

Chapter 4 Cumulative Impacts

4.1 Introduction

This section describes the California Environmental Quality Act (CEQA) requirements for the cumulative impact analysis; the geographic scope of potential cumulative impacts; the projects considered and methodology used in the assessment of cumulative impacts; and the potential cumulative impacts of restoration projects that would be permitted under the Order for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide (Order).

4.2 CEQA Requirements

The State CEQA Guidelines require that an environmental impact report (EIR) assess the cumulative impacts of a project when its incremental effect is “cumulatively considerable” (State CEQA Guidelines Section 15130). CEQA requires that an EIR analyze the cumulative impacts of a project, either by discussing the significant cumulative impacts with respect to past, current, and probable future projects within the context of the cumulative setting, or by providing a summary of projects contained in an adopted local, regional, or statewide plan or related planning document that describes or evaluates conditions contributing to the cumulative effect.

State CEQA Guidelines Section 15355 defines “cumulative effects” as “two or more individual effects that, when considered together, are considerable or which compound or increase other environmental impacts.” According to State CEQA Guidelines Section 15130(b):

The cumulative impacts discussion shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

State CEQA Guidelines Section 15130 further states that the discussion of cumulative impacts should include:

- ◆ Either: (A) a list of past, present, and probable future projects producing related cumulative impacts; or (B) a summary of projections contained in an adopted general plan or similar document, or in an adopted or certified environmental document, that describes or evaluates conditions contributing to a cumulative impact.
- ◆ A discussion of the geographic scope of the area affected.
- ◆ A summary of expected environmental effects to be produced by these projects.

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- ◆ Reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

This cumulative impact discussion considers projects and programs identified under existing conditions (which include the current effects of past projects) and reasonably foreseeable and probable future projects. Therefore, this program environmental impact report (PEIR) uses the list of projects approach authorized by State CEQA Guidelines Section 15130(b)(1)(A). In this PEIR, the criterion for considering whether a project is reasonably foreseeable and probable is whether the project has been defined in adequate detail to estimate potential impacts, through the completion of either publicly available preliminary evaluations, feasibility studies, or draft environmental and engineering documents. Projects that were only in the development phase at the time this cumulative impact assessment was written, without detailed descriptions, operations criteria, or general locations, are not considered further. Table 4-2 lists and briefly describes the potential programs and projects considered in this cumulative impact assessment.

As stated in Chapter 1, *Introduction*, the Order does not involve the construction or operation of facilities or other physical actions by the State Water Resources Control Board (State Water Board). The State Water Board does not propose to construct or operate facilities or undertake other physical actions after adoption of the Order. However, the listed agencies may be CEQA responsible agencies for future actions permitted under the Order, depending on what the subsequent CEQA actions require:

- ◆ California Department of Fish and Wildlife
- ◆ California Department of Water Resources
- ◆ State Lands Commission
- ◆ California Office of Historic Preservation
- ◆ California Department of Boating and Waterways
- ◆ California Department of Transportation
- ◆ California Department of Parks and Recreation
- ◆ California Air Resources Board and regional air pollution control districts
- ◆ California Coastal Commission
- ◆ Counties, cities, and special districts (e.g., reclamation, resources conservation, water/irrigation)

The Order would be part of the Statewide Multi-Agency Program to Facilitate Implementation of Restoration Projects. This program seeks to develop programmatic regulatory processes for efficient, coordinated permitting and review of projects for the improvement of aquatic and riparian habitats and water quality in California. The Order would establish an authorization process (Figure 1-1) for environmentally beneficial restoration project types (Section 1.2, *Categories of Eligible Project Types*) and associated measures to protect species and the environment. Therefore, the analysis and conclusions of this PEIR are programmatic, focusing on the typical types of activities, actions, or potential projects that could occur in California, as defined in Chapter 2, *Background and Description of the Order*, with implementation of the Order. Once proposals for individual restoration projects consistent with the Order are developed, the lead agencies for the proposed restoration projects will evaluate whether

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the impacts are permitted in this programmatic EIR, or if necessary, evaluated in project-level CEQA documents.

This cumulative impact analysis is inherently cumulative, in that it consists of reasonably foreseeable and probable future individual restoration projects that would be permitted under the Order. Therefore, the focus of this cumulative impact analysis is on how existing conditions (including the current effects of past projects) and future individual restoration projects that are not addressed interrelate with the Order and the alternatives in a manner that could result in a considerable contribution to cumulative impacts.

4.3 Geographic Scope of the Effects of the Order

The approach and geographic scope of the cumulative effects evaluation vary depending on the resource area being analyzed. Table 4-1 defines the geographic scope of the effects of the Order for each resource topic addressed in this PEIR.

**Table 4-1
Geographic Context for the Cumulative Impact Analysis**

| Resource Topic | Geographic Area |
|--|---|
| Aesthetics | All Regional Board Jurisdictions |
| Agriculture and Forestry Resources | All Regional Board Jurisdictions |
| Air Quality and Greenhouse Gas Emissions | All Regional Board Jurisdictions |
| Biological Resources—Terrestrial | All Regional Board Jurisdictions |
| Biological Resources—Aquatic | Waterways within All Regional Board Jurisdictions |
| Cultural Resources | All Regional Board Jurisdictions |
| Energy Resources | All Regional Board Jurisdictions |
| Geology and Soils | All Regional Board Jurisdictions |
| Hazards and Hazardous Materials | All Regional Board Jurisdictions |
| Hydrology and Water Quality | All Regional Board Jurisdictions |
| Land Use and Planning | All Regional Board Jurisdictions |
| Mineral Resources | All Regional Board Jurisdictions |
| Noise | All Regional Board Jurisdictions |
| Population and Housing | All Regional Board Jurisdictions |
| Recreation | All Regional Board Jurisdictions |
| Transportation | All Regional Board Jurisdictions |
| Tribal Cultural Resources | All Regional Board Jurisdictions |
| Utilities and Public Service Systems | All Regional Board Jurisdictions |
| Wildfire | All Regional Board Jurisdictions |

SOURCE: Data compiled by Environmental Science Associates in 2020

NOTE: Regional Board = Regional Water Quality Control Board

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4.4 Cumulative Projects

As stated above, in this PEIR, the criterion for considering whether a project is reasonably foreseeable and probable is whether the project has been defined in adequate detail to estimate potential impacts, through the completion of either publicly available preliminary evaluations, feasibility studies, or draft environmental and engineering documents. The Order considers restoration projects that could take place throughout California and would be administered and used, in part, by the nine Regional Water Quality Control Boards (Regional Boards). Therefore, Table 4-2 includes a representative sample (not an exhaustive list, but a range) of the reasonably foreseeable and probable programs and projects located within the nine Regional Board jurisdictions that could have impacts that cumulate with the impacts of the Order, and other programs, projects, and policies included in the cumulative impact assessment.

**Table 4-2
Sample of Programs and Projects Included in the Cumulative Impact
Assessment for the Order**

| Program or Project Name | Region | Program or Project Type |
|---|-------------------------|---------------------------------|
| Alameda Creek Fish Passage Projects | Region 2—San Francisco | Fish passage |
| Alamitos Bay Oyster Restoration Project | Region 4—Los Angeles | Tidal wetlands habitat |
| Aliso Creek Estuary Restoration Project | Region 9—San Diego | Tidal wetlands habitat |
| American River Gravel Augmentation Projects | Region 5—Central Valley | Stream and side channel habitat |
| American River Sunrise Side Channel Restoration Project | Region 5—Central Valley | Side channel habitat |
| Arroyo Hondo Creek Steelhead Passage Enhancement | Region 3—Central Coast | Fish passage and stream habitat |
| Ballona Wetlands Restoration Project | Region 4—Los Angeles | Tidal wetlands habitat |
| Blackwood Creek Restoration Project | Region 6—Lahontan | Stream habitat |
| Bouquet Canyon Creek Restoration Project | Region 4—Los Angeles | Stream and riparian habitat |
| Colorado Lagoon Restoration Project | Region 4—Los Angeles | Tidal lagoon habitat |
| Decker Island Restoration Project | Region 5—Central Valley | Tidal wetlands habitat |
| Deforest Wetlands Restoration | Region 4—Los Angeles | Wetlands restoration |

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Table 4-2
Sample of Programs and Projects Included in the Cumulative Impact
Assessment for the Order

| Program or Project Name | Region | Program or Project Type |
|---|-------------------------|---|
| Devereux Slough Restoration Project | Region 3—Central Coast | Tidal wetlands habitat |
| Dry Creek Restoration Project | Region 1—North Coast | Stream and riparian habitat |
| Dutch Slough Tidal Restoration Project | Region 5—Central Valley | Tidal wetlands habitat |
| Feather and Bear Rivers Levee Setback Project | Region 5—Central Valley | Floodplain habitat |
| Grizzly Slough Floodplain Restoration Project | Region 5—Central Valley | Floodplain habitat |
| Hamilton/Bel Marin Keys Wetlands Restoration Projects | Region 2—San Francisco | Tidal wetlands habitat |
| Huntington Beach Wetlands Restoration Project | Region 8—Santa Ana | Wetlands restoration |
| McCormack Williamson Tract Restoration Project | Region 5—Central Valley | Habitat restoration |
| Matilija Dam Ecosystem Restoration Program | Region 4—Los Angeles | Habitat restoration |
| Napa Creek Restoration Flood Control Improvement Project | Region 2—San Francisco | Stream and riparian habitat |
| Napa River Restoration Projects (multiple) | Region 2—San Francisco | Stream habitat |
| Salton Sea Restoration Project | Region 7—Colorado River | Habitat restoration |
| San Joaquin Marsh Enhancement, Phase I | Region 8—Santa Ana | Marsh habitat |
| Santa Ana River Restoration Project | Region 8—Santa Ana | Invasive species removal and riparian habitat |
| San Francisco Bay Living Shorelines Project | Region 2—San Francisco | Tidal wetlands habitat |
| Shasta Fish Passage Project | Region 5—Central Valley | Fish passage |
| Shasta River Conservation Habitat Enhancement Restoration Project | Region 1—North Coast | Stream habitat and water conservation |

