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	Should TCP/TCRs be identified in the project area, they will be avoided by project redesign or project relocation, if feasible. As an example, the proposed location of a water-monitoring device may be moved to another, still appropriate, place along a stream bed to avoid a section of the creek bank that is a TCP/TCR for medicinal plants, thereby avoiding a substantial adverse change to the resource. Where avoidance is implemented and no further mitigation is required, implementing this mitigation measure would reduce Impact CUL-4 (NTMA) to a less-than-significant level. However, if avoidance is not feasible, see Mitigation Measure CUL-4b (NTMA [& LTMA]) below.	
	Mitigation Measure CUL-4b (NTMA & LTMA): Consult with Native American Communities and Implement Appropriate Measures to Mitigate Effects on TCP/TCRs ~~Effects to TCPs are expected to be rare occurrences. However, where~~ Where an identified TCP/TCR cannot be fully avoided by a proposed project, the project proponent will engage in early, meaningful consultation with Native American communities, consistent with AB 52 and DWR's Tribal Engagement Policy, ~~as identified by the Native American Heritage Commission,~~ to identify ways to mitigate impacts on TCP/TCRs. This may include the engagement of tribal monitors. An example of a mitigation measure that may be implemented would be ~~For example, if~~ TCP/TCR locations that presently support plant species cultivated and harvested by Native American communities for traditional medicines and foods, or for uses such as basketry, are slated for destruction to make way for planned construction, the project proponent may work with the Native American community associated with the TCP/TCR to identify other nearby locations that can support these same plants. The project proponent can then take steps to enhance existing plant populations at those locations or provide materials and labor to cultivate new plants, with assistance from the Native American community. Working with local Native American communities to develop interpretive programs is another measure to mitigate impacts on TCP/TCRs. Programs may include developing signage, constructing visitor centers describing locations that have sacred or other special meaning to Native Americans, developing and implementing management plans for important cultural resources, or establishing conservation easements to protect culturally important places. For each subsequent project implemented under the CVFPP, DWR will follow the consultation processes described in Public Resources Code Sections 21080.3.1 and 21080.3.2 for Native American Tribes that request notice and consultation under AB 52. These processes include the following: • DWR will maintain a notification list of Tribal contacts. • DWR will notify Tribal contacts within 14 days from deciding to pursue a project. • Tribes may respond to the notifications in writing within 30 days and request consultation on the project. • DWR will begin consultation with the Tribe within 30 days of receiving the tribe's written request.	D, P, C, O

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Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	• Consultation will end when DWR and the interested Tribe(s) agree to measures to mitigate or avoid a significant effect on a TCR, or a party acting in good faith and after a reasonable effort, concludes that a mutual agreement cannot be reached. For projects implemented under the CVFPP, the topics to be addressed in each project-level consultation will depend upon the interests and concerns of the consulting Tribe and the specifics of the project and its context including project and alternatives footprint. Without limiting the scope of future consultations under Public Resources Code section 21080.3.2 in any way, these topics may include one or more of the following: • Obtaining information that may be held by the affiliated Tribe, including Tribal Historic Preservation Offices, or others concerning the location and characteristics of any tribal cultural resources that may be located in the project area. This may include tribal registers, inventories, and geographical information systems. The characteristics of potentially affected resources may include, but are not limited to, the nature of the resource (village site, burial site, sacred site, etc.), the areal extent of the resource, and the cultural significance of the resource to the Tribe. • Reviewing results of previous flood safety work and existing investigations (including non-invasive investigations, geoarchaeology, surveys, testing, data recovery, and well, trench, and boring logs) in proximity to the project area and to known potentially affected TCRs to further characterize known resources within the project footprint. The purposes of the review of previous investigations are to: provide data concerning the inventory of TCRs in the project area, describe and evaluate the significance of any known TCRs, and provide information useful in determining potential project effects on identified TCRs in the project footprint. Undertaking additional investigations appropriate to the scale and type of activity to further characterize known resources, where needed, and to assess the sensitivity for potential unknown resources in the project area. Other non-invasive investigatory methods may be appropriate and will be discussed with affiliated Tribes. • Integrating Native American values into tribal cultural resource significance evaluations (using criteria 1, 2, 3 and 4). In applying the criteria set forth in the subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to the Native American tribe. • Developing feasible avoidance measures for known resources. In some circumstances, only minor location adjustments or redesign may be needed to avoid the resource. Avoidance measures could include relocating haul and access roads, staging areas, spoil piles, and borrow areas. In other circumstances, such as operations and maintenance activities, opportunities for avoidance may be more limited. • To the extent that avoidance is infeasible or unanticipated discoveries are encountered, developing appropriate mitigation measures to minimize the impacts to the resource. Such measures would	

