4.0 Errata

4.1 Introduction

This chapter shows revisions to the DPEIR, subsequent to the document's publication and public review. The revisions are presented in the order in which they appear in the DPEIR and are identified by page number in respective chapters. These revisions are shown as excerpts from the DPEIR, with strikethrough (~~strikethrough~~) text to indicate deletions and underlined (underlined) text to indicate additions.

4.2 Revisions to the DPEIR

Executive Summary

The text of Section ES.5, "Areas of Known Controversy and Issues To Be Resolved," on page ES-19 of the DPEIR is hereby revised as follows:

- **Differing policies and guidance from permitting and implementing agencies.** Several agencies inform or oversee project permitting and implementation: DWR, the Board, USACE, local maintaining agencies, the California Department of Fish and Game, cities and counties, the State Water Resources Control Board, the regional water quality control boards, and the U.S. Fish and Wildlife Service and National Marine Fisheries Service. Each agency has its own requirements, guidance, and role in project implementation, and there are challenges associated with meeting the requirements of State and federal laws under the jurisdiction ~~needs~~ of ~~all~~ these agencies.

The text of Mitigation Measure VIS-4 (NTMA & LTMA) on page ES-27 of the DPEIR is hereby revised as follows:

- 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.

The text of Mitigation Measure AG-1a (NTMA & LTMA) on page ES-28 of the DPEIR is hereby revised as follows:

- 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) ~~must~~ would use the topsoil for agricultural purposes.

The following text is hereby added to Mitigation Measure AG-1a (NTMA & LTMA) on page ES-28 of the DPEIR:

- 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 DFG, the project proponent will develop measures to minimize and, where appropriate, compensate for construction-related effects on sensitive communities, habitats, and species.

The text of Mitigation Measure AG-1b (NTMA & LTMA) on page ES-29 of the DPEIR is hereby revised as follows:

- 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)).

  - 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 ~~when land is~~ for lands acquired by eminent domain or in lieu of eminent domain (Section 51295).

The text of Mitigation Measure AG-1c (NTMA & LTMA) on page ES-30 of the DPEIR is hereby revised as follows:

- 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 ~~are~~ 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.

The text of Mitigation Measure BIO-A-2a (NTMA & LTMA) on page ES-36 of the DPEIR is hereby revised as follows:

- A Section 1602 streambed alteration agreement will be obtained from DFG before any trees are removed from a stream zone that is under DFG jurisdiction unless the activity is 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 and NMFS as required under the federal ESA, and with DFG 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.

The text of Mitigation Measure BIO-A-2b (NTMA & LTMA) on page ES-36 of the DPEIR is hereby revised as follows:

DWR will coordinate with USFWS, NMFS, and DFG 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.

The text of Mitigation Measure BIO-A-3 (NTMA & LTMA) on page ES-37 of the DPEIR is hereby revised as follows:

- Mitigation credits may be purchased from a public or private mitigation bank approved by DFG, 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 Framework. Any mitigation plantings in the floodway will not be permitted if they would result in substantial increases in flood stage elevations, or alter flows ~~affecting~~ in a manner that would have a substantial adverse effect on the opposite bank.

The text of Mitigation Measure BIO-T-1a (NTMA & LTMA) on page ES-38 of the DPEIR is hereby revised as follows:

- 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 DFG, the project proponent will develop measures to minimize and, where appropriate, compensate for construction-related effects on sensitive communities, habitats, and species.

The text of Mitigation Measure BIO-T-3c (NTMA & LTMA) on page ES-41 of the DPEIR is hereby revised as follows:

- A streambed alteration agreement, as required under Section 1602 of the California Fish and Game Code, will be obtained from DFG before any vegetation is removed from a stream zone under DFG 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 text of Mitigation Measure BIO-T-5b (NTMA & LTMA) on page ES-42 of the DPEIR is hereby revised as follows:

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 ~~permit~~ 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.

The text of Mitigation Measure CUL-1b (NTMA & LTMA) on page ES-44 of the DPEIR is hereby revised as follows:

> 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.

The text of Mitigation Measure CUL-2 (NTMA & LTMA) on page ES-44 of the DPEIR is hereby revised as follows:

> 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.

The text of Mitigation Measure CUL-4b (NTMA & LTMA) on page ES-45 of the DPEIR is hereby revised as follows:

Effects to TCPs are expected to be rare occurrences. However, where an identified TCP cannot be fully avoided by a proposed project, the project proponent will engage in early, meaningful consultation with Native American communities, as identified by the Native American Heritage Commission, to identify ways to mitigate impacts on TCPs. For example, if TCP 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 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.

The text of Mitigation Measure CUL-5b (NTMA & LTMA) on page ES-46 of the DPEIR is hereby revised as follows:

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 reinterment of burials in a protected location.

The text of Mitigation Measure LU-5a (NTMA & LTMA) on page ES-51 of the DPEIR is hereby revised as follows:

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 ~~owners~~ occupants in finding comparable replacement housing and will pay for actual, reasonable moving costs consistent with applicable State and federal law.

The text of Mitigation Measure TRN-2 (NTMA & LTMA) on page ES-56 of the DPEIR is hereby revised as follows:

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.

Chapter 1.0, "Introduction"

The text of Section 1.3, "Geographic Scope of the CVFPP," on lines 16–19 on page 1-5 of the DPEIR is hereby revised as follows:

Because of the interconnected nature of flood management, water supply, and land use management decision making, the CVFPP study area encompasses ~~most~~ much of the Central Valley of California.

Section 3.2, "Aesthetics"

The text of Mitigation Measure VIS-4 (NTMA) on pages 3.2-31 and 3.2-32 of the DPEIR is hereby revised as follows:

- 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.

Section 3.3, "Agriculture and Forestry Resources"

The text of Section 3.3.1, "Environmental Setting," on lines 25–36 on page 3.3-11 of the DPEIR is hereby revised as follows:

The Sacramento and San Joaquin valleys have extensive infrastructure for flood protection and drainage; however, inundation by floodwaters, soil saturation by high groundwater, or both still constrain the productivity and value of extensive areas of agricultural land in the valleys. Although some agriculture (e.g., rice) may benefit from occasional flooding, most a~~A~~gricultural land exposed to periodic flooding experiences not only crop losses, but damage to infrastructure (including ditches, pumps, and roads), and thus, additional maintenance costs. Flood bypasses have the additional constraint of often not allowing orchards or vineyards, which increase vegetation roughness and reduce flood conveyance capacity. High groundwater levels can limit potentially suitable crops, reduce productivity, impede the use of farm machinery, and/or require the additional cost of pumping and drainage.

The text of Mitigation Measure AG-1a (NTMA) on pages 3.3-34 and 3.3-35 of the DPEIR is hereby revised as follows:

- 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) ~~must~~ would use the topsoil for agricultural purposes.

The following bullet text is hereby added to Mitigation Measure AG-1a (NTMA) on page 3.3-35 of the DPEIR:

- Before an NTMA 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 DFG, the project proponent will develop measures to minimize and, where appropriate, compensate for construction-related effects on sensitive communities, habitats, and species.

The text of Mitigation Measure AG-1b (NTMA) on page 3.3-36 of the DPEIR is hereby revised as follows:

- 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)).

  - 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 ~~when land is~~ for lands acquired by eminent domain or in lieu of eminent domain (Section 51295).

The text of Mitigation Measure AG-1c (NTMA) on pages 3.3-37 and 3.3-38 of the DPEIR is hereby revised as follows:

- 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 ~~are~~ 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.

Section 3.5, "Biological Resources—Aquatic"

The first sentence in the last paragraph on page 3.5-3 of the DPEIR is hereby revised as follows:

> *Sacramento River* The Sacramento River is ~~one of~~ California's largest river system, ~~and~~ one of the most important aquatic ecosystems in the state, and supports numerous fish species.

The text of line 25 on page 3.5-4 of the DPEIR is hereby revised as follows:

> …for native anadromous salmonids and green sturgeon (*Acipenser medirostris*).

The text of line 37 on page 3.5-4 of the DPEIR is hereby revised as follows:

> … sturgeon ~~(*Acipenser medirostris*)~~, Sacramento splittail (*Pogonichthys…*

The first full sentence in the first paragraph on page 3.5-5 of the DPEIR is hereby revised as follows:

> Setback levees exist along portions of the river upstream from Colusa, but levees ~~become much narrower along the river's edge~~ encroach on and narrow the river channel as the river continues south to the Delta.

The text at the bottom of page 3.5-5 and the top of page 3.5-6 of the DPEIR is hereby revised as follows:

> The low-flow channel contains mainly riffles and runs, which provide spawning habitat for most ~~Feather River~~ Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*O. mykiss*) in the Feather River.

The text of lines 28–31 on page 3.5-6 of the DPEIR is hereby revised as follows:

> Daguerre Point Dam, approximately 11 miles upstream from the confluence with the Feather River, is a sediment retention dam that acts as a barrier for sturgeon and other fish (including striped bass and American shad) that cannot pass over the ladders. Under certain flow conditions, the ladder at Daguerre Point Dam is also an impassable barrier to salmon.

The text on lines 1–2 of page 3.5-9 of the DPEIR is hereby revised as follows:

> *San Joaquin River* The San Joaquin River currently does not support spawning anadromous salmonids upstream from the confluence with the Merced River;…

The text on lines 38–40 of page 3.5-9 of the DPEIR is hereby revised as follows:

> *Main Tributaries to the San Joaquin River* Main tributaries to the San Joaquin River within the Sacramento and San Joaquin Valley and foothills consist of the Merced, Tuolumne, and Stanislaus rivers, all of which support populations of Chinook salmon and steelhead.

The source note on Table 3.5-1 on pages 3.5-15 and 3.5-16 is hereby revised as follows:

> *Sources: ~~Vogel and Marine 1991;~~ Moyle 2002; Wang 1986; NMFS 2005*

The text on lines 7–18 of page 3.5-18 is hereby revised as follows:

> *Fall-Run Chinook Salmon* ~~Fall-run Chinook salmon represent about 80 percent of the total Chinook salmon produced in the Sacramento River drainage and 100 percent of the Chinook salmon in the eastside tributaries and San Joaquin River watershed (Kjelson et al. 1982)~~. On March 9, 1998 (63 FR 11481), NMFS issued a proposed rule to list fall-run Chinook salmon as threatened; however, NMFS determined that the fall-run did not warrant listing and identified it as a candidate species (64 FR 50393, September 16, 1999). NMFS also determined that both late fall–run and fall-run are a single evolutionarily significant unit (ESU), but because they are separate in timing and effects, they are distinguished as separate in this document. They later designated Central Valley fall- and late fall–run as a species of concern (69 FR 19975, April 15, 2004).

The text on lines 18–27 of page 3.5-19 is hereby revised as follows:

> Juvenile winter-run Chinook salmon rear in the upper Sacramento River from July through March (Hallock and Fisher 1985). Juveniles move downstream in the river from August through October, and possibly through November. Juveniles have been observed in the Delta from October through December. In general, juvenile abundance in the Delta increases in response to increased Sacramento River flow (USFWS 1995).

~~Winter-run Chinook salmon smolts (i.e., juveniles that are physiologically ready to enter seawater) may migrate through the Delta and San Francisco Bay to the ocean from December through May (Stevens 1989).~~ The Sacramento River channel is their main migration route through the Delta.

The text of the Analysis Methodology on lines 14–26 of page 3.5-37 of the DPEIR is hereby revised as follows:

All other types of CVFPP activities fall within the LTMA category. NTMAs are evaluated using a typical "impact/mitigation" approach. Where impact descriptions and mitigation measures identified for NTMAs also apply to LTMAs, they are also attributed to LTMAs, with modifications or expansions as needed. However, because many LTMAs are more general and conceptual, additional impacts are described in a broader narrative format. Impacts of LTMAs that are addressed in this narrative format are those considered too speculative for detailed evaluation, consistent with Section 15145 of the CEQA Guidelines.

In general, impacts on the different sensitive species of fish were combined to address specific avenues of impacts, such as water quality changes from construction activities. This was determined to be appropriate because the avenues of impacts (e.g., pile driving, water quality changes, or riparian alteration) would have similar effects on the different species. An action high up in the watershed would not have a direct effect on delta smelt, but it could have indirect effects. Because this is a program-level document, site-specific actions are not known; therefore, more specific analysis of potential effects on a particular species or the habitat elements used by that species is not possible. Following the narrative description of these additional impacts is a list of suggested mitigation strategies that could be employed, indicating the character and scope of mitigation actions that might be implemented if a future project-specific CEQA analysis were to find these impacts to be significant.

The text of Mitigation Measure BIO-A-2a (NTMA) on pages 3.5-45 and 3.5-46 of the DPEIR is hereby revised as follows:

- A Section 1602 streambed alteration agreement will be obtained from DFG before any trees are removed from a stream zone that is under DFG jurisdiction unless the activity is 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 and NMFS as required under the federal ESA, and with DFG 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.

The text of Mitigation Measure BIO-A-2b (NTMA) on page 3.5-47 of the DPEIR is hereby revised as follows:

DWR will coordinate with USFWS, NMFS, and DFG 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.

The text of Mitigation Measure BIO-A-3 (NTMA) on pages 3.5-49 to 3.5-50 of the DPEIR is hereby revised as follows:

- Mitigation credits may be purchased from a public or private mitigation bank approved by DFG, 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 Framework. Any mitigation plantings in the floodway will not be permitted if they would result in substantial increases in flood stage elevations, or alter flows ~~affecting~~ in a manner that would have a substantial adverse effect on the opposite bank.