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Table 4-2
Sample of Programs and Projects Included in the Cumulative Impact Assessment for the Order

| Program or Project Name | Region | Program or Project Type |
|--|-------------------------|---------------------------------------|
| Southport West Sacramento Levee Setback | Region 5—Central Valley | Mixed floodplain and riparian habitat |
| Trabuco Creek Fish Passage Project | Region 9—San Diego | Fish passage |
| Upper Truckee River and Marsh Restoration Project | Region 6—Lahontan | Stream and freshwater marsh habitat |
| Winter Island Tidal Habitat Restoration Project | Region 2—San Francisco | Tidal wetland habitat |
| Yuba River Canyon Salmon Habitat Restoration Project | Region 5—Central Valley | Spawning habitat |

4.5 Cumulative Impact Methodology and Analysis

4.5.1 Methods and Assumptions

A three-step process is followed to determine the significance of the Order’s cumulative impacts.

First, the extent of the cumulative impacts without the Order is evaluated to determine whether a significant cumulative impact on a resource would exist in the future. To do so, the combined effects of past, present, and probable future projects are evaluated to determine whether there is a significant cumulative impact.

Second, a determination is made regarding whether the incremental contribution of the Order to any significant cumulative impact is cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (CEQA Section 21083).

Third, a determination is made as to whether mitigation measures identified in this PEIR would reduce the contribution of the Order to the cumulative impact to a less-than-considerable level, thus resulting in a less-than-significant cumulative impact. If not, then the cumulative impact would remain significant and unavoidable.

As described in Chapter 1, *Introduction*, future individual restoration projects permitted under the Order could include but are not limited to improvements to stream crossings and fish passage; removal of small dams, tide gates, flood gates, and legacy structures; bioengineered bank stabilization; restoration and enhancement of off-channel and side-channel habitat; water conservation projects; floodplain restoration; removal of pilings and other in-water structures; removal of nonnative invasive species and revegetation with native plants; establishment, restoration, and enhancement of tidal, subtidal, and freshwater wetlands; and establishment, restoration, and enhancement of stream and

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riparian habitat and upslope watershed sites. As stated in Section 3.1, all restoration projects permitted under the Order would incorporate applicable general protection measures and mitigation measures (Appendix E) to ensure the avoidance and minimization of impacts on sensitive resources.

For the purposes of this PEIR, general protection measures are intended to be implemented and enforced in the same way as mitigation measures consistent with Section 15126.4 of the State CEQA Guidelines. In addition, as stated above, the impact analysis assumes that the proposed restoration projects would be constructed and operated in compliance with relevant federal, state, and local regulations and ordinances.

In many cases, adoption of general protection measures and applicable mitigation measures would reduce impacts in this PEIR to a less-than-significant level. However, the precise locations and detailed characteristics of potential future individual restoration projects are yet to be determined, and the specific resources present within the project footprint (e.g., construction footprint, infrastructure) in California cannot be determined. Factors necessary to identify specific impacts include individual restoration activities and the project's location. Therefore, in some cases, significant impacts would remain significant and unavoidable.

As part of the State Water Board or Regional Board's issuance of a Notice of Availability (NOA) for a restoration project under the Order, compliance with the general protection measures and mitigation measures would apply to all restoration projects. The applicability of the general protection measures and mitigation measures would depend on the individual restoration activities, project location, and the potentially significant impacts of the individual restoration project. Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency.

For many impacts, the impact conclusion presented in this PEIR is conservative. Project proponents that might propose restoration projects for coverage under the Order have a legal duty under CEQA to mitigate impacts to the extent feasible. In addition, many of the mitigation measures identified in this PEIR are standard types of mitigation, are considered generally feasible for most projects, and would reduce impacts to a less-than-significant level in many cases. Review of project plans by Regional Board staff members will ensure that the project proponent (as defined in Section 1.3.3, *Determining the Next Step under CEQA*) has incorporated all necessary and appropriate general protection measures and mitigation measures relevant to the proposed activity before enrolling the project under the Order.

4.6 Cumulative Impacts

The cumulative impact analysis is presented by resource section and in the same order as in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*. The study area for the Order spans all nine Regional Board jurisdictions and includes all counties and cities in California. For this reason, the cumulative impact analysis for each resource section provides a general discussion of the environmental setting; restoration projects that would be permitted under the Order (Section 1.2, *Categories of Eligible*

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Project Types) are not discussed separately. All impacts of the Order discussed in this chapter are described in Sections 3.2 through 3.20.

For each issue area addressed in this PEIR, the criteria applied to evaluate the significance of the overall cumulative effect are the same as the criteria used to evaluate direct and indirect impacts for that issue area.

4.6.1 Aesthetics

Construction, constructed facilities (natural or artificial infrastructure), and operations and maintenance (O&M) for the projects listed in Table 4-2, *Sample of Programs and Projects, and included in the Cumulative Impact Assessment for the Order*, would introduce new physical features into the existing landscape such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could result in significant adverse effects on visual quality, affect scenic vistas and scenic resources, and introduce new sources of light and glare. Both temporary (construction-related) effects and long-term or permanent effects (new structures) could occur.

For example, project construction could include temporary activities such as earthmoving and construction equipment staging that could alter the existing landscape of agricultural and natural open space areas. Unless these areas are replanted or recontoured to preconstruction conditions to the extent feasible, such activities could result in significant changes to the existing visual character and quality in the vicinity of the construction site. In addition, visually prominent permanent structures such as facility components for culverts, fish screens, fencing, ponds and storage tanks, and pumps may not be of the same visual character as the surrounding landscapes. For example, a new pump used for small ponds and a stock tank for offstream storage ponds and tanks might add contrast to the area and detract from the natural setting. Adding a project feature that prominently contrasts with the existing visual qualities and character of the surrounding landscape could cause a substantial change in visual quality, scenic vistas, and scenic resources.

The use of nighttime security lighting or floodlighting could be required if construction activities extend into the nighttime hours. This temporary lighting could be visible to nearby residents and would be particularly noticeable in rural areas with lower existing levels of light pollution from sources such as street lights. Furthermore, construction and operation of some projects listed in Table 4-2 could require substantial lighting (e.g., temporary floodlighting during nighttime construction; long-term lighting for buildings or other facilities) that could result in significant temporary adverse effects. In addition, new ancillary facilities could include reflective materials (e.g., bioengineered materials to reinforce bank stability), resulting in a potential source of substantial glare. These changes associated with past, present, and planned future projects would result in a cumulatively significant impact on aesthetic and scenic resources.

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Restoration projects permitted under the Order would introduce new physical features into the existing landscape. These changes could result in significant temporary or permanent adverse effects on visual quality in the project area. For example, construction-related temporary activities such as earthmoving activities and the staging of construction equipment could alter the existing landscape of agricultural and natural open space areas, and permanent structures may not be of the same visual character as surrounding landscapes. (These potential adverse effects are addressed in Impacts 3.2-1, 3.2-2, and 3.2-3.) Therefore, restoration projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the substantial degradation of scenic vistas, scenic resources, and existing visual character.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measures AES-1 and AES-2 would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. Implementation of Mitigation Measures AES-1 and AES-2 is recommended to reduce potentially significant impacts from proposed lighting facilities. If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measures AES-1 and AES-2 would continue to be implemented as part of the restoration projects permitted under the Order.

In addition, as discussed in Section 3.2, *Aesthetics*, restoration projects permitted under the Order would incorporate several general protection measures: GPM-4, GPM-15, GPM-19, GPM-20, VHDR-1, VHDR-3, VHDR-4, and VHDR-5. Incorporating these general protection measures would further reduce adverse effects of project construction on the visual qualities of the study area.

Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. With implementation of Mitigation Measures AES-1 and AES-2 and incorporation of the general protection measures, the potential aesthetic and visual impacts of restoration projects that would be permitted under the Order would be reduced further.

Furthermore, restoration projects permitted under the Order are expected to be beneficial; they would restore the natural character of disturbed sites and result in an increase in aquatic or riparian resource areas and habitat that would attract fish and wildlife. For example, projects to remove small dams would return sites to their natural habitat and would improve visual quality. Therefore, cumulative impacts would be **less than significant**.

4.6.2 Agriculture and Forestry Resources

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees;

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reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could convert Farmland (Prime Farmland, Farmland of Statewide Importance, and Unique Farmland, collectively called “Special Designation Farmland”) to nonagricultural use, or convert forestland to nonforest use; could conflict with a Williamson Act contract; or could create a conflict with zoning for agricultural, forestland, or timberland use. As a result, cumulatively significant temporary, long-term, or permanent adverse effects on agriculture and forestry resources could occur.

For example, projects could be located in forestlands, Farmland, areas with agricultural zoning, or Williamson Act lands and could result in adverse effects on agriculture and forestry resources. Construction activities could include developing temporary facilities such as access haul roads, borrow sites, and areas for staging, equipment storage, and temporary work sites. Such activities could convert Farmland to nonagricultural use or forestland to nonforest use, conflict with a Williamson Act contract, or create a conflict with zoning for agricultural, forestland, or timberland use if the project is not a permitted use in the zoning or under the contracts.