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	include those described in Section 15370 of the CEQA Guidelines and may include providing Native American tribes that are affiliated with the project area with a schedule of ground-disturbing activities, considering alternative construction methods, potential reburial locations, potential site protection, buffer zones, a burial recovery plan, a cultural and Tribal resources management and treatment plan, sensitivity training, and discussing alternative equipment. It is recognized that in certain circumstances these measures might not reduce the effects on cultural resources and values to a less than significant level, and that some mitigation measures may themselves result in impacts that need to be addressed. Providing for the appropriate involvement of qualified Tribal monitors, including notification, coordination and safety protocols, and consideration of compensation. • Undertaking the activities described above with full respect for the potentially affected tribal cultural resources and their significance to the Tribe. In particular, full consideration will be given to the Most Likely Descendant's recommendation for treatment and disposition of ancestral human remains and grave goods, consistent with Public Resources Code section 5097.98. In addition to formal consultations required by AB 52 in connection with future projects that are implemented under the CVFPP, DWR will comply with the DWR Tribal Engagement Policy and will notify Tribes culturally and traditionally affiliated with the project area, as appropriate, in connection with future ground disturbing geotechnical surveys that may have an effect on tribal cultural resources that are known to be present or that are likely to be present in the vicinity of the ground disturbing activities. When determining the presence or likely presence of tribal cultural resources, in addition to other sources, the following may be reviewed: the applicable Information in the California Historical Resources Information System, NAHC Sacred Lands database, ethnographic research, records maintained by the affiliated Tribe, and the results of previous surveys and investigations. This mitigation measure was developed solely for projects that may be implemented under the CVFPP and corresponding consultations under AB 52, and is not necessarily applicable to tribal consultations conducted in conjunction with other DWR projects.	
	Mitigation Measure CUL-4c: Cultural Resource Awareness and Sensitivity Training Only personnel who have received cultural resource awareness and sensitivity training will be allowed to enter areas potentially containing TCPs or TCRs. Training will include a presentation developed in coordination with affiliated tribal representatives. Topics may include the potential presence and type of Native American and non-Native American resources that might be found during operations associated with the individual flood control projects, and necessary reporting protocols. Written materials will be provided to personnel as appropriate.	D, P, C
Impact CUL-5 (NTMA & LTMA): Potential Damage or Disturbance to Human	**Mitigation Measure CUL-5a (NTMA & LTMA): Conduct Cultural Resources Studies and Avoid Effects on Human Remains**	D, P

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Remains, Including Those Interred Outside of Formal Cemeteries, during Ground Disturbance or Other Construction-Related Activities	The project proponent will ensure that archaeological and historical studies and surveys will be conducted by professionals who meet the Secretary of the Interior's standards, to identify the presence of human remains within a particular project location. Should human remains be identified within the study area, impacts on those remains resulting from any NTMA [or LTMA] will be avoided, if feasible. Project relocation and redesign are appropriate avoidance measures. For example, should construction of a new maintenance facility be proposed at a place known to contain human remains, relocation of the facility would avoid disturbing the burials. However, if avoidance is not feasible, see Mitigation Measures CUL-5b (NTMA [& LTMA]) and/or CUL-5c (NTMA [& LTMA]) below, as applicable.	
	Mitigation Measure CUL-5b (NTMA & LTMA): Relocate Known Cemeteries The project proponent will consult with the entity (county, city, or private) that has jurisdiction over the cemetery, and with interested parties as appropriate, to identify a satisfactory place to relocate human remains that would provide protection from future disturbance. Similarly, if Native American burials are known to exist in an archaeological site, the project proponent will work with the appropriate tribe, as identified by the Native American Heritage Commission, to identify a satisfactory location for reinternment of burials in a protected location.	D, P, C
	Mitigation Measure CUL-5c (NTMA): Immediately Halt Construction If Human Remains Are Discovered and Implement a Burial Treatment Plan Construction activities have the potential to result in unanticipated effects on buried human remains where there is no surface indication of their presence. Under these circumstances, the project proponent will adhere to the requirements described in Section 7050.5 of the California Health and Safety Code and PRC Section 5097.98: • If human remains are uncovered during ground-disturbing activities, potentially damaging excavation must halt in the area of the remains and the local county coroner must be notified. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code, Section 7050.5(b)). • If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code, Section 7050(c)). • In turn, under the provisions of PRC Section 5097.98, NAHC will identify a Most Likely Descendant (MLD). The MLD designated by the NAHC will have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods. For large projects (e.g., new levee construction) or projects where a high probability of encountering human remains exists, a burial treatment plan will be developed by the project proponent in consultation with local Native American tribes before construction. During this process, all parties will be made aware of	