The text of Impact BIO-A-5 (NTMA) on pages 3.5-51 and 3.5-52 of the DPEIR is hereby revised as follows:

Impact BIO-A-5 (NTMA): ***Effects on Special-Status Fish, Fish Movement, Nursery Ground Usage, Riparian Habitat, Designated Critical Habitat, and Essential Fish Habitat Caused by Rock Placement***

Levee projects under the proposed program may involve placing rock riprap material, generally on the waterside of the levee. A relatively comprehensive review of the effects of riprap on riverine and riparian systems (Fischenich 2003) indicated that in most cold-water systems, riprap adversely affected fish and fish habitat, but that in warm-water systems, the effects were generally beneficial. This difference was attributed to a general lack of hard substrate in the warm-water systems studied. The Sacramento and San Joaquin rivers are generally considered cold-water systems, but in the more alluvial reaches, hard substrates may be uncommon compared to the higher gradient areas. Overall, the effect of riprap placement on the aquatic ecosystem is highly dependent on the system and site-specific design (Fischenich 2003). In general, ~~U~~using riprap in rivers or on the waterside of levee banks has been shown to affect natural river processes and functions in all of the following ways:

- Reducing recruitment of spawning gravels (Buer et al. 1989)
- Preventing new accretion of point bars and other deposition areas where riparian vegetation can colonize (Buer et al. 1989)
- Preventing meander migration (Buer et al. 1989; Fischenich 2003), which over time reduces habitat renewal, diversity, and complexity
- Limiting the channel's lateral mobility (Buer et al. 1989; Fischenich 2003), potentially reducing habitat complexity

- ~~Decreasing nearshore roughness, thus c~~Causing water velocity to increase ~~at a high rate~~ as discharge increases, which in turn may accelerate ~~erosion of earthen banks downstream~~ channel scour (Fischenich 2003)

- Reducing the contribution of nutrient inputs to the stream by inhibiting plant growth adjacent to the stream (Fischenich 2003)

- Reducing riparian vegetation (Fischenich 2003) and therefore recruitment of IWM to the stream system

- ~~Reducing benthic habitat, thus resulting in reduced abundance and diversity of benthic macroinvertebrates~~ Possibly increasing macroinvertebrate biomass, depending on the existing substrate characteristics (Fischenich 2003)

Protecting levee slopes with riprap generally results in nearshore hydraulic conditions that are characterized by greater depths and faster, more homogeneous water velocities than are found along natural banks. Higher water velocities minimize deposition and retention of sediment and woody debris. These changes reduce habitat complexity relative to habitat found along natural shorelines, especially by eliminating the shallow, slow-velocity habitat preferred by juvenile salmonids.

Replacing natural bank substrates with riprap can adversely affect important ecosystem functions. Living space and food for terrestrial and aquatic invertebrates is changed from natural to artificial substrates~~lost~~, eliminating an important food source for special-status fish species. Part of the proposed program could involve removing riprap and creating setback levees and floodplain habitat, which would help offset the effects of placing any new levee riprap. In addition, under the proposed program, vegetation could be incorporated into the rock material of new and existing riprap, minimizing adverse effects. However, a net increase in the extent of rock riprap on the SPFC could occur; therefore, this impact would be **potentially significant**.

The text of Mitigation Measure BIO-A-5 (NTMA) on page 3.5-52 of the DPEIR is hereby revised as follows:

Mitigation Measure BIO-A-5 (NTMA): Implement Mitigation Measures BIO-A-2a and BIO-A-2b (NTMA)

Mitigation Measures BIO-A-2a and BIO-A-~~3~~2b include activities that would minimize and compensate for adverse effects of rock placement

on aquatic resources. Additional opportunities may exist for on-site vegetation planting as part of rock placement projects.

The text of Mitigation Measure BIO-A-6 (NTMA) on page 3.5-53 of the DPEIR is hereby revised as follows:

Impact BIO-A-6 (NTMA): ***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 Floodplain Habitat Generated by Setback Levees***

Numerous studies have found that floodplain habitat is valuable to native fish species in the Central Valley. Seasonally flooded habitat provides spawning, rearing, and foraging habitat for splittail and rearing habitat for Chinook salmon (Sommer et al. 1997; Sommer et al 2001; Sommer et al. 2002; Baxter et al. 1996; ~~Moyle et al. 2000;~~ Jones & Stokes 1999). Floodplain inundation benefits the fisheries by increasing habitat availability and food supply and reducing predation rates. The duration and timing of inundation are key factors in the success of splittail spawning and rearing. A positive correlation exists between the number of days of inundation and the abundance of juvenile splittail in years when floodplains are inundated continuously for at least 4 weeks between March and April (Sommer et al. 1997; ~~Moyle et al. 2000;~~ Jones & Stokes 2001).

The title of Mitigation Measure BIO-A-4 (LTMA) on page 3.5-57 of the DPEIR is hereby revised as follows:

Mitigation Measure BIO-A-4 (LTMA): Implement Mitigation Measure BIO-A-~~3~~4 (NTMA).

Section 3.6, "Biological Resources—Terrestrial"

The text of Mitigation Measure BIO-T-1a (NTMA) on pages 3.6-74 and 3.6-75 of the DPEIR is hereby revised as follows:

- Before an NTMA 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 minimizes direct and

indirect disturbance of sensitive communities, habitats, and species to the extent feasible. In consultation with USFWS and DFG, the project proponent will develop measures to minimize and, where appropriate, compensate for construction-related effects on sensitive communities, habitats, and species.

The text of Mitigation Measure BIO-T-3c (NTMA) on page 3.6-84 of the DPEIR is hereby revised as follows:

- A streambed alteration agreement, as required under Section 1602 of the California Fish and Game Code, will be obtained from DFG before any vegetation is removed from a stream zone under DFG 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 text of Mitigation Measure BIO-T-5b (NTMA) on page 3.6-87 of the DPEIR is hereby revised as follows:

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 ~~permit~~ 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.

The title of Mitigation Measure BIO-T-4a (LTMA) on page 3.6-97 of the DPEIR is hereby revised as follows:

Mitigation Measure BIO-T-4a~~ ~~(LTMA): Implement Mitigation Measures BIO-T-1a (NTMA), BIO-T-3a (NTMA), BIO-T-3b (NTMA), and BIO-T-3c (NTMA)

Section 3.8, "Cultural and Historic Resources"

The text of Mitigation Measure CUL-1b (NTMA) on page 3.8-26 of the DPEIR is hereby revised as follows:

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.

The text of Mitigation Measure CUL-2 (NTMA) on pages 3.8-27 and 3.8-28 of the DPEIR is hereby revised as follows:

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.

The text of Mitigation Measure CUL-4b (NTMA) on page 3.8-31 of the DPEIR is hereby revised as follows:

> Effects to TCPs are expected to be rare occurrences. However, where an identified TCP cannot be fully avoided by a proposed project, the project proponent will engage in early, meaningful consultation with Native American communities, as identified by the Native American Heritage Commission, to identify ways to mitigate impacts on TCPs. For example, if TCP 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 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.

The text of Mitigation Measure CUL-5b (NTMA) on page 3.8-33 of the DPEIR is hereby revised as follows:

> 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 reinterment of burials in a protected location.

Section 3.11, "Groundwater"

The text of line 7 on page 3.11-14 of the DPEIR is hereby revised as follows:

> ***San Joaquin River Hydrologic Region***
>
> The San Joaquin River Hydrologic Region consists of surface water basins that drain into the San Joaquin River system, from the Cosumnes River Basin to the north through the southern boundary of the San Joaquin River watershed (DWR 1998). This hydrologic region contains the Yosemite Valley and Los Banos Creek Valley groundwater basins and the northern portion of the San Joaquin Valley Groundwater Basin. The San Joaquin Valley Groundwater Basin is the primary basin in this hydrologic region and is discussed further below. The Yosemite Valley

and Los Banos Creek Valley groundwater basins do not provide substantial groundwater resources to the San Joaquin River Hydrologic Region and thus are not described further.

Section 3.12, "Hazards and Hazardous Materials"

The text on line 37 of page 3.12-19 of the DPEIR is hereby revised as follows:

Mosquito ~~abatement methods~~ control measures, such as those identified as part of sound Integrated Vector Management, include…

Section 3.13, "Hydrology"

The following reference is hereby added to the section:

SEWD. *See* Stockton East Water District.

Stockton East Water District (SEWD). 2011. History. Available at <http://www.sewd.net/history.htm>. Accessed July 21, 2011.

Section 3.14, "Land Use and Planning"

The text of Mitigation Measure LU-5a (NTMA) on page 3.14-43 of the DPEIR is hereby revised as follows:

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 ~~owners~~ occupants in finding comparable replacement housing and will pay for actual, reasonable moving costs consistent with applicable State and federal law.

Section 3.19, "Transportation and Traffic"

The text on page 3.19-11 of the DPEIR is hereby revised as follows:

In addition, ~~one~~ two locally based bus-only public transit systems, listed below, operate~~s~~ within the Delta and Suisun Marsh.

- **Fairfield/Suisun Transit**—Local service within Fairfield and Suisun City, with regional service to Vacaville, Dixon, Davis, Sacramento, Benicia, El Cerrito, Pleasant Hill, and Walnut Creek

- **South County Transit**—Daily regional service is provided connecting the cities of Lodi, Galt, Elk Grove and Isleton.

Two major ports are located within the Delta and Suisun Marsh (Figure 3.19-3).

The text of Mitigation Measure TRN-2 (NTMA) on pages 3.19-20 and 3.19-21 of the DPEIR is hereby revised as follows:

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.

The title of Mitigation Measure TRN-4 (LTMA) on page 3.19-25 of the DPEIR is hereby revised as follows:

Mitigation Measure TRN-4 (LTMA): Implement Mitigation Measure TRN-~~5~~4 (NTMA).

Section 3.20, "Utilities and Service Systems"

The text on line 40 on page 3.20-9 in Section 3.20, "Utilities and Service Systems," of the DPEIR is hereby revised as follows:

…Energy Regulatory Commission regulates construction and abandonment of interstate…

The following text is hereby added to Section 3.20.2, "Regulatory Setting," of the DPEIR, after line 2 on page 3.20-10:

The U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration regulates the design, operation, and maintenance of natural gas pipelines. These regulations are enforced in California by the CPUC.

Section 3.21, "Water Quality"

The text of line 7 on page 3.21-12 to line 2 on page 3.21-13 of the DPEIR is hereby revised as follows:

New Bullards Bar Reservoir and Yuba River, New Bullards Bar Reservoir to the Feather River New Bullards Bar Dam, which forms New Bullards Bar Reservoir, is on the North Fork Yuba River and regulates flows for one-third of the Yuba River watershed. Water quality in New Bullards Bar Reservoir is limited by mercury. The overall water quality of the lower Yuba River below New Bullards Bar Reservoir is suitable for designated beneficial uses, and has improved in recent decades because hydraulic and dredge mining operations have been controlled and minimum instream flow requirements have been established (YCWA et al. 2007~~DFG 1989~~). Dissolved oxygen concentrations, total dissolved solids (TDS), pH, hardness, alkalinity, and turbidity are well within acceptable or preferred ranges for salmonids and other key freshwater biota (Reclamation et al. 2003).

Chapter 7.0, "References"

The text of Section 3.13, "Hydrology," references is hereby revised as follows:

California Department of Water Resources (DWR).

———. 2012. Urban Levee Design Criteria. ~~Anticipated April~~May 2012.

Federal Emergency Management Agency (FEMA).

———. 2010. ~~Guidelines and Specifications for Flood Hazard Mapping Partners~~Map Modernizations. Available at <~~http://www.fema.gov/plan/prevent/fhm/gs_main.shtm#5~~ http://www.fema.gov/plan/prevent/fhm/mm_main.shtm>. Accessed May 26, 2010.

Chapter 9.0, "Abbreviations and Acronyms"

The abbreviation "F-CO" was incorrectly defined as "Forecast-Coordination Operations" in the DPEIR. The definition of F-CO is changed to "Forecast-Coordinated Operations" throughout the PEIR.

4.3 Analysis of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

4.3.1 Background

In the DPEIR for the CVFPP, seven alternatives were initially considered in Chapter 5.0, "Alternatives":

- No-Project Alternative—Continued Operations Scenario
- No-Project Alternative—No Additional Activities Scenario
- Modified State Systemwide Investment Approach (SSIA) Alternative
- Achieve SPFC Design Flow Capacity Alternative
- Achieve SPFC Design Flow Capacity with Strict Engineering Technical Letter (ETL) Compliance Alternative
- Protect High-Risk Communities Alternative
- Enhance Flood System Capacity Alternative

(All references to the "ETL" in this chapter are specifically to the U.S. Army Corps of Engineers' (USACE's) ETL 1110-2-571, which is described further below.)

In the DPEIR, two of these alternatives were rejected from further consideration and analysis because they failed to meet most of the basic program objectives, were determined to be infeasible, would not avoid or substantially lessen significant environmental impacts, and/or would be so similar to another alternative that they would not add to expand the range of alternatives evaluated in this PEIR. These alternatives were:

- Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative
- Protect High-Risk Communities Alternative

A summary of the reasons for rejecting these alternatives is provided here. For more information on this topic, see Section 5.3, "Alternatives Considered but Rejected," of the DPEIR.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative was rejected from further analysis for several reasons. Ensuring strict compliance with USACE's ETL 1110-2-571 while making necessary improvements to the SPFC would be cost prohibitive, primarily resulting from very high mitigation costs to compensate for losses of riparian habitat and habitat for threatened and endangered species. In addition, mitigating impacts associated with strict ETL compliance would be nearly impossible because of the limited availability of waterside acreage to provide compensatory shaded riverine aquatic (SRA) habitat. This would leave the State unable to gain the proper permits to implement this alternative. Consequently, this alternative was not considered further because it (1)

would not satisfy the program objectives; (2) would be infeasible because of major cost implications and regulatory constraints; and (3) would not avoid or lessen significant environmental impacts, but actually would cause substantially greater environmental impacts on biological resources.