In addition, unless topsoil is replaced to preconstruction conditions and the affected area is replanted to the extent feasible, these construction activities could result in a substantial long-term or permanent conversion of Farmland or in conflicts with agricultural zoning or Williamson Act requirements. Furthermore, construction activities and construction staging areas or work areas could require tree removal in forestlands; this impact could be considered long-term, given the length of time needed to reforest areas. These changes associated with past, present, and planned future projects would result in a cumulatively significant impact on agriculture and forestry resources.

Restoration projects permitted under the Order could result in significant temporary impacts (construction of staging areas or access and haul routes) or permanent impacts (from the facility footprint) related to conversion of Farmland; conflicts with Williamson Act contracts and agricultural zoning; conversion of forestland, timberland, and timber production zones to nonforest or nontimber uses; and conversion of Farmland to nonagricultural uses. (These potential adverse effects are addressed in Impacts 3.3-1, 3.3-2, and 3.3-3.) Therefore, restoration projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact on agriculture and forestry resources.

As part of the State Water Board or Regional Board’s issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measures AG-1, AG-2, AG-3, and GEO-6 would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. Implementation of Mitigation Measures AG-1, AG-2, AG-3, and GEO-6 would minimize impacts on agriculture and forestry resources. If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measures AG-1, AG-2, AG-3, and GEO-6 would continue to be implemented as part of the restoration projects permitted under the Order.

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In addition, as described in Section 3.3, *Agriculture and Forestry Resources*, restoration projects permitted under the Order would incorporate several general protection measures: GPM-12, GPM-14, GPM-15, GPM-17, GPM-20, IWW-14, VHDR-1, VHDR-2, VHDR-3, VHDR-4, VHDR-5, and VHDR-6. Incorporating these general protection measures would further reduce adverse effects of project construction on agriculture and forestry resources.

Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. In most cases, Mitigation Measures AG-1, AG-2, AG-3, and GEO-6 and the applicable general protection measures would reduce the contribution of permitted restoration projects to less than cumulatively considerable.

The effects on agriculture and forestry resources of some restoration projects permitted under the Order are expected to be neutral or beneficial. Restoration projects may improve hydrology and connectivity to the water table (i.e., bank stabilization, restoration and enhancement of off-channel and side-channel habitat) and would reduce soil erosion, recharge groundwater, use offstream water storage during the dry season, provide natural pest control, and provide water quality buffers. Such projects also would be beneficial for existing Special Designation Farmland, forestland, timberland, or timberland zoned Timberland Production.

However, because the extent and location of such actions are yet to be determined, it is not possible to conclude that the mitigation measures, or equally effective mitigation measures, would reduce significant impacts to a less-than-significant level in all cases. Therefore, cumulative impacts could remain **significant and unavoidable**.

4.6.3 Air Quality and Greenhouse Gas Emissions

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

Construction activities would likely require the use of diesel-powered equipment and vehicles; therefore, projects could conflict with an applicable air quality plan and result in a short- or long-term cumulatively considerable net increase in pollutants for which the region is in nonattainment. Projects also could create objectionable odors affecting a substantial number of people and expose sensitive receptors to substantial pollutant concentrations.

Construction and operation of the projects listed in Table 4-2 could result in an increase in greenhouse gas (GHG) emissions that may have a significant impact on the environment and could conflict with an applicable plan, policy, or regulation adopted for

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the purpose of reducing emissions of GHGs. These significant effects could be both temporary (construction-related) and permanent (occurring during O&M of projects).

For example, during project construction, combustion of fuels by construction equipment and material transport trucks and during earthmoving activities would emit criteria air pollutants. Emissions-generating activities during project O&M would be similar to those described for project construction, potentially consisting of periodic maintenance and repairs that would require the use of heavy construction equipment; however, the level of activity would be lower during the operational phase than during construction.

In addition, some project operations could generate stationary-source emissions. For example, pumps associated with offstream storage ponds and tanks could generate pollutant emissions (e.g., from electrical generators). Although emissions would frequently be minimal, some air district thresholds are measured against daily emissions; it is reasonable to expect that some maintenance activities could involve substantial use of heavy equipment or other emissions-intensive activities.

Restoration projects permitted under the Order could result in temporary or long-term emissions of air pollutants, substantially contribute to pollutant concentrations that exceed the national ambient air quality standards and California ambient air quality standards, and conflict with a local air quality management plan, thereby resulting in conflicts with applicable air quality plans. For example, construction of restoration projects permitted under the Order could include the use of mobile diesel-powered construction equipment such as excavators, graders, scrapers, bulldozers, and backhoes, which would emit criteria air pollutants.

Project construction could temporarily emit odors from diesel exhaust; also, construction-related dredging could result in the anaerobic decay of organic material, which can generate gases (specifically hydrogen sulfide, commonly described as having a foul or “rotten-egg” smell). Emissions-generating activities during project O&M would be similar to those described for project construction, potentially consisting of periodic maintenance and repairs that would require the use of heavy construction equipment; however, the level of activity would be lower during the operational phase than during construction.

Therefore, restoration projects permitted under the Order could result in temporary or long-term emissions of air pollutants. (These potential adverse effects are addressed in Impacts 3.4-1, 3.4-2, 3.4-3, 3.4-4, 3.4-5, and 3.4-6.) Significant cumulative adverse effects on air quality in the project area could occur.

Sources of construction-related emissions generally would not remain in one location for long periods of time, and the emissions would be intermittent and would dissipate from the source rapidly over a short distance (as described in Impact 3.4-3).

In addition, as discussed in Section 3.4, *Air Quality and Greenhouse Gas Emissions*, restoration projects permitted under the Order would incorporate a general protection measure: IWW-13. Incorporating this general protection measure would further reduce adverse impacts of project construction and O&M activities that would create objectionable odors affecting a substantial number of people. Because any odors would be intermittent and would dissipate from the source rapidly over a short distance,

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construction and O&M activities would not be expected to result in odorous emissions that would affect a substantial number of people or to result in a cumulatively considerable incremental contribution to a significant cumulative impact.

Construction of restoration projects permitted under the Order could emit air pollutants such as fugitive dust, carbon monoxide, and toxic air contaminants that, at high dosages, could present health risks to sensitive receptors (as described in Impact 3.4-4) and result in significant temporary adverse effects on air quality in the project area. Construction activities would be temporary, occurring in any one location for short periods of time. However, health impacts from exposure to these pollutants depend on the proximity of the pollutant to which sensitive receptors are exposed, the duration of exposure, and the toxicity of the pollutant. Because the extent and location of such actions are not known at this time, project construction could present health risks to sensitive receptors and result in significant temporary adverse effects on air quality in the project area. Routine O&M activities would not be expected to result in sufficient intensity or duration to rise to the level of chronic exposure necessary to cause health impacts and would not result in cumulatively significant impacts.

Restoration projects permitted under the Order could result in temporary and long-term GHG emissions. Such projects could conflict with GHG reduction policies, plans, and regulations as a result of GHG emissions during construction and O&M activities and emissions from stationary sources (e.g., motors for pump operation). Construction emissions could result from sources such as fuel combustion during the use of construction equipment, trucks, worker vehicles, and dredging equipment. GHG emissions during project maintenance would be similar to those during construction; however, the level of activity, and thus the emissions level, would be much lower during the operational phase than during construction because activity would not be as intense during operations. Construction- and O&M-related emissions and stationary-source emissions could result in significant adverse effects related to GHG emissions production in the project area. (These potential adverse effects are addressed in Impacts 3.4-5 and 3.4-6.)

Therefore, restoration projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the substantial degradation of air quality and the generation of GHG emissions.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measures AIR-1, AIR-2, and AIR-3 would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. Mitigation Measures AIR-1, AIR-2, and AIR-3 would minimize impacts on air quality and GHG emissions. If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measures AIR-1, AIR-2, and AIR-3 would continue to be implemented as part of the restoration projects permitted under the Order.

In addition, as discussed in Section 3.4, *Air Quality and Greenhouse Gas Emissions*, restoration projects permitted under the Order would incorporate several General

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Protection Measures: GPM-8, GPM-17, and IWW-13. Incorporating these general protection measures would further reduce adverse effects of project construction and operation on air quality and GHG emissions.

Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. In most cases, Mitigation Measures AIR-1, AIR-2, and AIR-3 and the applicable general protection measures would reduce the contribution of permitted restoration projects to less than cumulatively considerable. However, because the extent and location of such actions are yet to be determined, it is not possible to conclude that the mitigation measures and applicable general protection measures would reduce the contribution of permitted actions to less than cumulatively considerable in all cases. Therefore, cumulative impacts could remain **significant and unavoidable**.

4.6.4 Biological Resources—Terrestrial

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could result in the loss or degradation of terrestrial habitats, including wetlands (e.g., tidal wetlands) for special-status species; sensitive natural communities; and designated critical habitat. For example, construction activities could result in temporary habitat disturbance and permanent habitat loss from clearing of vegetation in equipment staging areas; temporary dewatering of channel sections; and general grading, recontouring, relocation, and/or filling of portions of channels and/or wetlands to accommodate the implementation of projects.

Habitat could also be affected during construction by being disturbed by vehicle access and equipment staging. In addition, construction equipment increases the potential for accidental spills of contaminants (e.g., fuels or lubricants), which could degrade habitat. Machinery can unintentionally introduce seeds or plant parts of weeds from other areas, and many invasive weeds readily colonize soils that have been disturbed by grading or other mechanical disturbance. Thus, construction equipment could lead to the introduction or spread of invasive or noxious weeds, which could degrade the habitat quality of sensitive communities.