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	the actions required should buried Native American human remains be uncovered during construction. The plan will detail all of the activities identified above and include treatment preferences identified by the MLD. Smaller, localized projects do not require a burial treatment plan. Examples of such projects are modifications of existing facilities and projects that do not involve ground disturbance (e.g., purchases of easements, structure modifications). However, should human remains be uncovered during these project activities, treatment of the remains will strictly follow the requirements in Section 7050.5 of the California Health and Safety Code and PRC Section 5097.98. Some burials and cemeteries may also be TCRs as described in Impact CUL-4 above. In that situation, the impact analysis, mitigation measures, and potentially significant and unavoidable impact conclusion described under Impact CUL-4 could apply. Burials and cemeteries may also be archaeological resources as described in Impacts CUL-1 and/or CUL-2 above. In that situation, the impact analysis, mitigation measures, and less than significant impact conclusion described under those impacts could apply.	
3.10 Geology, Soils, and Seismicity (Including Mineral and Paleontological Resources)		
Impact GEO-5 (NTMA & LTMA): Potential Loss of Availability of a Known Mineral Resource of Value	**Mitigation Measure GEO-5 (LTMA): Minimize Loss of Mineral Resources through Siting and Design** When designing bypasses or setback levees or purchasing easements, the project proponent will consider a range of locations and configurations to minimize the potential to eliminate access to locally valuable mineral resources.	D
Impact GEO-6 (NTMA & LTMA): Possible Damage to or Destruction of Unique Paleontological Resources	**Mitigation Measure GEO-6 (NTMA & LTMA): Prepare a Paleontological Resources Assessment and, If Necessary, Conduct Construction Worker Personnel Education, Stop Work If Paleontological Resources Are Encountered during Earthmoving Activities, and Implement Recovery Plan** If an NTMA [or LTMA] involves excavation in native soil (e.g., not imported fill) that has the potential to contain fossils (e.g., greater than 11,000 years old), an assessment of the paleontological sensitivity of rock formations in the excavation area will be conducted. The project proponent will retain the services of a paleontologist to perform an evaluation that includes all of the following: • A determination of the specific rock formations present at the project site • A records search of the applicable paleontological resources database to identify past fossil finds in the area • A field visit (if necessary as determined by the paleontologist) • A determination as to the paleontological sensitivity of the rock formations in areas proposed for excavation using SVP (1995) guidelines Studies conducted for past projects in the same area that meet these criteria may be used to fulfill this requirement. No further mitigation will be required for excavation activities in rock formations that are determined to be of low paleontological sensitivity. Before earthmoving activities begin for any project phase in rock units that have moderate to high paleontological sensitivity, the project proponent will retain	D, P, C

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	a qualified paleontologist or archaeologist to train all construction personnel involved in earthmoving activities, including the site superintendent, regarding the following: • The possibility of encountering fossils • The appearance and types of fossils likely to be seen during construction • The proper notification procedures to follow if fossils are encountered In addition, as determined by the paleontologist in consultation with the project proponent, full-time monitoring during earthmoving activities may be required in areas of high paleontological sensitivity. If a paleontological resource potentially qualifying as unique or significant (as defined above in "Thresholds of Significance") is discovered during earthmoving activities, the construction crew will immediately cease work in the vicinity of the find and notify the project proponent. The project proponent will retain a qualified paleontologist to evaluate the resource, and if it is confirmed to qualify as a unique or significant resource, a qualified paleontologist will prepare a recovery plan in accordance with SVP guidelines (1995). The recovery plan may include but will not be limited to further field surveys in the vicinity of the find, sampling and data recovery procedures, museum storage coordination for any specimen recovered, further monitoring of earthmoving activities, and a report of findings. The project proponent will ensure implementation of the recovery plan. Construction activities can resume at locations where unique or significant paleontological resource are discovered after the resource has been recovered and moved from the work site.	
3.11 Groundwater Resources		
Impact GRW-5 (LTMA): Degradation of Water Quality or Adverse Rise in Groundwater Elevation as a Result of Groundwater Banking	**Mitigation Measure GRW-5a (LTMA): Develop and Implement Groundwater Management Plans or Expand Existing Groundwater Management Plans, Including Defining Basin Management Objectives, Groundwater Monitoring Plans, and Conditions under Which Corrective Actions Are Taken** Formalized groundwater management plans will be developed or expanded by the project proponent to guide management of groundwater basins where managed groundwater recharge and/or groundwater banking projects are to occur. These plans will include quantifiable basin-management objectives and groundwater monitoring plans to allow for management of the basin in a manner that minimizes adverse effects on groundwater. The plans will identify conditions to be evaluated using groundwater monitoring data and will describe corrective actions that may be taken, such as modifications to groundwater banking operations.	D, P, O