The Protect High-Risk Communities Alternative was rejected from further analysis because it would not satisfy most of the eight program objectives. The Protect High-Risk Communities Alternative is also very similar to the Modified SSIA Alternative, which was carried forward in the analysis. The Protect High-Risk Communities Alternative differs from the Modified SSIA Alternative only in terms of minor increases in the measures benefiting small communities, and by including an expanded Yolo Bypass and modifications to the Fremont Weir. Accordingly, further consideration and analysis of this alternative would not add to or expand the range of alternatives considered in the PEIR. Consequently, this alternative was not considered further because it (1) would not satisfy most of the program objectives and (2) would be so similar to other alternatives that its inclusion in this PEIR for analysis would not add to or expand the reasonable range of alternatives under consideration.

4.3.2 Reasons to Include More Detailed Analysis of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative in the PEIR

On February 17, 2012, USACE published a revised proposal to update the process for requesting a variance from vegetation standards for levees and floodwalls as described in the ETL. The proposed update to the variance request process was published 18 calendar days before the scheduled public release of the DPEIR for the CVFPP. In this time frame it was not feasible to review the proposed update, determine whether it had relevance to the PEIR, and if appropriate, add text to the DPEIR before its publication.

After publication of the DPEIR, however, a thorough review of the proposed update to the process for requesting a variance from vegetation standards was conducted. Thorough review of the update failed to identify substantial evidence in the record that would alter the analysis or conclusions in the DPEIR, or the conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be infeasible. On April 13, 2012, DWR sent a letter to USACE officially commenting on, and conveying significant concerns regarding, the proposed update.

An element of the update, however, includes a requirement that a vegetation variance request include:

> …all background studies, data, and other information required by USACE to complete the environmental compliance processes under the National Environmental Policy Act (NEPA), ESA [federal Endangered Species Act], and any other applicable environmental resource protection statute. … The documentation must analyze, as alternatives, the effects of the implementation of the proposed vegetation variance and the implementation of the national standards.

Although DWR has considerable concerns about the proposed variance process, DWR continues to seek an implementable regional vegetation variance for Central Valley levees. However, significant changes to USACE's proposed variance policy will be necessary before this becomes a viable option.

DWR has identified the CVFPP PEIR as a mechanism to analyze "…the effects of the implementation of the proposed vegetation variance and the implementation of the national standards." The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative assumes full implementation of the current "national standards" for vegetation management on levees. Therefore, an analysis comparing the environmental effects of this alternative against those of the SSIA could support an eventual variance request for the SSIA, if necessary. For purposes of supporting a potential variance request, this analysis also compares to the SSIA a scenario involving the SSIA with strict ETL compliance.

DWR continues to consider the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative as infeasible, for the reasons described above. As mentioned previously, DWR does not currently believe that the requirements for obtaining a variance described in USACE's proposed update present a viable option. However, an analysis of the environmental effects of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative is provided here and incorporated into the CVFPP PEIR. The analysis follows the approach, format, and level of detail used in the analysis of alternatives included in the DPEIR, but it also addresses issues pertinent to NEPA because USACE would use this information consistent with the direction provided under 50 Code of Federal Regulations (CFR) 1506.2(c).

4.3.3 Description of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The following summary description of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative repeats information provided in the DPEIR. See Section 5.4.4, "Achieve SPFC Design Flow Capacity Alternative," for more detailed information on the "achieve SPFC

design flow capacity" element of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative.

Achieving "SPFC design flow capacity" focuses on addressing the condition of existing SPFC levees so that the channels convey their design flows with a high degree of reliability based on current engineering criteria. The system was constructed based largely on geometric criteria using available soil materials without extensive investigation of foundation conditions. The majority of SPFC levees do not meet current engineering criteria. The concept of achieving SFPC design flow capacity addresses an element of the CVFPP authorizing legislation (California Water Code (CWC) Section 9614(g)), which requires that DWR evaluate structural projects that could be undertaken to reconstruct SPFC facilities to bring each facility to within its design standard. This alternative involves addressing levee conditions primarily in place, without making major changes to the footprint or operation of those facilities. Levee improvements would be made regardless of the areas they protect or the level of protection they provide. This alternative would provide little opportunity to incorporate benefits beyond flood management, such as ecosystem restoration.

As flood system improvements are implemented under this alternative, it is assumed that DWR and the Board would also ensure the strictest compliance with the USACE guidance provided in ETL 1110-2-571, *Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures*. Vegetation management on all new and existing levees within the SPFC would be consistent with the ETL. This alternative assumes that DWR would not request a variance from the ETL standards to allow for retention of some woody vegetation on or near levees.

4.3.4 Impact Analysis

Under CEQA, an EIR must include consideration of a range of reasonable alternatives that "could feasibly accomplish most of the basic objective[s] of the project and could avoid or substantially lessen one or more of the significant effects" (CEQA Guidelines Section 15126.6(c)). This is generally consistent with the requirement under NEPA to "rigorously explore and objectively evaluate all reasonable alternatives" (40 CFR 1502.14). The following section compares the environmental impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative with the impacts of the proposed program (i.e., the CVFPP SSIA). Impacts are compared for each environmental issue area addressed in Chapter 3.0, "Environmental Setting, Impacts, and Mitigation Measures," of the DPEIR.

The CEQA Guidelines (Section 15126.6(d)) permit alternatives to be evaluated in less detail than the proposed project. Consistent with Section 15126.6(d) of the CEQA Guidelines, the analysis below provides a general comparison of the environmental effects of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative against the effects of the proposed program, focusing on whether the alternative would result in effects greater than, less than, or similar to those identified for the proposed program.

The comparative environmental impacts of alternatives generally result from differences in the following broad categories of program activities:

- **Construction Impacts**—Alternatives may vary in relation to the scale, nature, and timing of their construction activities. These differences, in turn, affect the level of construction-related impacts, such as air pollutant and greenhouse gas (GHG) emissions from construction vehicles and construction materials manufacturing, construction noise, and construction traffic. These construction impacts are generally temporary and localized; nonetheless, some may be considered significant.

- **Operations and Maintenance (O&M) Impacts**—Alternatives may vary with respect to O&M impacts, which vary relative to the scale, nature, and timing of any new facilities that would need to be operated and maintained, and relative to any changes to the ongoing O&M of existing facilities, such as vegetation management and reservoir reoperations. These impacts would occur for longer periods of time than construction impacts and over larger geographic scales.

- **"Footprint" Impacts**—Alternatives may vary in terms of the degree to which they would involve the use of lands not currently part of the flood protection system. Where the "footprint" of flood protection system facilities would be expanded, effects on the current uses of those areas (such as agricultural uses) and on the environmental values of those areas (such as habitat, cultural resources, and mineral resources) could result. These impacts would generally be long term, but may include both adverse and beneficial effects depending on the nature of the activity and the environmental topic being addressed.

- **Habitat Enhancement Impacts**—Alternatives may vary in the scale and nature of any habitat enhancements included in their design. Alternatives may also vary in the degree to which they would accommodate or facilitate these habitat enhancements. Impacts of habitat enhancements would generally be long term, and may include both beneficial effects (related primarily to biological resources) and

adverse effects (related primarily to land use changes), depending on the specific scale and nature of the habitat enhancement feature.

- **Flood Risk Reduction Effects**—Floods can have environmental effects in addition to their impacts on property and public safety. For example, reconstruction activities made necessary by the damage from a flood can create substantial construction impacts. Floods can also damage habitats, cause the release of hazardous substances in flooded areas, impair existing land uses, and jeopardize water supplies. As discussed in several sections of Chapter 3.0, "Environmental Setting, Impacts, and Mitigation Measures," of the DPEIR, the beneficial effects of minimizing the frequency and intensity of flood events could wholly or partially offset some of the impacts of alternatives. The degree to which these beneficial effects could be considered to offset an alternative's adverse effects would depend on assumptions about the likelihood and severity of the future flooding events that would be avoided. These beneficial effects also would generally be infrequent, episodic, and localized.

In most cases, an alternative may result in both beneficial and adverse effects. For example, the creation of long-term habitat in expanded bypasses could displace current agricultural uses. Also, the location, timing, likelihood, and/or scale of the beneficial and adverse effects may differ. The analysis below identifies the most likely "net" result for each impact area. Generally, this is based on the most severe impact category identified for the environmental issue area.

As directed by CEQA, the analysis of alternatives focuses on the ability of each alternative to reduce impacts of the proposed program that are considered to be significant and unavoidable or potentially significant and unavoidable. The following summary of significant and unavoidable impacts and potentially significant and unavoidable impacts associated with the proposed program is repeated from the DPEIR and focuses the alternatives analysis:

- **Agriculture and Forestry Resources**—The proposed program would involve either facility construction or management changes in some areas currently subject to agricultural production. The program also includes an extensive set of mitigation measures, such as avoidance of Important Farmland where feasible and consideration of agricultural conservation easements. However, given the nature and scale of certain elements of the proposed program, particularly the proposed expansion of bypasses and creation of additional habitat areas, this impact is considered potentially significant and unavoidable. The scope of this potentially significant and unavoidable impact is limited to those

situations where identified Important Farmlands cannot be avoided and feasible mitigation is not adequate to address the impact.

- **Air Quality**—Construction-period air pollutant emissions for some of the larger projects that are anticipated to occur could exceed the CEQA thresholds established by certain air pollution control districts, even after mitigation, resulting in a potentially significant and unavoidable impact. The scope of this potentially significant and unavoidable impact is temporary and limited to these larger projects exceeding applicable air district CEQA thresholds.

- **Biological Resources—Aquatic**—The proposed program includes a requirement that all activities be undertaken in compliance with all applicable regulatory requirements, including requirements that generally require full mitigation of any effects on aquatic habitats. The program also includes enhancements to aquatic biological resources, particularly under the CVFPP Conservation Framework. This PEIR also establishes a set of mitigation measures designed to achieve an overall performance standard of no net loss of biological resource functions and values. As a result, impacts on aquatic biological resources generally are anticipated to be less than significant. However, given the scope and nature of the program, there may be situations in which local or temporary effects could not be fully mitigated. If those effects were of a sufficient scale, they could result in potentially significant and unavoidable impacts.

- **Biological Resources—Terrestrial**—The proposed program includes a requirement that all activities be undertaken in compliance with all applicable regulatory requirements, including requirements that generally require full mitigation of any effects on terrestrial habitats. The program also includes enhancements to terrestrial biological resources, particularly under the CVFPP Conservation Framework, and including the riparian forest planting. This PEIR also establishes a set of mitigation measures designed to achieve an overall performance standard of no net loss of biological resource functions and values. As a result, impacts on terrestrial biological resources generally are anticipated to be less than significant. However, given the scope and nature of the program, there may be situations in which local or temporary effects could not be fully mitigated. If those effects were of a sufficient scale, they could result in potentially significant and unavoidable impacts.

- **Cultural and Historical Resources—**Much of the proposed program would occur in areas that have already been disturbed by agricultural and other activities and/or have been in flood protection uses for a long

time. However, it is anticipated that some cultural and historical resources and/or traditional cultural properties may be encountered during activities under the proposed program. The program includes extensive mitigation measures requiring the identification and avoidance of these resources, where feasible, and documentation recording the resource whenever the resource cannot be avoided. However, given the nature and scale of the proposed program, there may be situations in which historic properties must be removed or traditional cultural properties would be adversely affected in a way that cannot be feasibly mitigated, resulting in potentially significant and unavoidable impacts.

- **Mineral and Paleontological Resources**—Much of the proposed program would occur in areas that have already been disturbed by agricultural and other activities and/or have been in flood protection uses for a long time. Mining activity is generally precluded within or in the immediate vicinity of existing structures, such as levees, to preserve the stability of those structures. However, widening floodways and constructing weirs, new bypasses, or setback levees outside the existing footprint or the immediate vicinity of the footprint of existing structures could prevent access to locally valuable mineral resources (particularly aggregate materials), resulting in potentially significant and unavoidable impacts.

- **Land Use and Planning**—The potentially significant and unavoidable impacts on agricultural resources described above are also considered to reflect similar significant and unavoidable land use impacts of the same nature and scope.

- **Transportation and Traffic**—O&M of projects under the proposed program would not generate substantial long-term traffic. Also, construction traffic for most projects could be accommodated by the existing circulation system without resulting in significant impacts. However, for very large construction projects (i.e., those involving several million cubic yards of fill requiring transport over public roads), significance thresholds recommended by the Institute of Transportation Engineers could be exceeded and sufficient reduction of peak-hour construction traffic may not be feasible, resulting in a potentially significant and unavoidable impact. In addition, in rare situations projects could require that transportation infrastructure be removed or disrupted for a substantial period of time, and detours or alternate routes may not be feasible, resulting in a potentially significant and unavoidable impact.

Aesthetics

The proposed program would not result in significant aesthetics impacts after mitigation, as described in greater detail in DPEIR Section 3.2, "Aesthetics." The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the aesthetic benefits from flood risk reduction would not compensate for the impacts of the proposed program because those benefits would generally be short term (i.e., flooded areas are anticipated to recover to preflood conditions as repairs are made and vegetation returns), while many of the aesthetic impacts of the proposed program would be permanent.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the vegetation management strategy (VMS) and associated CVFPP elements such as life-cycle management (LCM), vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects on aesthetic resources from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

Under the VMS included in the proposed program, woody vegetation on levees would be removed in the vegetation management zone, an area typically extending 15 feet beyond the landside levee toe to 20 feet below the waterside levee crown. Immature trees and woody vegetation in the vegetation management zone that measures less than 4 inches in diameter at breast height (dbh) would be removed in an authorized manner as part of levee maintenance. Larger trees and woody vegetation greater than 4 inches dbh would be subject to a long-term LCM plan to be implemented by levee maintenance agencies. These larger trees would be allowed to live out their normal life cycles if they do not pose an unacceptable threat, but would not be replaced in the vegetation management zone after their death or

removal. (The LCM plan allows immediate removal of trees that pose an unacceptable threat.)