Construction activities could harm or kill special-status terrestrial wildlife that inhabit areas near or adjacent to levee construction sites. For example, noise from and nighttime lighting for construction equipment could disturb special-status birds and mammals. Special-status amphibians, reptiles, and small mammals could be killed by construction and earthmoving equipment. Terrestrial wildlife could be harmed by becoming entrapped in open trenches or other project facilities. Dredging activities to improve fish passage could adversely affect special-status terrestrial wildlife indirectly

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by reducing the availability of prey in areas where the dredged material is deposited. Backfilling of small-mammal burrows along levee slopes could result in direct mortality of certain special-status wildlife, such as giant garter snakes, which use such habitat and thus could be unintentionally entombed within these burrows. Levee vegetation management could also disturb special-status wildlife.

Construction and O&M of the projects listed in Table 4-2 also could interfere with the movement of native resident or migratory wildlife. For example, construction could disturb natural habitat used as movement corridors by various terrestrial wildlife species. Movement could be substantially affected or even cut off completely if the entire width of the corridor were disturbed. This could affect the ability of wildlife to move between areas important to different life history functions, such as reproduction and feeding behaviors.

In addition, construction activities may include high-intensity lighting to facilitate night work. Such lighting can pose a risk to flying birds, including shorebirds, waterfowl, and raptors that occur in the vicinity of the project sites. Most impacts of construction on wildlife movement are expected to be temporary. However, there could be a longer term impact on local and migratory movement by wildlife if existing vegetation were to be permanently removed during construction or if a structure were to create a physical barrier to migration and movement.

Construction and O&M of the projects listed in Table 4-2 have the potential to conflict with local policies or ordinances protecting biological resources or the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat protection plan. These cumulatively significant effects could be both temporary during construction and operation and permanent during operation. These changes associated with past, present, and planned future projects would result in a cumulatively significant impact on terrestrial biological resources.

Restoration projects permitted under the Order could include new and or/rehabilitated existing setback levees, meadow restoration, conveyance facilities, and offstream storage ponds and tanks. Such restoration projects could result in significant temporary or permanent adverse effects on sensitive natural communities, special-status plant species, and special-status wildlife species and their habitat in the project area. (These potential adverse effects are addressed in Impacts 3.5-1, 3.5-2, 3.5-3, 3.5-4, 3.5-5, 3.5-6, and 3.5-7.)

Specifically, construction activities could result in temporary habitat disturbance and permanent habitat loss from clearing of vegetation within equipment staging areas; temporary dewatering of channel sections; and general grading, recontouring, relocation, and/or filling of portions of channels and/or wetlands to accommodate implementation of restoration projects. (These potential adverse effects are addressed in Impacts 3.5-1, 3.5-2, and 3.5-3.)

In addition, restoration projects permitted under the Order could result in significant temporary or permanent adverse effects on state and federally protected wetlands through direct removal, hydrological interruption, or other means. For example, infrastructure improvements to improve fish passage (e.g., installing a new bridge

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footing to replace an undersized culvert) could result in minor amounts of fill of rivers or streambeds. This new infrastructure may require installing the minimum amount of rock slope protection along the channel banks (including below the ordinary high-water mark) needed to ensure that flows do not undermine the foundations of the new infrastructure. (This potential adverse effect is addressed in Impact 3.5-4.)

Similarly, construction adjacent to wetlands or other waters of the United States could indirectly or directly affect these resources through increased erosion, sedimentation from soil disturbance, or spills of hazardous materials. Such construction could also temporarily affect wildlife movement and migration conditions and alter the foraging patterns of resident wildlife species in the project area. For example, ground disturbance could temporarily disrupt movement by amphibians and reptiles. Construction activities, including movement of equipment and personal vehicles and vegetation removal, could interfere with the movement of other terrestrial wildlife species, such as large mammals or birds. (These potential adverse effects are addressed in Impact 3.5-5.)

Projects also have the potential to conflict with local policies, ordinances, and the provisions of an adopted habitat conservation plan or natural community conservation plan for terrestrial biological resources in the project area. (These potential adverse effects are addressed in Impacts 3.5-6 and 3.5-7.)

Therefore, projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to substantial adverse effects on terrestrial biological resources.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measure TERR-1 would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. Mitigation Measure TERR-1 would minimize impacts on terrestrial biological resources. If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measure TERR-1 would continue to be implemented as part of the restoration projects permitted under the Order.

In addition, as described in Section 3.5, *Biological Resources—Terrestrial*, restoration projects permitted under the Order would incorporate several general protection measures: GPM-3, GPM-4, GPM-5, GPM-6, GPM-7, GPM-8, GPM-9, GPM-10, GPM-11, GPM-12, GPM-14, GPM-16, GPM-17, GPM-18, GPM-20, IWW-6, WQHM-1, WQHM-2, WQHM-4, WQHM-5, WQHM-6, VHDR-1, VHDR-2, VHDR-3, VHDR-4, and VHDR-5. Incorporating these general protection measures would further reduce adverse effects of project construction on terrestrial biological resources.

Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. Generally, many of the measures discussed above are commonly employed to reduce impacts on terrestrial biological resources, and in many cases, would reduce identified impacts to less than cumulatively considerable in most cases.

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Furthermore, the effects on terrestrial biological resources of most of the restoration projects permitted under the Order are expected to be neutral or beneficial, because the specific purpose of these projects would be to correct existing conditions that contribute to resource degradation. For example, seasonal restoration and setback levee projects would result in benefits by causing more frequent and longer flood inundation, which would promote the establishment of more vigorous wetland and riparian communities in areas that currently may be too dry or otherwise unsuitable to support those natural communities. Restoration projects (i.e., seasonal wetland or tidal wetland restoration projects) would improve the quality of both wetland and upland habitats, which would result in a beneficial effect on wildlife movement and avian migratory corridors. Expanding riparian habitat would result in a beneficial effect on functionality for the movement of many riparian species, particularly those whose distribution is restricted to riparian habitat.

However, because the extent and location of such actions are yet to be determined, it is not possible to conclude that mitigation measures and applicable general protection measures would reduce the contribution of permitted actions to less than cumulatively considerable in all cases. Therefore, cumulative impacts could remain **significant and unavoidable**.

4.6.5 Biological Resources—Aquatic

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could adversely affect habitat associated with special-status fish species, result in adverse direct effects on special-status fish species, and interfere with the movement of native resident fish species. These significant adverse effects could be both temporary and permanent.

For example, construction activities such as earthmoving, vegetation removal, equipment staging, and stockpiling of materials could indirectly affect special-status fish species in multiple ways, including disturbance of benthic prey species, mobilization of sediment, disturbance of riparian habitat, or chemical contamination. In addition, construction activities could temporarily disturb special-status fish in the vicinity, causing them to avoid using adjacent habitat. In-water construction and maintenance activities have the potential to injure or kill fish indirectly by altering their habitat.

In-water and near-shore construction activities also have the potential to cause adverse effects on special-status species through water quality degradation from increased turbidity, inadvertent spills of hazardous materials, and disruption of contaminated sediments. Construction activities could also lead to the introduction or spread of invasive species or noxious weeds in sensitive communities.

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In addition, construction and O&M activities may require temporary dewatering or lowering of water levels in the areas to be maintained or repaired. During dewatering, special-status fish may be stranded, injured, or killed. Water pumping to dewater construction sites could result in entrainment or impingement of fish at the pumps.

Operation of conveyance projects could result in direct impacts on special-status fish species, depending on the extent to which the operation influences the flows in connecting rivers or streams. Changes in water operations could result in impingement or entrainment of special-status fish species.

Contiguous riparian and riverine habitats provide suitable cover, prey resources, and water to support local movement and migration of special-status fishes. Riparian corridors and rivers often serve as the main routes for movement and migration of numerous fish and wildlife species; thus, the loss, fragmentation, or alteration of riparian and riverine habitats could limit access to habitats for breeding (e.g., seasonal spawning areas for fish), rearing, foraging, and other needs. Construction and O&M of facilities located along waterways, such as offstream storage ponds and tanks, could cause long-term or permanent interruptions to migratory fish habitat corridors. Depending on the types of facilities constructed and their operational criteria, operations could block or delay the migration or movement of migratory fish species. Alteration of flow patterns and water quality in the project area or its tributaries could also disrupt migratory cues for these species.

These changes associated with past, present, and planned future projects would result in a cumulatively significant impact on aquatic biological resources. Restoration projects permitted under the Order could result in significant temporary and permanent adverse impacts on special status-fish species and their habitats in the project area.

Projects permitted under the Order could include, for example, dewatering, excavation, fill, and placement of materials. These activities could affect the juvenile and adult life stages of special-status fish species by causing direct injury or mortality, or by displacing fish or disrupting their normal behaviors. Projects permitted under the Order could result in short- and long-term increases in turbidity and suspended sediment levels during construction that may negatively affect fish populations and other aquatic organisms.

Several types of restoration projects permitted under the Order could generate noise, motion, and vibration from the use of heavy equipment during activities such as pile driving or the use of explosives for removal of small dams. Projects permitted under the Order could result in significant temporary and permanent adverse impacts on special-status fish species and their habitats through construction-related disturbance of benthic prey species; mobilization of sediment; disturbance of riparian habitat; chemical contamination of water bodies used by special-status fish species; and operational changes in the timing and magnitude of flows and water quality (including temperature and salinity) in downstream water bodies used by special-status fish species. (These potential adverse effects are addressed in Impact 3.6-1.)