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	Mitigation Measure GRW-5b (LTMA): Conduct Phase I Environmental Site Assessments Phase I Environmental Site Assessments will be conducted by the project proponent at all sites before groundwater banking activities begin to prevent the degradation of water quality associated with recharging water in a potentially contaminated aquifer or exposing rising groundwater to contaminated soils.	D, P
3.12 Hazards and Hazardous Materials		
Impact HHM-2 (NTMA & LTMA): Accidental Release and Use of Hazardous Materials within One-Quarter Mile of an Existing or Proposed School	**Mitigation Measure HHM-2 (NTMA & LTMA): Conduct a Site-Specific Analysis to Determine the Proximity of School Sites, Notify and Consult with Affected Schools, and Implement Storm Water Pollution Prevention Plan and Best Management Practices as Required** The project proponent will determine whether the site of any existing or proposed school is located within one-quarter mile of each site-specific NTMA or LTMA that would require construction activities. If no school sites are located within this distance, no further mitigation is required. If existing or proposed schools are located within one-quarter mile, the project proponent will notify each affected school (or the school district in which the school is located) in writing, and will consult with appropriate school or district personnel about the types of activities that would occur and their estimated timing. The project proponent will provide examples of the types of hazardous materials that could be used during proposed activities. The written notification will be provided at least 30 days before the commencement of any construction activities within one-quarter mile of the school or at least 30 days before any future project-specific CEQA document is certified or adopted, whichever is earlier. The project proponent will also be required by law to design and implement spill prevention and cleanup measures (i.e., best management practices (BMPs)) as part of the storm water pollution prevention plan (SWPPP) prepared for each site-specific NTMA or LTMA (see Section 3.13, “Hydrology,” for a discussion of relevant BMPs and the SWPPP process), which would help to reduce the potential for adverse impacts during project construction.	D, P, C
Impact HHM-3 (NTMA & LTMA): Exposure of People and the Environment to Existing Hazardous Materials, Including Sites on the Cortese List	**Mitigation Measure HHM-3a (NTMA & LTMA): Search for Contaminated Sites Potentially Affected by Site-Specific Projects and Avoid Contact with or Clean Up Contaminated Areas** Before construction begins on any site-specific project that involves earth-moving activities, a Phase I Environmental Site Assessment (ESA) will be completed. An existing Phase I ESA can be used to complete this requirement if it covers the project area and has been completed within 5 years of initiation of the project’s environmental analysis, and land uses on the project site have not changed since completion of the Phase I ESA that would alter the potential for contamination to be present. The Phase I ESA will include a database search to determine whether site-specific work would take place within the boundary of any facilities included on the Cortese List or other recorded contaminated or potentially contaminated sites. If so, the project proponent will do one of the following:	D, P

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	• Coordinate with the appropriate federal, State, or local agency to determine whether the contamination issue has been resolved by the responsible party. OR • Determine whether a qualified hazardous materials specialist has found, through soil and groundwater testing, that previously documented contamination would be sufficiently distant from project construction areas to ensure that the site's known hazardous materials would not be encountered or threaten the safety of construction workers, the public, or the environment. However, if evidence of existing contamination is found on the site, the nature of this contamination will be evaluated in the Phase I ESA and appropriate action will be recommended. Such action may involve further study through completion of a Phase II ESA. If the contamination is sufficient to exceed applicable regulatory thresholds, then the project proponent will ensure cleanup of the site, consistent with regulatory requirement. Cleanup of contaminated sites will be completed before construction is initiated in the contaminated location. In the case of projects that could put the contaminated site in contact with surface waters, cleanup will be completed before levees or other features are modified in a manner that would allow surface waters to reach the contaminated site.	
	Mitigation Measure HHM-3b (NTMA & LTMA): Locate Oil and Gas Wells and Transmission Lines Potentially Affected by Site-Specific Projects, and Coordinate with Owner/Operators to Avoid Disturbance Before construction begins on any site-specific project, the project proponent will search appropriate State and local databases to determine whether any oil or natural gas wells or transmission pipelines are located within the specific project site. If any wells or pipelines are found, the project proponent will notify and coordinate with the owner/operators of the wells and pipelines to ensure that such facilities are properly flagged in the field and avoided during construction.	D, P, C
	Mitigation Measure HHM-3c (NTMA & LTMA): Train Construction Workers on Hazardous Materials, Stop Work Near Contaminated Soils, and Determine and Implement an Avoidance or Cleanup Strategy Before construction begins on any site-specific project, the project proponent will train construction workers on the potential to encounter hazardous materials and proper notification procedures. Such training will specify that work in the vicinity must cease and a qualified hazardous materials specialist must be consulted if stained or odorous soils; underground storage tanks; or abandoned or closed wells, mines, or septic systems are encountered. The project proponent will also notify the appropriate federal, State, and/or local agencies. A variety of steps may be taken at the discretion of the project proponent. Among those steps are the following: • Avoid the area containing the stained/odorous soils or infrastructure.	P, C