Under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative, the vegetation management zone would cover an area typically extending from 15 feet beyond the landside levee toe to 15 feet beyond the waterside levee toe. All woody vegetation would be removed as part of levee maintenance, with no LCM element allowing larger-dbh woody vegetation to remain in the management zone for an extended period. Therefore, waterside woody vegetation would be removed over a substantially larger area under this alternative, and all woody vegetation in the vegetation management zone would be removed at a more rapid pace. Adverse effects on aesthetic resources caused by losses of riparian habitat would be more rapid and cover a larger area on the waterside of levees under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program.

The CVFPP Conservation Strategy, which could have beneficial effects on riparian habitats in some areas from habitat creation, and hence potentially positive effects on aesthetic resources, would be implemented under this alternative. However, with the vegetation management zone extending substantially farther down the levee slope than under the proposed program (15 feet beyond the waterside levee toe versus 20 feet below the waterside levee crown), opportunities for planting waterside riparian vegetation would be severely limited, which would also limit potential aesthetic resource benefits in these areas.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in a smaller construction and land disturbance footprint than the proposed program; therefore, the visual impacts of project-level construction of new facilities would be less than under the proposed program. As under the proposed program, activities occurring as part of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would require development and implementation of mitigation measures to reduce significant or potentially significant visual impacts. Examples of such measures include providing visual screening and conforming to applicable lighting standards when needed. Mitigation measures would be equally effective at reducing small-scale, localized visual impacts to a less-than-significant level under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, system failures and associated

damage from flooding would be more frequent and more severe than under the proposed program. Therefore, impacts on aesthetic resources via episodic flooding and postflood repairs would be greater under this alternative.

As described above, impacts of the vegetation management element of system maintenance on aesthetic resources would be greater under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program. Because it would provide a smaller waterside area for ecosystem restoration, the benefits to aesthetics from restoration would be more limited under this alternative than under the proposed program. Construction-related impacts would initially be less under this alternative because there would be a smaller construction and land disturbance footprint; however, aesthetic impacts from construction could be equally mitigated under both alternatives. There would be greater flood-related visual impacts under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative, but these would be infrequent and episodic. Given these conditions, the overall impact of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative on aesthetics is expected to be greater than that of the proposed program. ***[Greater]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater aesthetics impacts than the proposed program is generally based on the additional removal of waterside riparian vegetation and on the reduced ability of the alternative to accommodate restoration components with aesthetics benefits. These impact mechanisms would also apply to the SSIA and an SSIA that includes strict ETL compliance. However, the impacts on aesthetics of an SSIA including strict ETL compliance would be **greater** than the impacts of the SSIA, given the increased removal of vegetation under the ETL and the substantial limitation of the ability to provide for compensatory vegetation providing aesthetics benefits.

Agriculture and Forestry Resources

The proposed program would result in potentially significant and unavoidable agricultural resources impacts after mitigation, as described in greater detail in DPEIR Section 3.3, “Agriculture and Forestry Resources.” The scope of these potentially significant and unavoidable impacts is limited to those situations in which identified Important Farmlands could not be avoided and feasible mitigation would not be adequate to address the impact. Impacts of the VMS on riparian forests, discussed in detail in DPEIR Section 3.5, “Biological Resources—Aquatic,” and Section 3.6, “Biological Resources—Terrestrial,” are also considered to be of the same nature and scope as impacts on forestry resources as broadly defined in the

CEQA Guidelines. The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the benefits to agricultural resources from flood risk reduction would not compensate for the impacts of the proposed program because those benefits would generally be short term (i.e., flooded areas are anticipated to recover to preflood conditions as lands dry out and farming can resume), while many of the impacts of the proposed program on agricultural resources would be permanent.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects on agriculture and forestry resources from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

Under the VMS included in the proposed program, woody vegetation on levees would be removed in the vegetation management zone, an area typically extending 15 feet beyond the landside levee toe to 20 feet below the waterside levee crown. Immature trees and woody vegetation in the vegetation management zone that measures less than 4 inches dbh would be removed in an authorized manner as part of levee maintenance. Larger trees and woody vegetation greater than 4 inches dbh would be subject to a long-term LCM plan to be implemented by levee maintenance agencies. These larger trees would be allowed to live out their normal life cycles if they do not pose an unacceptable threat, but would not be replaced in the vegetation management zone after their death or removal. (The LCM plan allows immediate removal of trees that pose an unacceptable threat.)

Under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative, the vegetation management zone would cover an area typically extending from 15 feet beyond the landside levee toe to 15

feet beyond the waterside levee toe. All woody vegetation would be removed as part of levee maintenance, with no LCM element allowing larger-dbh woody vegetation to remain in the management zone for an extended period. Therefore, waterside woody vegetation would be removed over a substantially larger area under this alternative, and all woody vegetation in the vegetation management zone would be removed at a more rapid pace. Adverse effects on forestry resources through losses of riparian trees would be more rapid and cover a larger area on the waterside of levees under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program. However, this difference in removal of waterside woody vegetation would not directly alter effects on agricultural resources.

The CVFPP Conservation Strategy, which could have beneficial effects on riparian habitats in some areas from habitat creation, and hence potentially positive effects on forestry resources, would be implemented under this alternative. However, with the vegetation management zone extending substantially farther down the levee slope than under the proposed program (15 feet beyond the waterside levee toe versus 20 feet below the waterside levee crown), opportunities for planting waterside riparian vegetation would be severely limited, which would also limit potential forestry resource benefits in these areas. In addition, with less waterside area available for habitat creation, more landside area could be devoted to this activity, potentially increasing the conversion of agricultural land to habitat. However, the proposed program contains a larger overall habitat restoration component than the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative; therefore, the proposed program would result in a greater overall conversion of agricultural land to habitat.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in a smaller construction and land disturbance footprint than the proposed program; therefore, impacts on agricultural lands from project-level construction of new facilities and repair and improvement of existing facilities would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program. As under the proposed program, activities occurring as part of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would require development and implementation of mitigation measures to reduce significant or potentially significant impacts on agricultural resources. Examples of such measures include preserving the agricultural productivity of Important Farmland, complying with the Surface Mining and Reclamation Act as applicable for reclamation of borrow sites, and minimizing the effects of inundation and saturation. Mitigation measures would be equally effective at reducing temporary impacts on agricultural resources to a less-than-significant level under

either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program. However, it would not be feasible to fully mitigate the conversion of Important Farmland under either alternative.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, system failures and associated damage from flooding would be more frequent and more severe than under the proposed program. Therefore, impacts on agriculture and forestry resources via flooding would be greater under this alternative.

As described above, impacts of the vegetation management element of the system maintenance on forestry resources would be greater under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program, although direct effects on agricultural resources via this mechanism would not differ. Because this alternative would provide a smaller waterside area for ecosystem restoration, the benefits to forestry resources from restoration would be more limited under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program. There would be greater permanent conversions of agricultural lands to nonagricultural uses under the proposed program, both from facility construction and from habitat restoration and creation. There would be greater flood-related impacts on agricultural and forestry resources under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative, but these would be infrequent and episodic. Given these conditions, the overall impact of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative on forestry resources is expected to be greater than that of the proposed program; however, impacts on agricultural resources would be less. ***[Lesser for Agricultural Resources; Greater for Forestry Resources]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater forestry resource impacts than the proposed program is generally based on the reduced ability of the alternative to accommodate restoration components with forestry resource benefits, and on the forestry resource impacts of vegetation removal. The first of these impact mechanisms would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance (i.e., the ability to accommodate restoration components in areas not on the levee prism would be similar for each scenario). The effects of the second impact mechanism would be different for the SSIA and an SSIA that includes strict ETL compliance. The impacts on forestry resources of an SSIA

including strict ETL compliance would be **greater** than the impacts of the SSIA, given the increased removal of vegetation under the ETL.

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have lesser agricultural resource impacts than the proposed program is generally based on the fact that there would be greater permanent conversions of agricultural lands to nonagricultural uses under the proposed program, both from facility construction and from habitat restoration and creation. This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance, because the area of converted agricultural lands as part of the program would be similar. However, the impacts on agricultural resources of an SSIA including strict ETL compliance would be **greater** than the impacts of the SSIA because vegetation removed under the ETL likely would need to be compensated for through planting of vegetation elsewhere, most likely on additional agricultural lands, resulting in additional conversions of agricultural land.

Air Quality

The proposed program could have potentially significant and unavoidable air quality impacts, as described in greater detail in DPEIR Section 3.4, "Air Quality." These potentially significant and unavoidable impacts could occur in connection with the construction of relatively large projects, resulting in air pollutant emissions that could exceed the levels identified in applicable air district CEQA thresholds. The following analysis compares the anticipated impacts of Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the air quality benefits from flood risk reduction would not be materially different from the impacts of the proposed program. It is assumed that reconstruction efforts would involve comparable numbers of large projects exceeding applicable air district CEQA thresholds.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be

implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects on air quality from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described above, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area and at a more rapid pace than under the proposed program. The ETL also requires excavation of much of the root structure when a tree is removed, and refilling of the excavated area. There would be no such requirement for trees removed under the VMS. Therefore, because of the larger area of woody vegetation removal under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the more labor-intensive removal methodology, air emissions from vegetation management would be greater under this alternative than under the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in a smaller construction and land disturbance footprint than the proposed program; therefore, construction emissions would be less. Specifically, the potential for construction of facilities to result in air pollution emissions exceeding local air district CEQA thresholds would be reduced. Both alternatives would require development and implementation of mitigation measures to reduce significant or potentially significant air quality impacts from construction emissions, such as using equipment with reduced emissions and limiting idling times. Mitigation measures would be equally effective at reducing short-term construction-related impacts on air quality to a less-than-significant level under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, this alternative would not reduce emissions from recovery and repair of flood events as much as the proposed program. Although pollutant emissions associated with recovery and repair from flood system failures would be greater under this alternative, these impacts would be infrequent. Emissions from facility O&M would be similar under the two alternatives, although emissions specifically related to removal of woody vegetation would be greater under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. Construction-related emissions, which would be the greatest

emissions source among the mechanisms addressed here, would be anticipated to be higher under the proposed program because the project footprint would be larger. Specifically, under the Achieve SPFC Design Flow Capacities with Strict ETL Compliance Alternative, there would be fewer large projects likely to exceed local air district CEQA thresholds. Given these conditions, the overall impact of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative on air quality would be expected to be less than that of the proposed program. ***[Lesser]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have lesser air quality impacts than the proposed program is generally based on the fact that there would be more construction emissions under the proposed program, given the larger project footprint. This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance, because the project footprint and associated construction levels would be similar. The impacts on air quality of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA, because even though vegetation removal under the ETL likely would result in some additional air pollutant emissions, the level of those emissions would not likely exceed significance thresholds in most situations.

Biological Resources—Aquatic

The proposed program could result in potentially significant and unavoidable aquatic biological resources impacts, as described in greater detail in Section 3.5, “Biological Resources—Aquatic.” Most impacts on aquatic biological resources are anticipated to be less than significant after mitigation. However, given the scope and nature of the program, there may be situations in which local or temporary effects could not be fully mitigated; if those effects were of a sufficient scale, they could result in potentially significant and unavoidable impacts. The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the benefits to aquatic biological resources from flood risk reduction would compensate, to some degree, for the impacts of the proposed program because the program impacts would generally be minimal, well-planned, and substantially mitigated, while the adverse habitat impacts from a major flood event would be unplanned and unmitigated, and could be of significant scope.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, environmental effects on aquatic biological resources from O&M (other than vegetation management) would be the same for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

Under the VMS included in the proposed program, woody vegetation on levees would be removed in the vegetation management zone, an area typically extending 15 feet beyond the landside levee toe to 20 feet below the waterside levee crown. Immature trees and woody vegetation in the vegetation management zone that measures less than 4 inches dbh would be removed in an authorized manner as part of levee maintenance. Larger trees and woody vegetation greater than 4 inches dbh would be subject to a long-term LCM plan to be implemented by levee maintenance agencies. These larger trees would be allowed to live out their normal life cycles if they do not pose an unacceptable threat, but would not be replaced in the vegetation management zone after their death or removal. (The LCM plan allows immediate removal of trees that pose an unacceptable threat.)

Under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative, the vegetation management zone would cover an area typically extending from 15 feet beyond the landside levee toe to 15 feet beyond the waterside levee toe. All woody vegetation would be removed as part of levee maintenance, with no LCM element allowing larger-dbh woody vegetation to remain in the management zone for an extended period. Therefore, waterside woody vegetation would be removed over a substantially larger area under this alternative, and all woody vegetation in the vegetation management zone would be removed at a more rapid pace. Adverse effects on aquatic biological resources through losses of SRA habitat, overhead cover, and instream woody material would be much more severe under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program.

The CVFPP Conservation Strategy, which could have beneficial effects on riparian and SRA habitats in some areas from habitat creation, would be implemented under this alternative. However, with the vegetation management zone extending substantially farther down the levee slope compared to the proposed program (15 feet beyond the waterside levee toe versus 20 feet below the waterside levee crown), opportunities for planting waterside riparian vegetation would be severely limited. It is likely that under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative, sufficient compensatory planting area could not be identified to adequately mitigate impacts on threatened and endangered fish species and projects could not receive authorization under the California Endangered Species Act (CESA) or ESA.

The effects on aquatic biological resources from project-level construction of new facilities and repair and improvement of existing facilities would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program because there would be a smaller construction and land disturbance footprint. As under the proposed program, activities occurring as part of this alternative would require development and implementation of mitigation measures to reduce significant or potentially significant impacts on aquatic biological resources. Examples of such measures include securing applicable State and/or federal permits and implementing permit requirements, completing inventories and replacing SRA habitat, conforming to National Marine Fisheries Service guidelines for pile-driving activities, and replacing lost vegetation and instream woody material. Mitigation measures, where fully implemented, would be equally effective at reducing small-scale and short-term impacts on aquatic biological resources to a less-than-significant level under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program. However, as identified above, it is likely that adequately replacing SRA habitat and other waterside vegetation and securing applicable State and/or federal permits could not be regularly completed under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative; therefore, the ability to reduce impacts to a less-than-significant level would be substantially reduced.