Restoration projects permitted under the Order could result in significant temporary and permanent adverse direct effects on the movement of native resident or migratory fish. For example, installing a cofferdam to facilitate construction would have the potential to

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temporarily impede or delay migrating adults, limiting their ability to reach spawning and/or rearing areas. This action could also hinder migration by juveniles, potentially exposing them to increased predation and unsuitable aquatic habitat conditions. (These potential adverse effects are addressed in Impact 3.6-2.)

Instream construction activities also could impede upstream passage of fishes by causing altered hydrologic conditions (e.g., increased stream velocity). However, the long-term effects of restoration projects permitted under the Order are expected to be beneficial or neutral. For example, removing artificial structures, improving fish passage, restoring habitat, and revegetating with native plants would all provide benefits for the migration of native fishes, either by directly creating new passage or by indirectly creating more suitable habitat, thus providing an improved migratory corridor for fish. Therefore, projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the substantial degradation or elimination of special-status fish species and their habitat and the movement of native resident fish species.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with the general protection measures listed below would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. As discussed in Section 3.6, *Aquatic Biological Resources*, restoration projects permitted under the Order would incorporate several general protection and species protection measures: GPM-2, GPM-3, GPM-4, GPM-5, IWW-1, IWW-2, IWW-3, IWW-4, IWW-5, IWW-6, IWW-7, IWW-8, IWW-9, IWW-10, IWW-11, IWW-12, IWW-13, SPM-3, FISH-1, FISH-2, FISH-3, FISH-4, VHDR-1, VHDR-2, VHDR-3, VHDR-4, VHDR-5, VHDR-6, VHDR-7, VHDR-8, WQHM-1, WQHM-2, WQHM-3, WQHM-4, WQHM-5, and WQHM-6. Incorporating these general protection measures would reduce adverse effects of project construction and operation on aquatic biological resources. If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents.

Implementation of the general protection measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing agency. Generally, many of the measures discussed above are commonly employed to reduce impacts associated with aquatic biological resources, and in many cases, would reduce identified impacts to less than cumulatively considerable in most cases.

Restoration projects permitted under the Order could result in significant effects on aquatic resources. However, construction-related impacts would be temporary. Implementation and enforcement of the general protection and species protection measures would be the responsibility and jurisdiction of the appropriate project proponents. In addition, the general protection and species protection measures discussed above would reduce the contribution of permitted restoration projects to less than cumulatively considerable. In some cases, restoration projects (i.e., removing artificial structures, improving fish passage, restoring habitat, and revegetating with native plants) would result in beneficial or neutral changes to fish movement because

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they would either directly create new passage or indirectly create more suitable habitat that would improve migratory corridors for fish. Therefore, cumulative impacts would be **less than significant**.

4.6.6 Cultural Resources

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could disturb or destroy prehistoric and historic-era archaeological resources, or buried human remains, which could result in significant permanent adverse effects on cultural and archaeological resources. For example, projects could result in significant adverse changes to significant built properties by altering an existing historic resource or introducing new visual elements to the historic setting of a significant resource.

Impacts on historic resources could occur as a result of construction activities through the introduction of new elements to a historic setting or the alteration of a significant built resource. The installation of conveyance facilities could involve the construction of intakes and water management facilities with the potential to damage historic structures and features, such as historic canals themselves or associated historic-period ancillary features (e.g., bridges, weirs). Construction activities such as pile driving have the potential to cause vibration that could physically damage or alter nearby historic buildings and structures or linear features.

In addition, construction could require the use of heavy equipment, such as excavators, graders, scrapers, bulldozers, backhoes, and concrete mixing and pumping trucks. Earthmoving activities during project construction have the potential to disturb surficial and subsurface archaeological resources. Constructed facilities and operations of new infrastructure or modifications to existing infrastructure could cause vibration that could physically damage or alter nearby architectural resources. For example, new infrastructure or modifications to existing infrastructure such as fishways and screens could cause vibration that could physically damage or alter nearby architectural resources. Project-related ground-disturbing activities have the potential to uncover prehistoric archaeological resources and human remains not documented in archival sources or identified during field surveys. These changes associated with past, present, and planned future projects would result in a cumulatively significant impact on cultural resources.

Restoration projects permitted under the Order could include new and/or modified impoundments, tanks, ancillary buildings and structures (e.g., bridges, culverts, fishways and screens, dams, levees, and water conveyance features). These projects could result in significant permanent impacts on historic built resources, archaeological

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resources, and human remains in the project area through their damage or destruction. (These potential adverse effects are addressed in Impacts 3.7-1, 3.7-2, and 3.7-3.)

Specifically, construction of restoration projects could involve ground disturbance, vibration, and removal of architectural resources. For example, construction of culverts could result in ground-disturbance construction activities that could alter existing landscapes. (This potential adverse effect is addressed in Impact 3.7-1.) Constructed facilities and operations of new infrastructure or modification to existing infrastructure, such as bridges, culvert, and fishways and screens, could physically damage or alter nearby architectural resources. In addition, construction-related earthmoving has the potential to disturb surficial and subsurface archaeological resources and to uncover prehistoric archaeological resources and human remains not documented in archival sources or identified during field surveys. (These potential adverse effects are addressed in Impacts 3.7-2 and 3.7-3.)

Therefore, restoration projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the substantial degradation or destruction of cultural resources.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4 would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4 would minimize impacts on cultural resources. If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4 would continue to be implemented as part of the restoration projects permitted under the Order.

Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. In addition, Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4 would reduce the contribution of permitted projects to less than cumulatively considerable in all cases. However, because the extent and location of such actions are yet to be determined, it is not possible to conclude that the mitigation measures would reduce significant impacts to less than cumulatively considerable in most cases. Therefore, cumulative impacts could remain **significant and unavoidable**.

4.6.7 Energy Resources

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

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These facilities, features, and actions could result in changes in energy resources, including substantial inefficient, wasteful, or unnecessary long-term consumption of energy, or changes to hydropower generation. In addition, implementation of the projects listed in Table 4-2 could conflict with applicable local, county, and/or state plans, policies, or regulations for renewable energy or energy efficiency. These significant effects could be both temporary (e.g., from construction activities) and permanent (e.g., from operational activities such as conveyance of water).

As is, California uses a substantial amount of energy annually, primarily because of the state's size, and not because of its efficient or inefficient use of energy. Multiple laws, regulations, and programs in the state require or promote the efficient use of energy. Section 3.4, *Air Quality and Greenhouse Gas Emissions*, includes a summary of state laws and executive orders that address GHG emissions, many of which have the effect of promoting or requiring the efficient use of energy in the state and the expansion of renewable-energy generation and use. California's building codes (California Code of Regulations, Title 24) also contain stringent energy efficiency standards, and the State has adopted a specific California Green Building Standards Code that both includes energy efficiency requirements and addresses renewable energy generation (e.g., rooftop photovoltaic solar panels).

Given these conditions, a cumulative adverse effect is not expected to occur within the project area related to the substantially inefficient, wasteful, or unnecessary long-term consumption of energy, and a substantial reduction in the generation of renewable energy.

Restoration projects permitted under the Order could result in inefficient, wasteful, or unnecessary long-term consumption of energy, and changes to hydropower generation. (This potential adverse effect is addressed in Impact 3.8-1.) In addition, restoration projects permitted under the Order could conflict with applicable plans, policies, or regulations in local, county, and/or state energy standards that have been adopted for renewable energy or energy efficiency. (These potential adverse effects are addressed in Impact 3.8-2.)

However, as stated above, multiple laws, regulations, and programs within the state require or promote the efficient use of energy. Also, California's building codes (California Code of Regulations, Title 24) contain stringent energy efficiency standards, and the State has adopted a specific California Green Building Standards Code that both includes energy efficiency requirements and addresses renewable energy generation (e.g., rooftop photovoltaic solar panels).

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with general protection measures and mitigation measures would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines.

Implementation of the mitigation measures and general protection measures would be the responsibility and jurisdiction of the appropriate project proponents. Because the extent and location of restoration projects are yet to be determined, restoration projects permitted under the Order could result in cumulative impacts on energy resources.

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However, as stated above, in California there are multiple laws, regulations, and programs that require or promote the efficient use of energy. Restoration projects permitted under the Order must be compliant with California's building codes. Therefore, restoration projects permitted under the Order would not result in a cumulatively considerable incremental contribution to a cumulative impact related to energy, and cumulative impacts would be **less than significant**.

4.6.8 Geology and Soils

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could result in significant adverse effects associated with the rupture of known earthquake faults, strong seismic groundshaking, and substantial soil erosion or loss of topsoil, and they could expose people or structures to hazards associated with unstable soil conditions. Restoration projects could also result in the direct or indirect loss of a unique paleontological or geological resource. Construction projects on or adjacent to a known fault could expose such resources to risks associated with fault rupture or seismic groundshaking.

For example, levee, berms, and dike setbacks placed in areas subject to fault rupture or seismic groundshaking could be damaged during an earthquake, which could lead to flooding of the surrounding areas, potentially exposing people and structures to flood hazards. Linear improvements such as pipelines and canals are particularly susceptible to impacts of unstable soils because they must meet stringent tolerances for line and grade. If not accounted for in project design, expansive soils could lead to the degradation or even structural failure of facilities.

In addition, construction activities could disturb large volumes of soil through excavating, earthmoving, grading, filling, and stockpiling of soil material. These disturbed soils could be more susceptible to wind and water erosion and a loss of topsoil could occur.