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	• Perform a Phase I ESA to determine the nature, extent, and level of hazard to the public and construction workers if construction needs to occur in the exact location of the soils or infrastructure. • Clean up the area or coordinate with the owner of the affected parcel to perform cleanup activities. • Should the project proponent elect to clean up activities on its own, all hazardous substances encountered will be removed and properly disposed of by a licensed contractor in accordance with federal and State regulations.	
Impact HHM-6 (NTMA & LTMA): Increased Human Health Hazards Associated with Vector-Borne Diseases	**Mitigation Measure HHM-6 (NTMA & LTMA): Implement Workplace Precautions against Vector-Borne Diseases and Coordinate with and Support Local Vector Control District Programs** The project proponent will implement the following workplace precautions against vector-borne diseases at the construction sites of future site-specific projects: • Conduct construction worker personnel training that covers the potential hazards and risks associated with exposure to and protection from vector-borne diseases such as West Nile virus. Instruct personnel in the use of proper construction apparel and warn them against handling any dead animals (particularly birds) with bare hands. • Inspect work areas and eliminate sources of standing water that could provide breeding habitat for mosquitoes. For example, eliminate uncovered, upright containers that could accumulate water, and fill or drain potholes or other areas where water is likely to accumulate. • Provide insect repellent for worker use at construction sites. As recommended by the Centers for Disease Control and Prevention (CDC), the insect repellent should contain active ingredients that have been registered with EPA for use as insect repellents on skin or clothing such as diethyl(meta)toulamide (DEET) or picaridin (KBR 3023) (CDC 2010). • Notify the appropriate city or county health department about dead birds found at any project site. In addition, the project proponent will coordinate with and support local vector control districts in implementing their vector control activities at the time of future site-specific projects, as appropriate and feasible. Support will include but will not be limited to the following actions: • Inform the appropriate vector control district about implementation of site-specific projects. Provide information requested to support vector control activities along waterways affected by those site-specific projects in a manner that could increase exposure to vector-borne diseases. • Implement applicable BMPs from the DPH publication entitled Best Management Practices for Mosquito Control on California State Properties (DPH 2008).	D, P, C, M, O

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PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
3.13 Hydrology		
Impact HYD-1 (NTMA & LTMA): Increased Erosion and Siltation from Modifying the Flood Conveyance System	**Mitigation Measure HYD-1 (LTMA): Identify and Implement Measures to Minimize Downstream Erosion and Siltation** Before a project is approved and implemented, the project proponent will perform an analysis of the new facilities to determine whether the facility will experience or cause elsewhere an erosion or siltation problem. To the extent possible, the facility will be designed to avoid or minimize these effects. Where avoidance is not feasible, the project proponent will address any erosion or siltation impacts through bank protection measures on- or off-site depending on where the increase erosion or siltation may occur. Measures could include moving levee foundations landward away from the eroding bank, maintaining waterside vegetation, dredging to remove siltation, or installing rock revetments, riprap, or other engineered structures along the eroding banks to reduce further erosion and protect the foundation of the levee. These measures will be implemented or funded by the project proponent.	D, P, C, M, O
3.14 Land Use and Planning		
Impact LU-5 (NTMA & LTMA): Alterations of Land Uses or Patterns of Land Use as a Result of Conveyance-Related Management Activities that Could Cause a Substantial Adverse Physical Environmental Effect	**Mitigation Measure LU-5a (NTMA & LTMA): Provide Financial Compensation for Property Loss and Relocation Assistance to Compensate for the Removal and Displacement of Residential Land Uses** The project proponent will provide financial compensation for property loss and relocation expenses to any person displaced because of the acquisition of real property, as required by the State of California Relocation Assistance Act (Chapter 16, Section 7260 et seq. of the California Government Code). Before an offer is made to each property owner, all real property to be acquired will be appraised to determine its fair market value. The project proponent will assist eligible property occupants in finding comparable replacement housing and will pay for actual, reasonable moving costs consistent with applicable State and federal law.	D, P
	Mitigation Measure LU-5b (NTMA & LTMA): Implement Mitigation Measure AG-1a (NTMA), "Preserve Agricultural Productivity of Important Farmland to the Extent Possible"	D, C, O
	Mitigation Measure LU-5c (NTMA & LTMA): Implement Mitigation Measure AG-1c (NTMA), "Establish Conservation Easements Where Potentially Significant Agricultural Land Use Impacts Still Occur after Implementation of Mitigation Measures AG-1a and AG-1b"	D, O
	Mitigation Measure LU-5d (NTMA & LTMA): Implement Mitigation Measure REC-1 (NTMA), "Replace Displaced Recreational Facilities and Access"	D, C, P, O
	Mitigation Measure LU-5e (NTMA & LTMA): Implement Mitigation Measure REC-2 (NTMA), "Avoid Construction Activities and Staging near Recreational Facilities and Time Such Activities to Avoid the High-Use Recreation Season"	D, P, C