Because a much lower overall level of flood protection would be provided under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program, system failures and associated damage from flooding would occur more frequently and would be more severe than under the proposed program. Therefore, impacts on aquatic biological resources caused by flooding of urban and agricultural areas, such as contamination of floodwaters and fish stranding after floodwaters recede, would be greater under this alternative.

As described above, impacts of the vegetation management element of system maintenance on aquatic biological resources would be much greater under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program. Construction-related impacts would be similar under the two alternatives. The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, this alternative would not reduce the risk of flood-related impacts on aquatic biological resources as much as the proposed program (although these impacts would be infrequent and episodic). Because this alternative would provide few opportunities for compensatory habitat planting and ecosystem restoration, the benefits to aquatic biological resources from restoration would be substantially limited under this alternative compared to the proposed program. Given these conditions, impacts on aquatic biological resources would be greater under this alternative than under the proposed program. ***[Greater]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater aquatic biological resource impacts than the proposed program is generally based on the decreased flood protection levels provided by that alternative (and resulting risk of damage to aquatic biological resources from a failure of the flood protection system and inundation of developed areas), the additional loss of SRA habitat, and the reduced ability of the alternative to accommodate habitat values. The first of these impact mechanisms would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance (i.e., the comparative flood risks would be similar for each scenario). The effects of the remaining impact mechanisms would be different for the SSIA and an SSIA that includes strict ETL compliance. The impacts on aquatic biological resources of an SSIA including strict ETL compliance would be **greater** than the impacts of the SSIA, given the increased removal of vegetation under the ETL and the substantial limitation of the ability to provide for compensatory habitat planting and ecosystem restoration.

Biological Resources—Terrestrial

The proposed program could result in potentially significant and unavoidable impacts on terrestrial biological resources, as described in greater detail in DPEIR Section 3.6, “Biological Resources—Terrestrial.” Most impacts on terrestrial biological resources are anticipated to be less than significant after mitigation. However, given the scope and nature of the program, there may be situations in which local or temporary effects could not be fully mitigated; if those effects were of a sufficient scale, they could result in potentially significant and unavoidable impacts. The following analysis compares the anticipated impacts of the Achieve SPFC

Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the benefits to terrestrial biological resources from flood risk reduction would compensate for the impacts of the proposed program because the program impacts would generally be minimal, well-planned, and substantially mitigated, while the adverse habitat impacts from a major flood event would be unplanned and unmitigated, and could be of significant scope.

The alternatives also vary substantially in the degree to which they would include or accommodate habitat enhancements that go beyond the requirements of applicable regulatory programs.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, environmental effects on terrestrial biological resources from O&M (other than vegetation management) would be the same for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative, woody vegetation on the waterside of levees would be removed over a substantially larger area than under the proposed program, and all woody vegetation in the vegetation management zone would be removed at a more rapid pace. The footprint of woody vegetation removal would be the same on the landside of levees under both alternatives because both the CVFPP VMS and ETL vegetation removal areas extend to 15 feet beyond the landside levee toe. Given the larger waterside vegetation removal footprint and more rapid removal of larger diameter woody riparian vegetation, adverse effects on terrestrial biological resources through losses of riparian vegetation would be much more severe under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program.

The CVFPP Conservation Strategy, which could have beneficial effects on riparian habitat and associated terrestrial wildlife species from habitat creation, would be implemented under this alternative. However, with the vegetation management zone extending substantially farther down the levee slope than under the proposed program (15 feet beyond the waterside levee toe versus 20 feet below the waterside levee crown), opportunities for planting waterside riparian vegetation would be severely limited. It is likely that under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative, sufficient compensatory planting area could not be identified to adequately mitigate impacts on threatened and endangered terrestrial species associated with waterside riparian vegetation (e.g., riparian brush rabbit) and projects affecting habitat for these species could not receive authorization under the CESA or ESA.

The effects on terrestrial biological resources from project-level construction of new facilities and repair and improvement of existing facilities would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program because there would be a smaller construction and land disturbance footprint. As under the proposed program, activities occurring as part of this alternative would require development and implementation of mitigation measures to reduce significant or potentially significant impacts on terrestrial biological resources. Examples of such measures include conducting biological resources surveys, minimizing and compensating for impacts on critical habitats and sensitive species, and securing applicable State and/or federal permits and implementing permit requirements. Mitigation measures, where fully implemented, would be equally effective at reducing small-scale and short-term impacts on terrestrial biological resources to a less-than-significant level under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program. However, as identified above, it is likely that adequately replacing waterside riparian vegetation and securing applicable State and/or federal permits could not be completed under all circumstances under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative; therefore, the ability to reduce impacts to a less-than-significant level would be reduced.

Because a much lower overall level of flood protection would be provided under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program, system failures and associated damage from flooding would occur more frequently and would be more severe than under the proposed program. Therefore, impacts on terrestrial biological resources caused by flooding of habitat areas would be greater under this alternative.

As described above, impacts of the vegetation management element of system maintenance on terrestrial biological resources would be greater under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program. Construction-related impacts would be similar under the two alternatives. The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, this alternative would not reduce the risk of flood-related impacts on terrestrial biological resources as much as the proposed program (although these impacts would be infrequent and episodic). Because this alternative would provide few opportunities for compensatory habitat planting and ecosystem restoration, the benefits to terrestrial biological resources from restoration would be substantially limited under this alternative compared to the proposed program. Given these conditions, impacts on terrestrial biological resources would be greater under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program. ***[Greater]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater terrestrial biological resource impacts than the proposed program is generally based on the decreased flood protection levels provided by that alternative (and resulting risk of damage to terrestrial biological resources from a failure of the flood protection system and inundation of developed areas), and the reduced ability of the alternative to accommodate habitat values. The first of these impact mechanisms would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance (i.e., the comparative flood risks would be similar for each scenario). The effects of the second impact mechanism would be different for the SSIA and an SSIA that includes strict ETL compliance. The impacts on terrestrial biological resources of an SSIA including strict ETL compliance would be **greater** than the impacts of the SSIA, given the increased removal of vegetation under the ETL and the substantial limitation of the ability to provide for compensatory habitat planting and ecosystem restoration.

Climate Change and Greenhouse Gas Emissions

The proposed program would not result in significant impacts related to climate change and GHG emissions, as described in greater detail in DPEIR Section 3.7, “Climate Change and Greenhouse Gas Emissions.” The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the climate change benefits from flood risk reduction would compensate for the impacts of the proposed

program because the avoided GHG emissions from reconstruction following a major flood event are anticipated to be greater than the GHG emissions from construction activities under the proposed program.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program, including reservoir operations and associated hydropower generation; therefore, effects on GHG emissions from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area and at a more rapid pace than under the proposed program. The ETL also requires excavation of much of the root structure when a tree is removed, and refilling of the excavated area. There would be no such requirement for trees removed under the VMS. Therefore, because of the larger area of woody vegetation removal under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the more labor-intensive removal methodology, GHG emissions from vegetation management would be greater under this alternative than under the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in a smaller construction and land disturbance footprint than the proposed program; therefore, emissions of GHGs associated with construction would be less. As described in DPEIR Section 3.7, “Climate Change and Greenhouse Gas Emissions,” impacts of construction-related GHG emissions under the proposed program would be less than significant. The same would be true of construction-related emissions under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. This alternative would also provide less

opportunity for ecosystem restoration activities. Any reduced levels of habitat restoration under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative could also result in reduced opportunities for carbon sequestration from net increases in riparian forest habitat.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, GHG emissions associated with recovery and repair from flood system failures would be greater under this alternative. Although repair and recovery from flood system failures would be infrequent and episodic, GHG emissions associated with these events would be substantial.

As described above, GHG emissions from facility O&M would be similar under the two alternatives, although emissions specifically related to removal of woody vegetation would be greater under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. Construction-related GHG emissions would be anticipated to be greater under the proposed program because the project footprint would be larger, although the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide less opportunity for carbon sequestration via restoration and creation of riparian forest habitat. The SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in greater GHG emissions from recovery and repair after flood system failures. Given these conditions, the overall impact of the SPFC Design Flow Capacity with Strict ETL Compliance Alternative on GHG emissions would be expected to be greater than that of the proposed program. ***[Greater]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater GHG emissions impacts than the proposed program is generally based on the decreased flood protection levels provided by that alternative (and resulting GHG emissions from recovery and repair after flood system failures). This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance (i.e., the comparative flood risks would be similar for each scenario). The impacts on GHG emissions of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA, because even though vegetation removal under the ETL likely would result in some additional GHG emissions, the level of those emissions would not likely be substantial relative to the overall GHG emissions benefits of the program.

Cultural and Historic Resources

The proposed program could result in potentially significant and unavoidable impacts on cultural and historic resources, as described in greater detail in DPEIR Section 3.8, "Cultural and Historic Resources." Most cultural and historic resources impacts are anticipated to be less than significant after mitigation. However, given the nature and scale of the proposed program, there may be situations in which historic properties must be removed or traditional cultural properties would be adversely affected in a way that could not be feasibly mitigated, resulting in potentially significant and unavoidable impacts. The following analysis compares the anticipated impacts of the SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the benefits to cultural and historic resources from flood risk reduction would not be materially different from the impacts of the proposed program. It is assumed that construction would cause a greater level of potentially permanent, adverse change to cultural and/or historic resources.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects on cultural and historic resources from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program. The ETL also requires excavation of much of the root structure when a tree is removed. There would be no such requirement for trees removed under the VMS. Therefore, because of the larger vegetation management disturbance area

under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the more ground-disturbing tree removal methodology, there is a greater potential for disturbance of cultural and historic resources from vegetation management under this alternative than under the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in a smaller construction and land disturbance footprint than the proposed program; therefore, the potential to adversely affect cultural and historic resources during construction (e.g., damage to or destruction of known and unknown historic and prehistoric resources, disturbance of human burials) would be less. As under the proposed program, activities occurring as part of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would require development and implementation of mitigation measures for significant and potentially significant impacts. Examples of such measures include conducting cultural resources studies and avoiding effects on archaeological resources, immediately halting construction if cultural resources are discovered and implementing an emergency discovery plan, capping archaeological sites to protect deposits, and following the Secretary of the Interior's standards for the treatment of historic properties. Mitigation measures would be equally effective at reducing most impacts on cultural resources to a less-than-significant level under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program; however, impacts related to damage to or destruction of historic structures and traditional cultural properties may be potentially significant and unavoidable under either this alternative or the proposed program. Still, because of its limited nature and its primary objective of fixing levees in place, the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be more likely to avoid conditions resulting in significant and unavoidable impacts on cultural and historic resources.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, system failures and associated damage from flooding would occur more frequently and would be more severe than under the proposed program. Therefore, flooding impacts on cultural resources, primarily historic structures and architectural resources, would be greater under this alternative.

As described above, potential adverse effects on cultural and historic resources from facility O&M would be similar under the two alternatives, although the additional removal of woody vegetation under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

would result in a higher potential for adverse effects from vegetation management activities. Construction-related impacts would be less under this alternative because of the smaller project footprint. Although mitigation measures would be equally effective under either alternative, the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be more to likely avoid conditions resulting in significant and unavoidable impacts because of the smaller disturbance area and focus on improving existing facilities. There would be greater flood-related impacts under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative; however, these would be infrequent and episodic. Given these conditions, the overall impact of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative on cultural resources is expected to be less than that of the proposed program. ***[Lesser]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have lesser cultural resources impacts than the proposed program is generally based on the fact that there would be more construction effects on cultural resources under the proposed program, given the larger project footprint. This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance, because the project footprint and associated construction levels would be similar. The impacts on cultural resources of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA, because even though vegetation removal under the ETL likely would result in some additional impacts on cultural resources, the level of those impacts would not likely exceed significance thresholds in most situations.

Energy

The proposed program would not result in significant energy impacts, as described in greater detail in DPEIR Section 3.9, “Energy.” The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the benefits to energy resources from flood risk reduction would not be materially different from the impacts of the proposed program. It is not anticipated that reconstruction efforts would involve the inefficient, wasteful, or unnecessary use of energy or cause a substantial reduction in the generation of renewable energy.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This

alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, the potential energy impacts caused by levee maintenance (e.g., potential wasteful or inefficient use of petroleum products and electricity) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program. The ETL also requires excavation of much of the root structure when a tree is removed. There would be no such requirement for trees removed under the VMS. Therefore, because of the larger vegetation management disturbance area under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the more ground-disturbing tree removal methodology, there is a greater potential for adverse energy impacts from vegetation management under this alternative than for the proposed program.

Operational energy impacts of the proposed program (i.e., reduced generation of renewable energy because of altered flow releases at hydropower facilities caused by changes in reservoir operations) are not likely to occur under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. Therefore, operational impacts of this alternative would be less than those of the proposed program.

The potential for energy impacts from project-level construction of new facilities and repair and improvement of existing facilities would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program. This alternative would result in a smaller construction and land disturbance footprint; therefore, the potential for construction activities to result in wasteful or inefficient use of energy would be less. The impact mechanisms would remain the same under this alternative (e.g., wasteful or inefficient use of petroleum products and electricity). However, the lower level of construction activity would minimize the potential for adverse effects. As

under the proposed program, activities occurring as part of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would require development and implementation of mitigation measures for potentially significant impacts. Examples of such measures include using energy-efficient processes and equipment, using equipment exhaust controls, and scheduling activities to reduce energy usage during periods of peak energy demand (as feasible). Mitigation measures would be equally effective at reducing energy impacts to a less-than-significant level under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, system failures and associated damage from flooding would occur more frequently and would be more severe than under the proposed program. However, flood events would have little effect on the wasteful or inefficient use of energy.