Construction activities could also result in the loss of unique paleontological or geologic resources. For example, construction activities could disrupt or destroy fossil remains or sites during excavation and site preparation. Impacts could include a permanent loss of information and potential destruction of nonrenewable paleontological resources.

In general, impacts associated with soil disturbance (loss of topsoil) would occur primarily as a result of construction activities and would not increase in severity following the completion of construction. These significant effects could be temporary during construction and permanent from placement of new buildings or large earthen structures. These changes associated with past, present, and planned future projects could result in a cumulatively significant impact on geology and soils.

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Restoration projects permitted under the Order could expose people or structures to the risk of loss, injury, or death due to rupture of known earthquake faults, and could result in significant adverse effects associated with strong seismic groundshaking. (These potential adverse effects are addressed in Impacts 3.9-1 and 3.9-2.) For example, a restoration project involving hydraulic reconnection, levee setbacks, and floodplain restoration could be located in a seismically active region, near several known active and potentially active faults, and could expose people or structures to potential fault rupture hazards.

Also, projects could result in significant adverse effects on people or structures from unstable soil conditions, or could result in unstable soil conditions including landslides, expansive soils, subsidence, high organic matter soils, and nuisance water, and could result in significant adverse effects associated with soil erosion and loss of topsoil. (These potential adverse effects are addressed in Impacts 3.9-3 and 3.9-4.) For example, floodplain restoration projects permitted under the Order could require constructing new levees to facilitate the removal or breaching of existing levees and the creation of aquatic or riparian habitat. The new levees could be damaged if constructed on unstable soils, potentially exposing the surrounding areas to flooding.

Construction and O&M activities for restoration projects permitted under the Order could result in the loss of a unique paleontological or geological resource. (This potential adverse effect is addressed in Impact 3.9-5.) For example, construction activities for restoration projects such as grading, excavation, and drilling could result in the permanent loss of paleontological resources if construction activities were to disrupt or destroy fossil remains or sites, or to create a loss of information and potential destruction of nonrenewable paleontological resources. Therefore, restoration projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to geology and soils.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measures GEO-1, GEO-2, GEO-3, GEO-4, GEO-5, GEO-6, GEO-7, GEO-8, GEO-9, and GEO-10 would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. Mitigation Measures GEO-1, GEO-2, GEO-3, GEO-4, GEO-5, GEO-6, GEO-7, GEO-8, GEO-9, and GEO-10 would minimize impacts on geology and soils. If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measures GEO-1, GEO-2, GEO-3, GEO-4, GEO-5, GEO-6, GEO-7, GEO-8, GEO-9, and GEO-10 would continue to be implemented as part of the restoration projects permitted under the Order.

In addition, as discussed in Section 3.9, *Geology and Soils*, restoration projects permitted under the Order would incorporate several general protection measures: GPM-15, WQHM-1, WQHM-2, WQHM-3, WQHM-4, VHDR-1, VHDR-3, and VHDR-4. Incorporating these general protection measures would further reduce adverse effects of project construction and O&M on geology and soil resources.

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Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. In addition, Mitigation Measures GEO-1, GEO-2, GEO-3, GEO-4, GEO-5, GEO-6, GEO-7, GEO-8, GEO-9, and GEO-10 and the applicable general protection measures would reduce the contribution of permitted restoration projects to less than cumulatively considerable in most cases.

In some cases, the effects on geology and soils of restoration projects permitted under the Order could be neutral or beneficial. For example, restoration projects (i.e., bank stabilization, berm construction, and levee bank stability projects) would reduce the potential for injuries, seepage, and seepage-related levee failures and would increase channel bank stability.

Although cumulative impacts would be less than significant in most cases, the extent and location of such actions are yet to be determined, and for impacts on paleontological and geological resources, it is not possible to conclude that the mitigation measures would reduce significant impacts to less than cumulatively considerable in all cases. Therefore, cumulative impacts could remain **significant and unavoidable**.

4.6.9 Hazards and Hazardous Materials

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered bank stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could involve the routine transport, use, or disposal of hazardous materials and result in the accidental release of hazardous materials, which could create a hazard to the public or the environment. If this were to occur within one-quarter mile of a school, it could result in significant adverse effects involving the exposure of construction workers, the public, and the environment to existing soil and/or groundwater contamination. (These potential adverse effects are addressed in Impacts 3.10-1 and 3.10-2.)

For example, a restoration project to establish, restore, and enhance tidal, subtidal, and freshwater wetlands could require grading (e.g., excavating breaks in levees, dikes, and/or berms) and plowing or disking for the preparation of seed beds. Such project construction may have a potentially significant impact related to hazards to human health from exposure to existing on-site hazardous materials. In addition, a school may be present within one-quarter mile of the construction of a floodplain restoration project and project construction activities could result in the accidental release of hazardous materials.

Construction activities could also include ground-disturbing activities such as excavation that could result in the release of previously unidentified contaminated soil and/or groundwater that could expose construction workers, the public, and the environment to

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risks associated with hazardous materials. The types and quantities of hazardous materials would vary at each construction site depending on the location and the facility or infrastructure being constructed.

Implementation of restoration projects also could result in airport safety hazards by placing projects within 2 miles of an airport, resulting in a safety hazard. (This potential adverse effect is addressed in Impact 3.10-3.) For example, restoration or improvement sites could be located in areas that could have the potential to create a safety hazard for people by placing them at construction sites or operational facilities near airports. The construction and operation of projects near airports also could produce light, glare, or other distractions from lighting and/or reflection off of detained water that interfere with airport operations. Projects constructed in these areas likely would be subject to the consistency requirements of an airport land use plan.

In addition, the operation of restoration projects permitted under the Order could adversely affect airport safety by increasing the potential for collisions between aircraft and wildlife. For example, routine O&M activities for restoration projects permitted under the Order could occur within 2 miles of an airport. Such activities (e.g., use of lights for a constructed fish screen) could produce light, glare, or other distractions; however, the light and glare would most likely be minimal and would conform to the requirements of the local airport land use plan.

Project construction and heavy equipment use could temporarily interfere with emergency response access near projects by interfering with an adopted emergency response or evacuation plan. (This potential adverse effect is addressed in Impact 3.10-4.) For example, street closures or lane blockages could reduce the number of travel lanes and require rerouting of traffic. Traffic levels could increase during transportation and relocation of construction materials. As a result, construction activities for future restoration projects permitted under the Order could temporarily increase emergency response times or interfere with adopted emergency response or evacuation plans, depending on project locations. The effect of future individual projects on emergency response times would be a cumulatively significant impact.

Projects permitted under the Order could expose people or structures to a significant loss, injury, or death due to wildland fires. (This potential adverse effect is addressed in Impact 3.10-5.) The study area for the Order includes all counties and cities in California; therefore, restoration projects could be located in areas with moderate to high fire risk, or where fuel loads are present. For example, construction equipment and vehicles used for restoration projects could come into contact with vegetated areas, potentially igniting dry vegetation by accidental discharge of sparks. Construction and operation of permitted restoration projects could create a vector habitat that could pose a significant health hazard to the public. (These potential adverse effects are addressed in Impact 3.10-6.) For example, restoration projects permitted under the Order could involve activities, such as setting back a levee or creating offstream storage ponds, that could create new areas of standing water that would support mosquito habitat. As described above, these effects could be both temporary during construction and permanent during O&M. The effects of wildfires and creation of vector habitat could be a cumulatively significant impact.

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As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measures HAZ-1, HAZ-2, HAZ-3, HAZ-4, HAZ-5, HAZ-6, and FIRE-1 would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. Mitigation Measures HAZ-1, HAZ-2, and HAZ-3 would minimize impacts related to potential discovery of previously unidentified contaminated soil and/or groundwater. Mitigation Measure HAZ-4 would minimize impacts on established airport operation areas and buffer zones. Mitigation Measure HAZ-5 would minimize impacts on emergency response access or adopted emergency response and evacuation plans. HAZ-6 would minimize impacts related to public health hazards from new vector habitat. Mitigation Measure FIRE-1 would minimize exposure to wildland fires.

If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measures HAZ-1, HAZ-2, HAZ-3, HAZ-4, HAZ-5, HAZ-6 and FIRE-1 would continue to be implemented as part of the restoration projects permitted under the Order.

In addition, as described in Section 3.10, *Hazards and Hazardous Materials*, restoration projects permitted under the Order would incorporate several general protection measures: GPM-6, GPM-7, GPM-10, GPM-11, GPM-12, GPM-14, WQHM-1, WQHM-2, WQHM-4, WQHM-5, WQHM-6, IWW-1, IWW-2, IWW-3, IWW-6, IWW-13, and VHDR-6. Incorporating these general protection measures would further reduce adverse effects of project construction and operation on hazards and hazardous materials.

Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. In addition, Mitigation Measures HAZ-1, HAZ-2, HAZ-3, HAZ-4, HAZ-5, HAZ-6 and FIRE-1 and the applicable general protection measures would reduce the contribution of permitted restoration projects to less than cumulatively considerable in most cases.

However, because the locations of future restoration projects that would be permitted under the Order are yet to be determined, it is not possible to conclude that restoration projects would be outside 2 miles from an airport and that Mitigation Measure HAZ-5 would reduce significant impacts to a less than cumulatively considerable level in all cases. Therefore, cumulative impacts could remain **significant and unavoidable**.