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PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	Mitigation Measure LU-5f (LTMA): Implement Mitigation Measure REC-7 (LTMA), "Replace Displaced Recreational Facilities"	D, C, P, O
Impact LU-8 (NTMA & LTMA): Alterations of Land Uses or Patterns of Land Use as a Result of Other NTMAs [& LTMAs] that Would Cause a Substantial Adverse Physical Environmental Effect	**Mitigation Measure LU-8 (NTMA & LTMA): Implement Mitigation Measure LU-5b (NTMA)**	D, C, O
3.15 Noise		
Impact NOI-1 (NTMA & LTMA): Exposure of Sensitive Receptors to Temporary and Short-Term Construction-Related Noise	**Mitigation Measure NOI-1 (NTMA & LTMA): Implement Noise-Reducing Construction Practices** Not all measures listed below may be applicable to each management action. Instead, these measures serve as an overlying mitigation framework to be used for specific management actions. The applicability of measures listed below would vary based on the lead agency, location, timing, and nature of each management action. The project proponent will implement the following measures during construction activities when noise-sensitive receptors are located nearby and could be subject to substantial construction noise in excess of applicable standards or substantially greater than existing conditions. • Equipment will be operated, stored, and/or maintained as far away as practical from sensitive noise receptors. • Construction equipment will be properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., mufflers, silencers, wraps). All impact tools will be shrouded or shielded, and all intake and exhaust ports on power equipment will be muffled or shielded. • Equipment that is quieter than standard equipment will be used in the vicinity of sensitive noise receptors. For example, electrically powered equipment will be used instead of internal combustion equipment where use of such equipment is a readily available substitute that accomplishes program tasks in the same manner as internal combustion equipment. • Construction equipment operating in the vicinity of sensitive noise receptors will not be left idling for extended periods between construction activities. • To the greatest extent feasible, construction activities will limit the use of "alarms" (e.g., backup indicators) on construction equipment in the vicinity of sensitive noise receptors. One mechanism to achieve this objective is by providing adequate turning movement distance such that construction and delivery vehicles can turn around without having to operate in reverse.	P, C

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	• Construction equipment will be inspected before first use at a project site located near sensitive noise receptors and at least once during construction for compliance with noise reduction measures. • To the greatest extent feasible, construction outside of normal construction hours will be minimized or avoided completely when located in the vicinity of sensitive noise receptors. Except under extreme circumstances (as in the case of construction of a slurry cutoff wall, which must be in continuous operation), construction activities will be limited to normal construction hours or hours identified in applicable local noise regulations. • Where stationary construction equipment would result in exceedance of noise standards at a nearby sensitive receptor, temporary noise barriers will be installed where feasible between the stationary construction operation and the sensitive receptor. • Speed limits will be established and enforced for construction traffic.	
	Mitigation Measure NOI-1b (LTMA): Minimize Construction-Related Traffic Noise Where the project-specific noise analysis conducted as part of CEQA review for a project indicates that noise from construction traffic could exceed applicable standards at a sensitive receptor, an additional individual traffic noise analysis will be prepared. The individual traffic noise analysis will be conducted as haul routes are determined to establish existing average noise conditions and model the noise contribution from project construction. The traffic noise analysis will take into account daily traffic volumes, fleet mixes (percentages of automobiles, medium-duty trucks, and heavy-duty trucks during daytime, evening, and nighttime hours), and vehicle speeds along designated haul-route roadways. If the individual traffic noise analysis also concludes that applicable noise standards are exceeded at a sensitive receptor, the analysis will identify additional measures to reduce noise levels at sensitive receptors and these measures will be implemented by the project proponent. Measures could include (but would not be limited to) using alternative traffic routes, splitting trips among multiple routes, or directing noisier vehicles to use less noise-sensitive routes.	D, P, C
Impact NOI-2 (NTMA & LTMA): Exposure of Sensitive Receptors to, or Generation of, Excessive Groundborne Vibration	**Mitigation Measure NOI-2 (NTMA & LTMA): Implement Vibration-Reducing Construction Practices** Not all measures listed below may be applicable to each management action. Instead, these measures serve as an overlying mitigation framework to be used for specific management actions. The applicability of measures listed below would vary based on the lead agency, location, timing, and nature of each management action. The project proponent will implement the following measures before and during construction activities that occur within 300 feet of a receptor sensitive to vibration disturbance: • A disturbance coordinator will be designated, and this person's contact information will be posted in a location near the construction site that is clearly visible to the nearby receptors most likely to be disturbed. The disturbance coordinator will manage complaints and concerns resulting from activities	P, C

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	that cause vibrations. The severity of the vibration concern will be assessed by the disturbance coordinator and, if necessary, evaluated by a qualified noise and vibration control consultant. • Vibration monitoring will be conducted before and during construction-generated vibration activities occurring within 100 feet of historic structures. Every attempt will be made to limit construction-generated vibration levels in accordance with Caltrans's recommendations during pile driving and other groundborne noise- and vibration-generating activities in the vicinity of historic structures. • If estimated or recorded vibration levels meet or exceed levels that could damage an adjacent historic feature, the adjacent historic features will be covered or temporarily shored, as necessary, to protect them from vibrations. • For pile driving required within 100 feet of residences or other occupied structures, alternative installation methods (e.g., pile cushioning, jetting, predrilling, cast-in-place systems, resonance-free vibratory pile drivers) will be used where feasible to reduce the number and amplitude of blows required to seat the pile. If the estimated vibration levels exceed levels that could damage the structures, they will be covered or temporarily shored, as necessary, to protect them from vibrations. • Pile-driving activities conducted within 300 feet of sensitive receptors will occur during daytime hours to avoid causing sleep disturbance during evening and nighttime hours.	
Impact NOI-3 (NTMA & LTMA): Exposure of Sensitive Receptors to Operational Noise	**Mitigation Measure NOI-3 (NTMA & LTMA): Implement Design Techniques to Reduce Operational Noise** The project proponent will implement the following measures during operation: • Stationary noise sources (e.g., water pumps) will be located as far away from sensitive receptors as feasible. • Design techniques to reduce noise (e.g., structure encasing, installation below grade) will be implemented for stationary noise sources (e.g., water pumps) in the vicinity of sensitive receptors. If noise modeling indicates that noise reduction techniques are sufficient to allow the stationary noise source to be located closer to sensitive noise receptors and still not violate applicable noise standards, then the facility may be located closer to the receptor.	D, M, O