As described above, impacts of system maintenance on energy under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be similar to impacts under the proposed program, with the exception of vegetation management, where the potential for energy impacts would be greater. The potential for operational energy impacts are expected to be less under this alternative. Because fewer and/or smaller components would be constructed, the potential for wasteful or inefficient use of energy caused by construction would be less under this alternative than under the proposed program; however, energy impacts could be equally mitigated under either alternative. Flooding would have little effect on energy resources. Given these conditions, the overall impact of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative on energy is expected to be less than that of the proposed program. ***[Lesser]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have lesser energy impacts than the proposed program is generally based on the fact that there would be more construction-period use of energy under the proposed program, given the larger project footprint and increased construction levels. This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance, because the project footprint and associated construction levels would be similar. The impacts on energy usage of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA, because even though vegetation removal under the ETL likely would result in some additional energy usage, the level of those impacts would not likely exceed significance thresholds in most situations.

Geology, Soils, and Seismicity (Including Mineral and Paleontological Resources)

The proposed program generally would not result in significant impacts on geology, soils, and seismicity after mitigation, as described in greater detail in DPEIR Section 3.10, "Geology, Soils, and Seismicity (Including Mineral and Paleontological Resources)." However, it may not be possible to avoid mineral resources or prevent access to locally valuable mineral resources (particularly aggregate materials) when widening floodways and constructing weirs, new bypasses, or setback levees outside the existing footprint or the immediate vicinity of the footprint of existing structures, resulting in potentially significant and unavoidable impacts. The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the benefits to mineral resources from flood risk reduction would not compensate for the impacts of the proposed program because those benefits would generally be short term (i.e., flooded areas are anticipated to recover to preflood conditions as lands dry out and mining can resume), while the mineral resources impacts of the proposed program would generally be permanent.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects related to geology, soils, seismicity, and mineral and paleontological resources from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program. The ETL also requires

excavation of much of the root structure when a tree is removed. There would be no such requirement for trees removed under the VMS. Therefore, because of the larger vegetation management disturbance area under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the more ground-disturbing tree removal methodology, there is a greater potential for localized erosion and damage to paleontological resources from vegetation management under this alternative than under the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in a smaller construction and land disturbance footprint than the proposed program; therefore, construction-related and operational impacts on geology, soils, and seismicity and paleontological and mineral resources would be less. The impact mechanisms would remain the same under this alternative (e.g., localized erosion, damage to or destruction of unique paleontological resources, loss of mineral resources). However, the lower level of construction activity would minimize the potential for adverse effects. As under the proposed program, activities occurring as part of Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would require development and implementation of mitigation measures for potentially significant impacts. Examples of such measures include preparing a paleontological resources assessment, conducting construction worker education, stopping work if paleontological resources are encountered during earth-moving activities, and implementing recovery plans. Mitigation measures would be equally effective at reducing construction impacts to a less-than-significant level under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program. However, operational impacts related to loss of mineral resources could be potentially significant and unavoidable under the proposed program, while the smaller project footprint under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would potentially allow for this impact to be reduced to a less-than-significant level.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, system failures and associated flood-related erosion impacts would occur more frequently and would be more severe than under the proposed program. Therefore, the impacts of flooding and postflood repairs on geology, soils, and seismicity would be greater under this alternative.

As described above, impacts of system maintenance on geology, soils, and seismicity under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be similar to impacts under the proposed

program, with the exception of vegetation management, where the potential for impacts would be greater. Construction-related impacts would be less under this alternative because fewer and/or smaller components would be constructed; in addition, a potentially significant and unavoidable impact related to loss of mineral resources identified for the proposed program could potentially be avoided under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. There would be greater flood-related erosion impacts under this alternative, although these impacts would be infrequent. Given these conditions, and the fact that construction activity and project footprint size are major sources of impacts related to geology, soils, seismicity, and paleontological and mineral resources, the impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative on geology, soils, and seismicity would be less than those of the proposed program. ***[Lesser]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have lesser impacts on geology, soils, seismicity, and paleontological and mineral resources than the proposed program is generally based on the fact that there would be greater potential effects on access to mineral resources under the proposed program, given the larger project footprint. This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance, because the project footprint and associated construction levels would be similar. The impacts on geology, soils, and seismicity of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA, because even though vegetation removal under the ETL likely would result in some additional impacts, the level of those impacts would not likely exceed significance thresholds in most situations.

Groundwater Resources

The proposed program would not result in significant impacts on groundwater resources after mitigation, as described in greater detail in DPEIR Section 3.11, “Groundwater Resources.” The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the benefits to groundwater resources from flood risk reduction would compensate for the impacts of the proposed program because the program impacts would generally be minimal, well-planned, and substantially mitigated, while the adverse impacts on groundwater resources from a major flood event would be unplanned and unmitigated, and could be of a relatively greater scope.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects on groundwater resources from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program. However, removal of additional woody vegetation in this localized area adjacent to existing flood control facilities would have little to no effect on groundwater resources and impacts of vegetation management would be the same as those of the proposed program.

The potential for impacts on groundwater from project-level construction of new facilities and repair and improvement of existing facilities would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program because there would be a smaller construction and land disturbance footprint. The impact mechanisms would remain the same under this alternative (e.g., localized degradation of groundwater quality from construction activities). However, the lower level of construction activity would minimize the potential for adverse effects. As under the proposed program, construction activities occurring as part of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in less-than-significant groundwater effects.

The proposed program's operational impacts on groundwater from modifying reservoir operations would be the same under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative because both alternatives include the same reservoir operations proposal. The Achieve SPFC Design Flow Capacity with Strict ETL Compliance

Alternative would not include a groundwater banking program; therefore, the new opportunities for groundwater recharge created by the proposed program would not occur under this alternative. The proposed program's potentially significant impacts from operating a groundwater banking program would not occur under the Achieve SPFC Design Flow Capacity Alternative, but those impacts would be mitigated to a less-than-significant level under the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, system failures and associated decreases in groundwater quality from contaminated floodwaters would be more frequent.

As described above, impacts on groundwater from system maintenance under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be similar to impacts under the proposed program. Construction-related impacts would initially be less under this alternative because of a lower level of activity and smaller disturbance footprint; however, groundwater quality impacts from construction would be less than significant under both alternatives. Potential adverse effects on groundwater quality from floods resulting from system failures would be greater under this alternative. Given these conditions, the overall impact of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative on groundwater is expected to be greater than that of the proposed program. ***[Greater]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater groundwater impacts than the proposed program is generally based on the decreased flood protection levels provided by that alternative (and resulting potential adverse effects on groundwater quality from floods). This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance (i.e., the comparative flood risks would be similar for each scenario). The impacts on groundwater of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA because there are no other groundwater-related impact mechanisms that differ between the two scenarios.

Hazards and Hazardous Materials

The proposed program would not result in significant impacts related to hazards and hazardous materials after mitigation, as described in greater detail in DPEIR Section 3.12, "Hazards and Hazardous Materials." The following analysis compares the anticipated impacts of the Achieve SPFC

Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the benefits related to hazards and hazardous materials from flood risk reduction would compensate for the impacts of the proposed program because the program impacts would generally be minimal, well-planned, and substantially mitigated, while the adverse impacts related to hazards and hazardous materials from a major flood event would be unplanned and unmitigated, and could be of significant scope. Specifically, the volumes and toxicity of hazardous materials that could be released into the environment after a major flood event (e.g., pesticides, fuels) would likely be substantially greater than those involved in construction activities under the program. In addition, the program would directly reduce flood risk hazards.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects related to hazards and hazardous materials from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program. The ETL also requires excavation of much of the root structure when a tree is removed. There would be no such requirement for trees removed under the VMS. Therefore, because of the larger vegetation management disturbance area under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the more ground-disturbing tree removal methodology, there is a greater potential for construction-related hazardous materials impacts (e.g., accidental releases from construction equipment,

encountering existing contaminated soil) from vegetation management under this alternative than under the proposed program.

The potential for impacts associated with hazards and hazardous materials from project-level construction of new facilities and repair and improvement of existing facilities would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program because there would be a smaller construction and land disturbance footprint. The impact mechanisms would remain the same under this alternative (e.g., potential to encounter existing hazardous materials during construction, accidental spills of hazardous materials during construction). However, the lower level of construction activity would minimize the potential for adverse effects.

As under the proposed program, activities occurring as part of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would require development and implementation of mitigation measures for significant and potentially significant impacts. Examples of such measures include avoiding contact with contaminated areas, locating oil and gas wells and transmission lines and coordinating with owner/operators to avoid conflicts with existing infrastructure, and training construction workers on hazardous materials. Mitigation measures would be equally effective at reducing impacts related to hazards and hazardous materials to a less-than-significant level under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, system failures and associated release and spread of hazardous materials from flooding would occur more frequently and would be more severe than under the proposed program. Therefore, impacts of flooding and postflood repairs related to hazards and hazardous materials would be greater under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative.

As described above, impacts of system maintenance related to hazards and hazardous materials under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be similar to impacts under the proposed program, with the exception of vegetation management, where the potential for impacts would be greater. Construction-related impacts would be less under this alternative because fewer and/or smaller components would be constructed; however, hazardous materials impacts could be equally mitigated under either alternative. There would be greater flood-related hazardous materials impacts under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. These impacts

would be infrequent, but they would be more likely to result in long-term damage to the environment as hazardous materials were released and spread over a wider area. Given these conditions, the overall impact of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative related to hazards and hazardous materials is expected to be greater than that of the proposed program. ***[Greater]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater hazards and hazardous materials impacts than the proposed program is generally based on the decreased flood protection levels provided by that alternative (and resulting damage from hazardous materials releases after flood system failures). This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance (i.e., the comparative flood risks would be similar for each scenario). The impacts on hazards and hazardous materials of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA, because even though hazardous materials would be used during vegetation removal under the ETL, the risks could be equally mitigated under either scenario.

Hydrology

The proposed program would not result in significant hydrology impacts after mitigation, as described in greater detail in DPEIR Section 3.13, "Hydrology." The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the hydrology benefits from flood risk reduction would not compensate for the impacts of the proposed program because those benefits would generally be short term (i.e., flooded areas are anticipated to recover to preflood conditions), while many of the impacts of the proposed program would be permanent.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

Hydrologic resources include surface water (hydraulic), water supply, and flood management resources. The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to

the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects related to hydrologic resources from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program and more rapid vegetation removal overall. Removal of additional woody vegetation in this localized area could reduce roughness coefficients and allow floodwaters to move more rapidly through an area. It is unknown whether on a case-by-case basis, removing woody vegetation beyond that assumed for the proposed program would have beneficial hydrologic effects by reducing flood stage elevations at and upstream of a particular site; have adverse hydrologic effects by increasing flood stage elevations downstream from a particular site; or have no measurable effect at all.

The potential for impacts on hydrology from project-level construction of new facilities and repair and improvement of existing facilities would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative because there would be a smaller construction and land disturbance footprint. The impact mechanisms would remain the same under this alternative (e.g., increased erosion and siltation, increased flooding caused by project activities or facilities, risk of inundation by seiche). However, the lower level of construction activity would minimize the potential for adverse effects. Construction impacts would be less than significant under both the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, the potential for housing to continue being placed in a 100-year flood zone would be greater under this alternative. In the long term, this alternative would result in greater flood damage to housing and potential loss of life and property. Flooding impacts related to erosion and sedimentation would also be more severe, and would occur over a larger area than under the proposed program.

As described above, impacts of system O&M on hydrology under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be similar to impacts under the proposed program, with the exception of vegetation maintenance, where the nature of any changes

in impacts is unknown. Construction-related impacts would initially be less under this alternative because less construction activity would take place; however, construction-related hydrology impacts would be less than significant. There would be greater flood-related hydrology impacts under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. Given these conditions, the overall impact of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative on hydrology is expected to be greater than that of the proposed program. ***[Greater]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater hydrology impacts than the proposed program is generally based on the decreased flood protection levels provided by that alternative (and resulting potential adverse effects on hydrology during floods). This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance (i.e., the comparative flood risks would be similar for each scenario). The impacts on hydrology of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA because there are no other hydrology-related impact mechanisms that differ substantially between the two scenarios.

Land Use and Planning

The proposed program generally would not result in significant impacts on land use and planning after mitigation, as described in greater detail in DPEIR Section 3.14, “Land Use and Planning.” However, the potentially significant and unavoidable impacts on agricultural resources described above for Agriculture and Forestry Resources are also considered to reflect similar significant and unavoidable land use impacts of the same nature and scope. The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the land use and planning benefits from flood risk reduction would compensate for the impacts of the proposed program because the program impacts would generally be indirect and result from State law and policies discouraging development in floodplains, while the adverse impacts from a major flood event would be unplanned and unmitigated, could be of significant scope, and could adversely affect land use and planning options for a lengthy period.

However, for the potentially significant and unavoidable impacts on agricultural resources, the comparison generally assumes that the benefits to agricultural resources from flood risk reduction would not compensate for the impacts of the proposed program because those benefits would

generally be short term (i.e., flooded areas are anticipated to recover to preflood conditions as lands dry out and farming can resume), while many of the impacts of the proposed program on agricultural resources would be permanent.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects related to land use from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program and more rapid vegetation removal overall. However, removal of additional woody vegetation in this localized area adjacent to existing flood control facilities would have little to no effect on land use and impacts from vegetation management would be similar to those for the proposed program.

Both alternatives would trigger implementation of requirements related to the urban level of flood protection; therefore, impacts via this mechanism would be the same for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

The potential for land use impacts from project-level construction of new facilities and repair and improvement of existing facilities would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative because there would be a smaller construction and land disturbance footprint. Neither alternative would create conditions that would physically separate an established community; however, construction under this alternative would be less likely to result in displacement of some isolated developed uses (e.g., homes, businesses,

recreational facilities) because of the smaller cumulative project footprint. With a smaller project footprint, there also would be reduced conversion of agricultural land to a nonagricultural land use. The proposed program also includes a greater amount of habitat restoration and creation, which would result in some level of conversion of existing land uses (including agricultural land uses) to habitat.