4.6.10 Hydrology and Water Quality

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

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These facilities, features, and actions could result in changes to hydrology and water quality, including changes to surface water and/or groundwater supply and quality, drainage patterns and impervious surface cover, and flooding and inundation.

Construction, constructed facilities, and O&M of restoration projects could result in changes to surface water and/or groundwater quality. For example, construction activities, including construction in waterways, could include earthmoving activities that could adversely affect water quality through temporary sediment disturbance and resuspension that may cause siltation, as well as enhanced bioavailability of sediment-associated pollutants (e.g., trace metals, heavy metals, pesticides) in affected waterways. This work could temporarily disturb streambed sediments and cause the resuspension of sediment-associated pollutants (e.g., trace metals, heavy metals, pesticides) associated with either legacy activities (e.g., gold mining) or contemporary activities (e.g., watershed urbanization).

In addition, localized degradation of groundwater quality could result from construction activities if hazardous materials were to be discharged to the land surface or surface waters during these activities and they were to travel to underlying aquifers. If the volume of discharge were sufficient, such hazardous materials could degrade local groundwater quality to a sufficient degree to impair its continued use. In addition, operation of projects could result in changes to water quality as a result of changes in flow volume and timing.

However, long-term effects on water quality from restoration projects permitted under the Order are expected to be beneficial or sometimes neutral (in the case of fish screens or ladders), because the specific purpose of these projects would be to correct existing conditions that contribute to resource degradation. For example, projects implementing bioengineered bank stabilization would reduce the input of fine sediment, which would improve water quality. Other restoration projects, such as those to remove pilings and other in-water structures, would improve water quality by removing potential contaminant sources and hazards such as untreated and chemically treated wood pilings, piers, and vessels.

In addition, restoration projects permitted under the Order could establish, restore, and enhance tidal, subtidal, and freshwater wetlands. For example, living shorelines provide a natural alternative to “hard” shoreline stabilization methods like stone sills or bulkheads, and provide numerous ecological benefits including water quality improvements. Floodplain restoration would also improve water quality because floodplains, when inundated with water, act as natural filters by removing excess sediment and nutrients.

Projects could affect groundwater supply through construction-related activities that could include temporary dewatering to facilitate construction of necessary infrastructure. Ground-disturbing activities could increase impervious surfaces (e.g., paved surfaces, soil compaction), which could impair groundwater recharge, potentially resulting in decreases in groundwater recharge throughout the project life cycle. Conjunctive-use projects that integrate the operation of surface water storage and conveyance projects have the potential to benefit groundwater levels by providing additional surface water

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supplies that replace pumping of groundwater. Surface water or groundwater conjunctive use increases recharge with surface water supplies, which in turn improves groundwater levels as well as dry-year water supplies.

Project construction could temporarily change the availability of water supplies by temporarily affecting water quality to the degree that supplies could be unusable, or it could result in a temporary loss of access to manually operated agricultural intakes. In addition, dewatering activities during construction could temporarily affect groundwater elevations, which could limit the ability of some water users to access groundwater. Furthermore, operation of projects could result in changes to water supply as a result of changes in flow volume and timing.

Construction activities such as paving, soil compacting, and grading of land slopes could increase the imperviousness of the soils. This change would result in relatively localized decreases in infiltration rates and associated increases in the amount of land and rate of surface runoff on-site and immediately downstream (or downslope) of the site, which could persist at any of the facilities that have permanent changes in land cover. These changes in the rate of surface runoff could exceed the capacity of existing or planned stormwater drainage systems and/or result in localized flooding.

As described above, these significant effects could be both temporary (e.g., construction dewatering activities) and permanent (e.g., new or expanded storage or conveyance). These changes associated with past, present, and planned future projects would result in a cumulatively significant impact on water resources.

Restoration projects permitted under the Order could result in the release of pollutants into surface water and/or groundwater. Such a release could substantially degrade water quality as a result of project construction (e.g., localized degradation of surface water and groundwater quality from the discharge of hazardous materials during construction) and project operations (e.g., localized degradation of surface water and groundwater quality from a release of pollutants during operation). (These potential adverse effects are addressed in Impact 3.11-1.)

Projects permitted under the Order could deplete groundwater supplies or interfere substantially with groundwater recharge during project construction (e.g., changes in groundwater recharge from altered drainage patterns during construction when land grading, stockpiling dredged or other in-water material before disposal, stockpiling construction materials, or constructing structures). (These potential adverse effects are addressed in Impact 3.11-2.)

In addition, projects permitted under the Order could substantially alter the existing drainage pattern through the alteration of the course of a stream or river; create or contribute to runoff water which could exceed the capacity of existing or planned stormwater drainage systems; or impede or redirect flood flows (e.g., installation of constructed structures such as fish screens could change drainage patterns during construction). (These potential adverse effects are addressed in Impact 3.11-3.)

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Therefore, individual restoration projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to hydrology and water quality.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with the general protection measures listed below would be required as applicable to a given project. As described in Section 3.11, *Hydrology and Water Quality*, the appropriate project proponents would be required to incorporate several general protection measures: GPM-10, GPM-11, GPM-12, WQHM-1, WQHM-2, WQHM-3, WQHM-4, WQHM-5, WQHM-6, IWW-1, IWW-2, IWW-3, IWW-4, IWW-6, IWW-10, IWW-11, IWW-12, IWW-13, VHDR-2, VHDR-3, VHDR-4, VHDR-6, VHDR-7, and VHDR-8. Incorporating these general protection measures would reduce adverse effects of project construction and operation on hydrology and water quality. If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents.

Implementation of the general protection measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. Restoration projects permitted under the Order could result in significant hydrology and water quality impacts.

However, construction-related impacts would be minimal and temporary. Furthermore, many of the long-term effects on hydrology and water quality of restoration projects permitted under the Order would be expected to be beneficial or, in some cases, neutral (i.e., fish screens or ladders), because the specific purpose of these projects would be to correct existing conditions that contribute to resource degradation. For example, restoration projects (i.e., bioengineered bank stabilization and removal of pilings and other in-water structures) would reduce the input of fine sediment and remove potential contaminant sources and hazards (i.e., untreated and chemically treated wood pilings, piers, and vessels), which would improve water quality. In addition, restoration projects could establish, restore, and enhance tidal, subtidal, and freshwater wetlands (i.e., floodplain restoration), which would act as natural filters by removing excess sediment and nutrients.

Restoration projects (i.e., stream, floodplain, and riparian projects) are also expected to have beneficial impacts on groundwater recharge. Large-scale floodplain restoration projects may provide for containment of reservoir releases in preparation for large storm events, which would also be beneficial. Although restoration projects could alter current conditions, such projects would be expected to have relatively localized effects on-site and immediately downstream (or downslope) of the individual restoration project site.

In addition, the general protection measures discussed above would reduce the contribution of permitted restoration projects to less than cumulatively considerable. Therefore, cumulative impacts would be **less than significant**.

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4.6.11 Land Use and Planning

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could conflict with land use plans, policies, or regulations or physically divide an established community, which could result in significant temporary or permanent adverse effects related to land use. For example, stockpiling of materials and new intakes/diversions associated with subsidence reversal programs would be nonlinear and localized, and therefore would not physically divide an established community. These changes associated with past, present, and planned future projects would result in a cumulatively significant impact on land use and planning.

Restoration projects permitted under the Order could result in conflicts with land use plans, policies, and regulations adopted to avoid or mitigate an environmental impact or result in the division of an established community. (These potential adverse effects are addressed in Impacts 3.12-1 and 3.12-2.) This could result in significant temporary or permanent adverse effects on land use in the project area. Therefore, restoration projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the substantial impact on land use and planning.

As part of the State Water Board or Regional board's issuance of a NOA for a restoration project under the Order, compliance with applicable city and county general plans and other local policies and ordinances would be required. If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Construction activities for restoration projects could temporarily physically divide a community; however, these conversions would most likely take place on the periphery of a community, rather than through the community, and would be temporary.

Implementation of the city and county general plans and other local policies and ordinances would be the responsibility of the project proponent(s) under jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. In most cases, implementation of the city and county general plans and other local policies and ordinances would reduce the contribution of permitted restoration projects to less than cumulatively considerable. However, because the extent and location of restoration projects permitted under the Order are yet to be determined, it is not possible to conclude that restoration projects would not physically divide an established community. Therefore, cumulative impacts could remain **significant and unavoidable**.

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4.6.12 Mineral Resources

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could affect mineral resources designated by the California Geological Survey as resources of regional and statewide importance (MRZ-2). Active, permitted mines are present and development of the proposed restoration projects could substantially deplete already inadequate aggregate resources. Restoration projects permitted under the Order could also result in the loss of availability of a locally important mineral recovery site, if work would occur on or near mineral recovery sites that have been identified in local general plans, specific plans, or other land use plans. Many producing natural gas wells lie within delineated natural gas fields and a permitted mining operations are present in the study area. These significant impacts could be both temporary during construction and permanent from placement of new infrastructure (natural and artificial). The effect on mineral resources that would result from these changes could be a cumulatively significant impact.

Restoration projects permitted under the Order could result in the loss of availability of a known mineral resource. (This potential adverse effect is addressed in Impact 3.13-1.) For example, constructing infrastructure such as setback levees and widening floodplains would require large quantities of construction aggregate, which could limit the ability of other aggregate users in the area to obtain and use aggregate.