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3.18 Recreation		
Impact REC-1 (NTMA & LTMA): Substantial Permanent Displacement of or Decreased Access to Recreational Facilities Caused by Levee Reconstruction, Improvements, or Setbacks	**Mitigation Measure REC-1 (NTMA & LTMA): Replace Displaced Recreational Facilities and Access** Where recreational facilities or access must be displaced by levee reconstruction or improvements, facilities and access will be restored on site as part of the project design. If the facilities or access cannot be replaced at the project site, they will be replaced as close as possible to the original project site. Alternatively, existing facilities could be expanded to meet the demand for recreational opportunities lost with the removal of the facility at the project site, or to compensate for the loss of access resulting from project implementation. Where new facilities must be constructed or existing facilities are expanded, these actions will undergo necessary environmental review and mitigation will be implemented as appropriate. Please also see Impact REC-6 (NTMA) below regarding environmental effects of new facilities.	D, P, C, O
Impact REC-2 (NTMA & LTMA): Temporary Decrease in Opportunities for Recreation or Access to Recreational Facilities during Construction of Conveyance or Storage Improvements	**Mitigation Measure REC-2 (NTMA & LTMA): Minimize Construction Activities and Staging near Recreational Facilities and Time Such Activities to Avoid the High-Use Recreation Season** Where feasible, the project proponent will avoid placing construction staging areas or borrow areas near recreational facilities or popular use areas, and will avoid using key recreation access routes as access and haul routes for construction. Where avoiding facilities is not possible, construction will be scheduled to minimize temporary closure or access restrictions or other temporary adverse effects on recreation facilities. Numerous factors must be considered in the siting and timing of construction activities and selection of access and haul routes; for some projects, however, opportunities may exist to select from among several options those that would have the smallest effect on recreation. Where feasible, the project proponent will schedule construction activities to avoid the high-use recreation season for the potentially affected areas. This frequently will not be possible for major repairs or upgrades because those major construction activities typically occur during the dry season (May through October). However, in some cases it may be possible to focus construction activity during the months when recreational activity would be least affected. In addition, the project proponent will avoid scheduling construction activities on weekend days, where feasible, to help minimize effects on recreational activities.	D, P, C
Impact REC-4 (NTMA & LTMA): Boat Navigation Hazards and Passage Restrictions for Recreational Boat Traffic Resulting from Construction Activities Conducted from Barges in Waterways	**Mitigation Measure REC-4 (NTMA & LTMA): Maintain Safe Boat Passage and Provide Appropriate Safety Measures to Minimize Navigation Hazards Associated with Construction Equipment and Activity in Waterways** The project proponent will establish construction exclusion zones around barges and other equipment in waterways to keep boats from approaching too closely. The project proponent will follow all standard U.S. Coast Guard practices for navigation safety and communications, and will ensure that barges and other construction equipment are lit at night to avoid potential boat collisions. The objectives of this mitigation measure are to maintain safe boat passage in affected waterways to the maximum extent possible, and to minimize boat traffic delays, particularly in high-traffic areas.	P, C

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	Stopping boat traffic may be necessary for brief periods (for example, while material or equipment is being transferred to or from a barge); however, the expectation is that with appropriate caution, boat traffic will be able to navigate past construction sites at most times. Boats may be required to reduce speeds in the vicinity of the barge for safe passage. The period of time when boat traffic must be restricted will be minimized to the extent feasible.	
Impact REC-7 (LTMA): Substantial Displacement of or Decreased Access to Recreational Facilities Caused by Conveyance-Related and Other Management Activities	**Mitigation Measure REC-7 (LTMA): Replace Displaced Recreational Facilities** This mitigation measure would be similar to Mitigation Measure REC-1 (NTMA) as described above, but mitigation would be required at a broader range of recreational facilities and sites, beyond those associated with levees. Specifically, mitigation would be required at reservoirs, within bypasses, and at areas outside the present flood control system (for example, where a new bypass is constructed).	D, P, C, O
3.19 Transportation and Traffic		
Impact TRN-1 (NTMA & LTMA): Temporary Increases in Traffic from Construction Activities	**Mitigation Measure TRN-1 (NTMA & LTMA): Implement Measures to Reduce Construction Traffic** To minimize impacts on traffic circulation and roadway capacity, including emergency vehicle access, the project proponent will implement the following measures: • Require construction contractors to limit truck trips to less than 50 trips per hour on any affected roadway during the morning and afternoon or evening peak-hour periods, if feasible. • Before construction of major projects that could exceed this threshold, prepare a traffic management plan that identifies the number of truck trips, time of day for truck arrivals and departures, limits on the number of truck trips, and traffic circulation control measures. Control measures typically include advertising planned lane closures, installing warning signage, providing a flag person to direct traffic flows when needed, and implementing methods to maintain continued access by emergency vehicles. During project construction, access to existing land uses will be maintained at all times where feasible, with detours used as necessary during road closures. • Submit the traffic management plan to the appropriate city or county public works, fire, police, and sheriff's departments for comments. • Implement the traffic management plan and feasible recommendations by the appropriate departments.	D, P, C