As under the proposed program, activities occurring as part of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would require development and implementation of mitigation measures to reduce significant or potentially significant land use impacts. Examples of such measures include providing financial compensation for property losses and relocation assistance for displaced development, and replacing displaced recreational facilities. Mitigation measures would be equally effective at reducing impacts on displaced development and recreational facilities to a less-than-significant level under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program. However, it would not be feasible to fully mitigate for the conversion of Important Farmland to another land use under either alternative.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, system failures and associated damage from flooding would occur more frequently and would be more severe than under the proposed program. Therefore, the potential for flood damage to result in the physical division of an established community (e.g., incomplete postflood repairs and recovery resulting in separation of portions of a community) would be greater under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. The potential for changes in land use or patterns of land use after a flood that would cause a substantial adverse physical environmental effect would also be greater. However, both of these impact mechanisms would require postflood land uses to differ substantially from preflood land uses, which would be unlikely.

Overall, impacts of system O&M on land use under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be similar to impacts under the proposed program. Significant and unavoidable impacts associated with implementing the urban level of flood protection (i.e., the conversion of agricultural land to urban uses) would also be similar under both alternatives. Construction-related impacts would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative because of the smaller project footprint; however, land use impacts could be equally mitigated under either alternative. There

would be greater potential for flood-related land use impacts under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative; however, for adverse effects to occur, postflood land uses would need to differ substantially from preflood land uses, which would be unlikely. Primarily because of the smaller overall project footprint under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the correspondingly lower potential for conversion of agricultural land, the potential for adverse land use impacts is expected to be less under this alternative than under the proposed program. ***[Lesser]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have lesser land use impacts than the proposed program is generally based on the fact that there would be greater permanent conversions of agricultural lands to nonagricultural uses under the proposed program, both from facility construction and from habitat restoration and creation. This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance, because the area of converted agricultural lands as part of the program would be similar. The impacts on land use of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA because there are no other land use impact mechanisms that differ between the two scenarios.

Noise

The proposed program would not result in significant noise impacts after mitigation, as described in greater detail in DPEIR Section 3.15, "Noise." The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the noise benefits from flood risk reduction would not be materially different from the impacts of the proposed program. It is not anticipated that reconstruction efforts would involve materially different noise impacts from those of the proposed program, and the impacts of the proposed program and reconstruction would both be temporary.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the

VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, noise and vibration effects from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program. The ETL also requires excavation of much of the root structure when a tree is removed. There would be no such requirement for trees removed under the VMS. Therefore, because of the larger vegetation management disturbance area under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the more ground-disturbing tree removal methodology, there would be a greater level of noise and vibration generation from vegetation management under this alternative than under the proposed program. The additional noise would be a single localized occurrence similar to construction noise as trees are cut, wood and branches are removed, the root structure is excavated, and the excavated areas are refilled.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in a smaller construction and land disturbance footprint than the proposed program; therefore, construction-related noise and vibration impacts would be less. The impact mechanisms would remain the same under this alternative (e.g., increased noise and vibration generated by construction equipment and by operational features such as water pumps). However, the lower level of construction activity would minimize the potential for adverse effects. As under the proposed program, activities occurring as part of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would require development and implementation of mitigation measures for significant and potentially significant impacts. Examples of such measures include implementing noise- and vibration-reducing construction practices and implementing design techniques to lessen operational noise. Mitigation measures would be equally effective at reducing noise and vibration impacts to a less-than-significant level under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection

than the proposed program; as a result, system failures and associated flood-related cleanup activities would occur more frequently and would be more severe than under the proposed program. Therefore, the impacts of flooding and postflood repairs on noise and vibration would be greater under this alternative.

As described above, noise and vibration generation from system maintenance would be similar under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program, with the exception of vegetation management, where noise generation would be greater. Construction-related noise impacts would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative because fewer and/or smaller components would be constructed; however, noise and vibration impacts could be equally mitigated under either alternative. The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, the potential for flood-related cleanup and repair activities to increase noise and vibration levels would be greater under this alternative. However, these effects would be infrequent and episodic. Therefore, the overall impact of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative related to noise would be similar to that of the proposed program. ***[Similar]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have similar noise and vibration impacts to those of the proposed program is generally based on the fact that these impacts could be mitigated to a less-than-significant level under either alternative. The impacts on noise and vibration of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA because the impacts could be equally mitigated under either scenario.

Population, Employment, and Housing

The proposed program would not result in significant impacts on population, employment, and housing, as described in greater detail in DPEIR Section 3.16, “Population, Employment, and Housing.” The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the benefits to population, employment, and housing from flood risk reduction would compensate for the impacts of the proposed program because the program impacts would generally be minimal, well-planned, and substantially mitigated, while the adverse impacts from a major flood event would be unplanned and

unmitigated, and could be of significant scope. Specifically, recovery from a major flood event could take considerable time and full recovery of employment opportunities and housing availability may not occur in some situations.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects on population, employment, and housing from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program. The ETL also requires excavation of much of the root structure when a tree is removed. There would be no such requirement for trees removed under the VMS. Removal of additional woody vegetation in this localized area adjacent to existing flood control facilities would have little to no effect on population and housing and impacts from vegetation management would be similar to those for the proposed program. However, because of the larger vegetation management effort under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative, a greater level of job generation to support this activity could occur than under the proposed program. The additional jobs would be temporary, lasting until vegetation removal is complete.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in a smaller construction and land disturbance footprint than the proposed program; therefore, construction-related and operational impacts on population, employment, and housing would be less under this alternative. The impact mechanisms would remain the same (e.g., inducement of substantial population growth, displacement of

substantial numbers of people, or inducement of substantial unemployment as a result of project construction, operation, or long-term land use policy changes); however, the lower level of construction activity under this alternative would minimize the potential for adverse effects. As under the proposed program, activities occurring as part of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would likely result in less-than-significant impacts.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, system failures and associated flood-related cleanup activities would occur more frequently and would be more severe than under the proposed program. Therefore, the impacts of flooding and postflood repairs on population, employment, and housing would be greater under this alternative. For example, a greater risk of flooding would have a greater socioeconomic impact related to displacement of residents and property damage from flooding. As population growth continues, an increasing number of people will have insufficient flood protection; thus, over time, this alternative could result in greater socioeconomic impacts on people in both urban and rural areas.

As described above, impacts of system O&M on population, employment, and housing under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be similar to impacts under the proposed program. The construction-related impacts of both the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program are expected to be less than significant; however, this alternative could have significant population and housing impacts associated with an increased risk of flooding, such as displacing housing and people over time. Thus, the overall impact of Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative on population, employment, and housing is expected to be greater than that of the proposed program. ***[Greater]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater population, employment, and housing impacts than the proposed program is generally based on the decreased flood protection levels provided by that alternative (and resulting displacement of housing and people from floods). This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance (i.e., the comparative flood risks would be similar for each scenario). The impacts on population, employment, and housing of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA because there are no other impact mechanisms related to

population, employment, and housing that differ between the two scenarios.

Public Services

The proposed program would not result in significant impacts on public services, as described in greater detail in DPEIR Section 3.17, "Public Services." The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the public services benefits from flood risk reduction would compensate for the impacts of the proposed program because the program impacts would generally be minimal, well-planned, and substantially mitigated, while the public services impacts from a major flood event would be unplanned and unmitigated, and could be of significant scope.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects on public services from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program. The ETL also requires excavation of much of the root structure when a tree is removed. There would be no such requirement for trees removed under the VMS. Removal of additional woody vegetation in this localized area adjacent to existing flood control facilities would have little to no effect on public services, and impacts from vegetation management would be similar to those for the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in a smaller construction and land disturbance footprint than the proposed program; therefore, construction-related and operational impacts on public services would be less under this alternative. The impact mechanisms would remain the same (e.g., physical effects resulting in the need for new or altered law enforcement or fire protection facilities). However, the lower level of construction activity under this alternative would minimize the potential for adverse effects. Impacts on public services are expected to be less than significant under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, system failures and associated flood-related cleanup activities would occur more frequently and would be more severe than under the proposed program. Therefore, the impacts of flooding and postflood repairs on public services would be greater under this alternative. For example, the scale of the repairs could be larger, depending on the extent or magnitude of flood damage, resulting in greater demand on emergency fire and police services than under the proposed program.

As described above, impacts of system O&M (including vegetation removal) on public services under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be similar to impacts under the proposed program. The potential for construction-related impacts would be less under this alternative because of the reduced project footprint and disturbance area; however, public services impacts from construction would be less than significant under both alternatives. There would be greater flood-related impacts on public services under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. Although these impacts would be infrequent, the overall demand for emergency police and fire services under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be greater than that of the proposed program. Given these conditions, the potential for adverse public services impacts is expected to be greater under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program. ***[Greater]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater public services impacts than the proposed program is generally based on the decreased flood protection levels provided by that alternative (and resulting potential demand for emergency services from floods). This impact mechanism

would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance (i.e., the comparative flood risks would be similar for each scenario). The impacts on public services of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA because there are no other public services–related impact mechanisms that differ between the two scenarios.

Recreation

The proposed program would not result in significant recreation impacts after mitigation, as described in greater detail in DPEIR Section 3.18, "Recreation." The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the recreation benefits from flood risk reduction would not compensate for the impacts of the proposed program because those benefits would generally be short term (i.e., flooded areas are anticipated to recover to preflood conditions so that recreational activities can resume, and damaged recreational facilities are reasonably expected to be replaced), while many of the recreation impacts of the proposed program would be permanent.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects on public services from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program. The ETL also requires excavation of much of the root structure when a tree is removed. There

would be no such requirement for trees removed under the VMS. Removal of additional woody vegetation along the waterside levee slopes would increase the severity of Impact REC-5 (NTMA and LTMA), "Decrease in Quality of Terrestrial and Water-Based Recreation as a Result of Removal of Woody Vegetation from Levees," identified in the DPEIR. This impact would be less than significant under the proposed program because of the retention of lower waterside vegetation under the VMS and the ability to plant additional waterside vegetation as part of ecosystem restoration. However, under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative, such retention and restoration of lower waterside vegetation would be extremely limited, and would not be permitted in many areas. Impact REC-5 (NTMA and LTMA) would likely be significant and unavoidable under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative because of the extent of waterside vegetation losses and the very limited ability to plant new waterside vegetation to compensate for the losses.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in a smaller construction and land disturbance footprint than the proposed program; therefore, construction-related and operational impacts on recreation would be less under this alternative than under the proposed program. The impact mechanisms would remain the same under this alternative (e.g., decreased access to recreational facilities, increased boating safety hazards from construction barge traffic), and as under the proposed program, activities occurring as part of this alternative would require development and implementation of mitigation measures for significant and potentially significant impacts. Examples of such measures include avoiding construction activities and staging near recreational facilities, avoiding construction during the high-use recreation season, and maintaining safe boat passage. Because of the more limited scale of activities under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative, it is anticipated that mitigation measures would be effective at reducing construction-related impacts on recreation to a less-than-significant level.

The permanent loss of access to recreational facilities and decreased recreational quality from changes in reservoir operations that would occur under the proposed program would also occur under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. Therefore, impacts of this alternative related to reservoir operations and recreation would be the same as those of the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, system failures and associated

flood-related cleanup activities would occur more frequently and would be more severe than under the proposed program. Therefore, the impacts of flooding and postflood repairs on recreation would be greater under this alternative. For example, system failures and associated postflood cleanup activities could result in temporary loss of access to some recreational facilities, depending on the location and severity of the flood event. Impacts of flooding and postflood repairs on recreation would be greater under this alternative than under the proposed program.

As described above, impacts of system O&M on recreation under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be similar to impacts under the proposed program, with the exception of vegetation maintenance, where greater losses of waterside woody vegetation could result in significant adverse effects on recreation facilities. The potential for construction-related impacts would be less under this alternative because of the reduced project footprint and disturbance area; however, mitigation measures would reduce all construction-related recreation impacts to a less-than-significant level under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program. There would be greater flood-related recreation impacts under this alternative, but these would be infrequent and episodic. Given these conditions, the overall impact of the Achieve SPFC Design Flow Capacity Alternative on recreation is expected to be greater than that of the proposed program. ***[Greater]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater recreation impacts than the proposed program is generally based on the aesthetics impacts and loss of shade resulting from vegetation removal, and the decreased ability of the alternative to accommodate restoration components with aesthetics and shading benefits. This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance (i.e., the ability to provide areas accommodating restoration activities with aesthetics and shade benefits would be similar). However, the impacts on aesthetics and shade of an SSIA including strict ETL compliance would be **greater** than the impacts of the SSIA, given the increased removal of vegetation under the ETL and the substantial limitation of the ability to provide for compensatory vegetation providing aesthetics benefits.