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Impact TRN-2 (NTMA & LTMA): Removal or Temporary Disruption of Current Transportation Infrastructure	**Mitigation Measure TRN-2 (NTMA & LTMA): Provide Detours for Closed or Disrupted Routes** If the effects of a project on roadways will be temporary, the project proponent will provide easily recognizable detour signs and prepare and implement a traffic management plan to minimize traffic, including bicycle, impacts, in consultation with the local transportation agency. If management actions require removal of transportation infrastructure, efforts will be undertaken to make sure that a convenient transportation alternative option is available for travel. For effects on rail lines, the project proponent will work with the respective rail owner to maintain maximum use of the line.	P, C
Impact TRN-4 (NTMA & LTMA): Closure or Reduction in Capacity of an Emergency Response or Evacuation Route	**Mitigation Measure TRN-4 (NTMA & LTMA): Minimize Effects of Reduction or Closure of an Emergency Response or Evacuation Route** Before the start of construction, all emergency response agencies will be consulted to determine the impacts of the project on their emergency response and evacuation routes. If routes cannot be maintained, then the passage blockage will occur during periods of minimum demand, such as by working at night or maintaining emergency evacuation routes during periods of most likely use (flood season).	D, P, C
3.20 Utilities and Service Systems		
Impact UTL-1 (NTMA & LTMA): Potential Disruption of Utility Service and Modification or Relocation of Utility Infrastructure from Project Construction Activities	**Mitigation Measure UTL-1 (NTMA & LTMA): Verify Utility Locations, Coordinate with Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage** Before construction begins, the project proponent and its primary contractors will coordinate with applicable regulatory agencies and utility providers to implement orderly relocation of utilities that need to be removed or relocated. The project proponent and its primary contractors will implement all of the following measures: • The appropriate agencies and affected landowners will be notified of any potential interruptions in service. • Before the start of construction, the locations of utilities will be verified through field surveys and the use of Underground Service Alert services. Any buried utility lines will be clearly marked in areas where construction activities would take place and on the construction specifications before any earth-moving activities begin. • Many of the Board's encroachment permits for utility facilities contain clauses requiring the owner to remove and/or relocate the facility at the owner's expense. If necessary, infrastructure will be removed, relocated to safer locations, or made flood resistant in coordination with all potential service providers known to have, or potentially having, utility infrastructure in the project area. • If necessary, infrastructure will be flood-proofed (e.g., raised on piers) in coordination with all transmission providers known to have infrastructure in the project area.	D, P, C

Notes:
D: To be implemented or included as part of project design. Includes pre-project permitting and agency coordination.
P: To be implemented prior to construction being initiated (pre-construction), but not part of project design or permitting.
C: To be implemented during project construction.
O: To be implemented as an operational practice after construction is complete.
M: To be implemented as ongoing maintenance after construction is complete.

Mitigation Monitoring or Reporting Plan for the CVFPP PEIR (2017 Update)		
PEIR Section and Impact(s)	**Mitigation Measure**	**Implementation Timing**
	• Before the start of construction, a response plan will be prepared to address the potential for accidental damage to a utility. The plan will identify chain-of-command rules for notifying authorities and appropriate actions and responsibilities to ensure the safety of the public and workers. The construction contractor will conduct worker education training on responding to situations when utility lines are accidentally damaged. The project proponent and its contractors will implement the response plan during construction activities. • Utility relocations will be staged to minimize interruptions in service.	
3.21 Water Quality		
Impact SWQ-3 (NTMA & LTMA): Alteration of Floodplain Inundation Patterns that Could Result in Substantial Erosion and Adversely Affect Water Quality	**Mitigation Measure SWQ-3 (NTMA & LTMA): Conduct and Comply with Phase I Environmental Site Assessments** The project proponent will conduct a Phase I Environmental Site Assessment to determine the presence of any hazardous materials at all sites where new floodplain would be exposed to inundation. Project proponents of subsequent site-specific projects will implement all the recommended actions and measures identified in the Phase I Environmental Site Assessment. In addition, the project proponent will be required to comply with the federal and California endangered species acts and incorporate associated measures into the project design/planning features.	D, P

Notes:
D: To be implemented or included as part of project design. Includes pre-project permitting and agency coordination.
P: To be implemented prior to construction being initiated (pre-construction), but not part of project design or permitting.
C: To be implemented during project construction.
O: To be implemented as an operational practice after construction is complete.
M: To be implemented as ongoing maintenance after construction is complete.

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