Transportation and Traffic

The proposed program generally would not result in significant transportation and traffic impacts after mitigation, as described in greater detail in DPEIR Section 3.19, “Transportation and Traffic.” However, for very large construction projects involving large amounts of fill requiring transport over public roads, construction traffic impacts could be

potentially significant and unavoidable. In addition, some projects could require transportation infrastructure to be removed or disrupted for a substantial period of time without available mitigation, resulting in a potentially significant and unavoidable impact. The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the benefits to transportation and traffic from flood risk reduction would not be materially different from the impacts of the proposed program. It is anticipated that reconstruction efforts would generate construction traffic to a similar degree as the proposed program.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects on transportation and traffic from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program. The ETL also requires excavation of much of the root structure when a tree is removed. There would be no such requirement for trees removed under the VMS. Therefore, because of the larger vegetation management disturbance area under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the greater level of effort resulting from the tree removal methodology, a greater volume of traffic would be generated from vegetation management under this alternative than under the proposed program. The additional traffic would be similar to construction traffic as

trees are cut and wood and branches are removed and fill is delivered to refill holes where the root structure has been excavated.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in a smaller construction and land disturbance footprint than the proposed program; therefore, construction-related traffic generation would be less. The impact mechanisms would remain the same under this alternative (e.g., increased construction traffic, potential to remove or disrupt current transportation infrastructure, decreased level of service on roadways). However, the lower level of construction activity and smaller projects would minimize the potential for adverse effects. As under the proposed program, activities occurring as part of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would require development and implementation of mitigation measures for significant and potentially significant impacts. Examples of such measures include implementing a traffic management plan; providing traffic detour routes; and adding turn lanes, traffic signals, or stop signs. Mitigation measures would be equally effective at reducing impacts on transportation and traffic to a less-than-significant level under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program. However, the proposed program could result in significant and unavoidable impacts—namely, short-term construction traffic on large projects and permanent loss of existing roadway infrastructure. Conditions leading to this significant and unavoidable impact (e.g., large projects, floodway expansions leading to permanent losses of transportation infrastructure) are less likely to occur under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, system failures and associated flood-related cleanup activities would occur more frequently and would be more severe than under the proposed program. Therefore, the impacts of flooding and postflood repairs on transportation and traffic, such as a lack of emergency access and blockage of roadways during and immediately after a system failure, would be greater under this alternative. Impacts of flooding and postflood repairs on transportation and traffic would be greater under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative.

As described above, impacts of system O&M on transportation and traffic under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be similar to impacts under the proposed program, with the exception of vegetation maintenance, where increased

removal of waterside woody vegetation would result in increased trip generation during the removal process. Construction-related impacts would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative because of the smaller construction and disturbance footprint. The significant and unavoidable construction traffic impacts of the proposed program could potentially be avoided. The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program. As a result, there would be greater flood-related transportation and traffic impacts under this alternative, but these would be infrequent and episodic. Given these conditions, the overall impact of the Achieve SPFC Design Flow Capacity Alternative on transportation and traffic is expected to be similar to that of the proposed program. ***[Similar]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have similar transportation and traffic impacts to those of the proposed program is generally based on the fact that these impacts could be mitigated to a less-than-significant level under either alternative. The impacts on transportation and traffic of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA because the impacts could be equally mitigated under either scenario.

Utilities and Service Systems

The proposed program would not result in significant impacts on utilities and service systems after mitigation, as described in greater detail in DPEIR Section 3.20, “Utilities and Service Systems.” The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the benefits to utilities and service systems from flood risk reduction would compensate for the impacts of the proposed program because the program impacts would generally be minimal, well-planned, and substantially mitigated, while the adverse impacts from a major flood event would be unplanned and unmitigated, and could be of significant scope. Specifically, substantial damage to utilities and service systems could occur as a result of a major flood event, resulting in their unavailability for what could be a lengthy period of time.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major

changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects on utilities and service systems from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program. The ETL also requires excavation of much of the root structure when a tree is removed. There would be no such requirement for trees removed under the VMS. Therefore, because of the larger vegetation management disturbance area under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the more ground-disturbing tree removal methodology, there is a greater potential for disturbance of existing underground utilities from vegetation management (e.g., disruption of utility services during root excavation) under this alternative than under the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in a smaller construction and land disturbance footprint than the proposed program; therefore, potential impacts on utilities from project-level construction of new facilities and repair and improvement of existing facilities would be less than under the proposed program. The impact mechanisms would remain the same under this alternative (e.g., disruption of utility services during construction and relocation of utilities during operation). However, the lower level of construction activity and operation of fewer and smaller facilities would minimize the potential for adverse effects. As under the proposed program, activities occurring as part of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would require development and implementation of mitigation measures for potentially significant impacts. Examples of such measures include coordinating with utility providers to avoid damage to existing utility infrastructure, or relocating or flood-proofing such infrastructure. Mitigation measures would be equally effective at reducing impacts on utilities to a less-than-significant level

under either the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative or the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, the potential for flood damage to cause service interruptions and generate the need for extensive repairs would be much greater under this alternative than under the proposed program.

As described above, impacts of system O&M on utilities under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be similar to impacts under the proposed program, with the exception of vegetation maintenance, where increased removal of waterside woody vegetation would result in increased potential for damage to existing underground utilities and associated disruptions to service. Construction-related impacts would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative because of the smaller construction and disturbance footprint; however, utility impacts would be equally mitigated under both alternatives. The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program. As a result, there would be greater flood-related utility impacts under this alternative. These effects would be infrequent, but they would be more likely to result in widespread adverse impacts as utility services were interrupted and utility facilities would require repairs or relocation. Given these conditions, the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater overall impacts on utilities and service systems than the proposed program. ***[Greater]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater utilities impacts than the proposed program is generally based on the decreased flood protection levels provided by that alternative (and resulting impacts on utility services and systems after flood system failures). This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance (i.e., the comparative flood risks would be similar for each scenario). The impacts on utilities of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA, because even though vegetation removal under the ETL likely would result in some additional construction-period impacts on utilities, those impacts could be mitigated to less-than-significant levels under either scenario.

Water Quality

The proposed program would not result in significant impacts on water quality after mitigation, as described in greater detail in DPEIR Section 3.21, "Water Quality." The following analysis compares the anticipated impacts of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative to those of the proposed program.

The comparison generally assumes that the water quality benefits from flood risk reduction would compensate for the impacts of the proposed program because the program impacts would generally be minimal, well-planned, and substantially mitigated, while the adverse water quality impacts from a major flood event would be unplanned and unmitigated, and could be of significant scope. Specifically, water quality conditions that could be affected after a major flood event (e.g., potential increased constituent loading associated with stormwater runoff and increased sediment loading and turbidity as a result of band and bed erosion) would likely be substantially greater than those involved in construction activities under the program.

Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would improve existing levees to design capacity. This alternative would primarily fix levees in place, without making major changes to the footprint or operation of those facilities (i.e., no setback levees). The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would implement an O&M regime for vegetation management different than that of the proposed program. Rather than the VMS and associated CVFPP elements such as LCM, vegetation management consistent with strict adherence to the ETL would be implemented under this alternative, with no pursuit of variances from ETL standards. Other elements of O&M would be the same as described in the proposed program; therefore, effects on water quality from O&M (other than from vegetation management) would be similar for the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program.

As described previously, implementing vegetation management under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would result in removal of woody vegetation over a larger waterside area than under the proposed program. The ETL also requires excavation of much of the root structure when a tree is removed. There would be no such requirement for trees removed under the VMS. Therefore, because of the larger vegetation management disturbance area

under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the more ground-disturbing tree removal methodology, there is a greater potential for construction-related water quality impacts (e.g., accidental releases of contaminants from construction equipment) from vegetation management under this alternative than under the proposed program.

Potential water quality impacts from project-level construction of new facilities and repair and improvement of existing facilities would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative than under the proposed program because of the smaller construction and land disturbance footprint. The impact mechanisms (e.g., disturbance of soil leading to erosion of sediment into a waterway; accidental releases of fuels, oils, and other contaminants) would remain the same under this alternative. However, the lower level of construction activity would minimize the potential for adverse effects. Impacts of both the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative and the proposed program would be less than significant.

The proposed program's operational impacts on water quality from modifying reservoir operations and altering floodplain inundation patterns would be the same under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. Therefore, operational impacts of this alternative would be similar to those of the proposed program.

The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program; as a result, the potential for flood damage to adversely affect water quality would be much greater under this alternative than under the proposed program. Impact mechanisms would include mobilization into the waterway of sediments and hazardous materials during the flood event and accidental spills of hazardous substances during postflood cleanup activities. Therefore, impacts of flooding and postflood repairs on water quality would be greater under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative.

As described above, impacts of system O&M on water quality under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would be similar to impacts under the proposed program, with the exception of vegetation maintenance, where increased removal of waterside woody vegetation would result in increased potential for adverse water quality impacts. Construction-related impacts would be less under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative because of the smaller construction and disturbance footprint;

however, water quality impacts would be less than significant under both alternatives. The Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would provide a much lower overall level of flood protection than the proposed program. As a result, there would be greater flood-related water quality impacts under this alternative. These effects would be infrequent, but they would be more likely to result in long-term damage as hazardous materials were released and spread in floodwaters over a wider area. Given these conditions, the overall impact of the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative on water quality is expected to be greater than that of the proposed program. ***[Greater]***

The conclusion that the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have greater water quality impacts than the proposed program is generally based on the decreased flood protection levels provided by that alternative (and resulting water quality impacts from hazardous materials releases after flood system failures). This impact mechanism would result in similar effects for the SSIA and an SSIA that includes strict ETL compliance (i.e., the comparative flood risks would be similar for each scenario). The impacts on water quality of an SSIA including strict ETL compliance would be **similar** to the impacts of the SSIA, because even though water quality could be affected during vegetation removal under the ETL, the effects could be equally mitigated under either scenario.

4.3.5 Summary Comparison of Alternatives

Table 4-1 provides a summary comparison of the impact levels of the proposed program and the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. The impact levels listed for the proposed program in Table 4-1 reflect the most substantial environmental effects identified for each environmental resource area.

Under Section 15088.5 of the CEQA Guidelines, a final EIR may need to be recirculated when “significant new information” is added after the publication and public review and comment on the DEIR. The CEQA Guidelines state that “[n]ew information added to an EIR is not ‘significant’ unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project’s proponents have declined to implement.” In particular, significant new information is defined as:

(1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.

(2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.

(3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.

(4) The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

Importantly, CEQA Guidelines Section 15088.5(b) states that "[r]ecirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR."

The information on the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative amplifies the discussion of alternatives in the DPEIR. However, most importantly, this information does not meet the definition of "significant new information" under CEQA. As discussed above, although the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would reduce construction-related impacts, it would fail to achieve the basic objective of the project by providing a lower level of flood risk reduction than called for under the proposed CVFPP. Furthermore, this alternative would exacerbate the proposed program's significant and unavoidable impacts on aquatic biological resources, terrestrial biological resources, and climate change and GHG emissions. Biological resources impacts, in particular, would substantially increase as a result of increased removal of woody vegetation required under the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative. Because this alternative would not "clearly lessen the environmental impacts of the project," its consideration in the FPEIR does not constitute significant new information and does not trigger recirculation under Section 15088.5 of the CEQA Guidelines.

As compared to the SSIA, a scenario involving strict ETL compliance under the SSIA would not decrease any environmental impacts, would increase several others including key potentially significant and unavoidable impacts, and would be infeasible for the reasons described

above. It likewise does not constitute significant new information triggering recirculation.

Table 4-1. Comparison of Impact Levels of the Proposed Program and the Achieve Design Flow Capacity with Strict ETL Compliance Alternative

Environmental Resource	Proposed Program[1]	Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative	SSIA with Strict ETL Compliance Scenario
Aesthetics	Less than significant after mitigation	Greater	Greater
Agriculture and Forestry Resources	Potentially Significant and unavoidable	Agriculture: Lesser Forestry: Greater	Agriculture: Greater Forestry: Greater
Air Quality	Potentially significant and unavoidable	Lesser	Similar
Biological Resources—Aquatic	Potentially significant and unavoidable	Greater	Greater
Biological Resources—Terrestrial	Potentially significant and unavoidable	Greater	Greater
Climate Change and Greenhouse Gas Emissions	Less than significant	Greater	Similar
Cultural and Historic Resources	Potentially significant and unavoidable	Lesser	Similar
Energy	Less than significant	Lesser	Similar
Geology, Soils, and Seismicity (Including Mineral and Paleontological Resources)	Potentially significant and unavoidable	Lesser	Similar
Groundwater Resources	Less than significant after mitigation	Greater	Similar
Hazards and Hazardous Materials	Less than significant after mitigation	Greater	Similar
Hydrology	Less than significant after mitigation	Greater	Similar
Land Use and Planning	Significant and unavoidable (agricultural impacts)	Lesser	Similar
Noise	Less than significant after mitigation	Similar	Similar

Table 4-1. Comparison of Impact Levels of the Proposed Program and the Achieve Design Flow Capacity with Strict ETL Compliance Alternative

Environmental Resource	Proposed Program[1]	Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative	SSIA with Strict ETL Compliance Scenario
Population, Employment, and Housing	Less than significant	Greater	Similar
Public Services	Less than significant	Greater	Similar
Recreation	Less than significant after mitigation	Greater	Greater
Transportation and Traffic	Potentially significant and unavoidable	Similar	Similar
Utilities and Service Systems	Less than significant after mitigation	Greater	Similar
Water Quality	Less than significant after mitigation	Greater	Similar
Totals		**6 Lesser** **2 Similar** ***13 Greater***	**0 Lesser** **15 Similar** **6 Greater**

Source: Data compiled by AECOM and MWH in 2012
Key:
ETL = Engineering Technical Letter (U.S. Army Corps of Engineers Engineering Technical Letter 1110-2-571)
SPFC = State Plan of Flood Control*As shown in Table 4-1, the Achieve SPFC Design Flow Capacity with Strict ETL Compliance Alternative would have a greater level of impact for 12 environmental issue areas, a lesser level of impact for seven environmental issue areas, and impacts similar to the proposed program in two issue areas. Note that agriculture and forestry resources are split into two impact comparisons: agricultural resources (lesser impact) and forestry resources (greater impact).*

As also shown in Table 4-1, a scenario involving the SSIA with strict ETL compliance would have a greater level of impact for six environmental issue areas, a lesser level of impact for zero environmental issue areas, and impacts similar to the proposed program in fifteen issue areas. Note that agriculture and forestry resources are split into two impact comparisons: agricultural resources (greater impact) and forestry resources (greater impact).