Projects could result in the loss of availability of locally important mineral resource recovery site. (This potential adverse effect is addressed in Impact 3.13-2.) For example, constructing setback levees and widening floodways could temporarily or permanently affect mining operations if the projects were constructed at the locations of these existing resource recovery sites. Therefore, restoration projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to mineral resources.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measures MIN-1 and MIN-2 would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. Mitigation Measure MIN-1 would minimize impacts related to the loss of a known mineral resource. Mitigation Measure MIN-2 would minimize impacts related to the loss of a locally important mineral recovery site.

If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measures MIN-1 and MIN-2 would continue to be implemented as part of the restoration projects permitted under the Order.

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Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing agency. In addition, Mitigation Measures MIN-1 and MIN-2 would reduce the contribution of permitted restoration projects to less than cumulatively considerable. Therefore, cumulative impacts would be **less than significant**.

4.6.13 Noise

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could expose people to noise levels in excess of standards established in applicable plans and ordinances, cause a substantial increase in ambient noise levels, and expose sensitive receptors to excessive groundborne vibrations. Restoration projects permitted under the Order could be located within 2 miles of a public airport or public use airport, within the vicinity of a private airstrip, or within an airport land use plan, or where such a plan has not been adopted, could expose people residents or workers to excessive noise levels. These significant effects could be both temporary or long-term during construction and operation and permanent during operation.

For example, some restoration projects permitted under the Order could require the use of haul trucks and heavy equipment that could expose people to elevated noise levels and groundborne vibrations, creating noise that may exceed ambient noise levels. Activities also could occur at night and close to receptors in populated areas. Actual exposure levels would depend on the intensity of the construction activity, the distance of sensitive receptors to the noise or vibration source, and any intervening structures or topography that might affect noise or vibration attenuation. These changes associated with past, present, and planned future projects would result in a cumulatively significant noise impact.

Restoration projects permitted under the Order could expose people to elevated noise levels and could result in substantial temporary or permanent increases in ambient noise levels and/or excessive groundborne noise levels. (These potential adverse effects are addressed in Impacts 3.14-1 and 3.14-3.) Projects also could expose sensitive receptors to excessive groundborne vibrations. (This potential adverse effect is addressed in Impact 3.14-2.)

Restoration projects could be located within the vicinity of a private airstrip or an airport land use plan, or where such plan has not been adopted, within 2 miles of a public airport or public use airport, and could expose people residing or working to excessive noise levels. (This potential adverse effect is addressed in Impact 3.14-4.)

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For example, restoration projects involving levee deconstruction and construction may use heavy equipment during site preparation, restoration-related grading and excavation, and deconstruction. In such a case, construction activities could influence noise levels at and near the project site. These noise levels would fluctuate depending on the particular type, number, and duration of equipment used (e.g., small power tools, generators, dump trucks, graders). If, for example, the construction activity was located near single-family and multifamily residential and transient lodging, restoration activities could expose these sensitive receptors to increased noise levels.

Typical vibration levels tend to dissipate rapidly with increasing distance from the vibration source. For example, stockpiling of materials may require constructing piers for barge landings, and pier construction may use pile drivers that could generate 1.518 inches per second peak particle velocity and 112 vibration decibels at 25 feet. Applying the Federal Transit Administration's recommended procedure for determining vibration levels at various distances from the source, the predicted most-conservative ground vibration levels would exceed the threshold of 80 vibration decibels for human disturbance for pile driving at distances within 290 feet. With regard to structural damage, the threshold of 0.2 inch per second peak particle velocity would be exceeded for pile driving at distances within 96 feet.

Furthermore, restoration projects permitted under the Order could be located within 2 miles of a public airport and, depending on the location, could expose people working in the project area to excessive noise levels. However, routine O&M activities (e.g., vegetation clearing, debris removal, monitoring) would be limited and temporary, occurring yearly, monthly, weekly, or as needed. Therefore, projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the substantial increase in noise levels and groundborne vibration.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measures NOISE-1, NOISE-2, and NOISE-3 would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. Mitigation Measures NOISE-1 and NOISE-2 would minimize impacts from construction-related and operational noise conflicts. Mitigation Measure NOISE-3 would minimize impacts on noise levels within the vicinity of an airport.

If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measures NOISE-1, NOISE-2, and NOISE-3 would continue to be implemented as part of the restoration projects permitted under the Order.

In addition, as discussed in Section 3.14, *Noise*, restoration projects permitted under the Order would incorporate several general protection measures: GPM-2, GPM-3, GPM-6, and IWW-9. Incorporating these general protection measures would further reduce adverse effects of project construction and O&M related to noise.

Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional

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Board, or other authorizing regulatory agency. Mitigation Measures NOISE-1, NOISE-2, and NOISE-3 and the applicable general protection measures would reduce the contribution of permitted restoration projects to less than cumulatively considerable in most cases.

Although cumulative impacts would be less than significant in most cases, the extent and location of such actions are yet to be determined, and for construction impacts on ambient noise levels and groundborne vibration and noise levels, it is not possible to conclude that the mitigation measures would reduce significant impacts to less than cumulatively considerable in all cases. Therefore, cumulative impacts would remain **significant and unavoidable**.

4.6.14 Population and Housing

Construction, constructed facilities (natural or artificial infrastructure), and O&M for the projects listed in Table 4-2 would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions would include construction activities for large projects such as removing levees, constructing new setback levees, and widening floodways. Projects could require workers to move to the area to support construction and O&M activities such as vegetation removal and monitoring, potentially resulting in significant population growth and increased demand for housing. Projects may also include the need for more specialized construction workers and could require construction workers to relocate to the construction area. Construction activities could also remove or relocate existing infrastructure such as boat docks, boat haul-out locations, campgrounds and campsites, day-use sites, roads/trails, and off-highway/off-road vehicle routes that could eliminate housing or displace a substantial number of people or housing, necessitating the construction of replacement housing elsewhere.

For example, fish screens, water conveyance pipelines, and the widening of floodplains could include excavation and grading activities that could result in the elimination of housing. These effects could be both temporary or long-term during construction and permanent during operation. These changes associated with past, present, and planned future projects would result in a cumulatively significant impact on population, employment, and housing.

Restoration projects permitted under the Order could require relocation by construction and operation crew members, resulting in population growth and increased demand for housing. (This potential adverse effect is addressed in Impact 3.15-1.) For example, large projects could include construction activities such as removing levees, constructing new setback levees, and widening floodways. These projects might require some more specialized construction workers who potentially would relocate to the construction area. However, impacts would be negligible because none of the restoration projects permitted under the Order would involve constructing new homes,

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businesses, or other infrastructure that would provide new long-term employment opportunities or result in population growth and demand for housing.

Routine O&M of restoration projects permitted by the Order could include maintenance and cleaning of fish screens, removal of debris and sediment from stream crossings, and maintenance and operation of fishways. These O&M activities could require additional staff. However, it is anticipated that these activities would be similar to those in the project area located near a waterway. Furthermore, although temporary or longer term population increases could occur, the potential presence of existing vacant units in and around the project area would help absorb the population increases, which would be negligible and temporary.

None of the restoration projects permitted under the Order would eliminate housing. (This potential adverse effect is addressed in Impact 3.15-2.) Some construction activities (such as for projects to establish, restore, and enhance stream and riparian habitats and upslope watershed sites) could involve removing or relocating existing infrastructure such as boat docks, boat haul-out locations, campgrounds and campsites, day-use sites, roads/trails, and off-highway/off-road vehicle routes. However, as mentioned above, none of these activities for restoration projects permitted under the Order are expected to eliminate housing or displace substantial numbers of people or housing, necessitating the construction of replacement housing elsewhere. Most, if not all, projects that would be constructed and operated under the Order would be located in or near waterways. Water conservation projects could involve constructing new infrastructure (e.g., fish screens, fishways, pumps and piping, screens and head gates); however, these projects would most likely be in less urbanized or rural environments in areas with minimal housing.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with the general protection measures and mitigation measures would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines.

Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. Restoration projects permitted under the Order could result in some population and housing effects, given that the location and extent of individual restoration projects are yet to be determined. However, even though these factors are not known, these impacts would be expected to be negligible because projects would typically occur in low-density population regions near waterways, limiting the potential for the displacement of people or housing. Furthermore, none of the restoration projects permitted under the Order are expected to remove or relocate housing. Therefore, projects permitted under the Order would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to population, employment, and housing, and this cumulative impact would be **less than significant**.

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4.6.15 Recreation

Construction, constructed facilities (natural or artificial infrastructure), and O&M would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could significantly alter, impair, degrade, or eliminate recreational resources, facilities, and opportunities, and may include the construction or expansion of recreational facilities that could result in significant environmental impacts. Construction and operation of the projects also could increase the use of existing recreational resources and facilities such that substantial physical deterioration would occur or be accelerated.

For example, work to remove small dams, tide gates, flood gates, and legacy structures could temporarily impair, degrade, or eliminate recreational resources, facilities, and opportunities with the installation of site fencing and signage, removal of soil and vegetation, excavation and grading activities, dust abatement, staging and storage of equipment and materials, vehicle parking, and construction operations. These activities also may cause recreational users to be displaced to other resources or facilities temporarily, over the long term, or permanently. Such displacement may increase the use of other existing recreational resources or facilities, potentially causing their physical condition to substantially deteriorate. Noise from construction activities also may directly detract from nearby recreational experiences and deter wildlife, thus temporarily impairing wildlife viewing opportunities. These changes associated with past, present, and planned future projects would result in a cumulatively significant impact on recreational resources.

Restoration projects permitted under the Order could result in temporary or long-term impairment, degradation, and elimination of recreational resources, facilities, and opportunities in the project area because of the presence of work sites and other construction and O&M maintenance activities. (This potential adverse effect is addressed in Impact 3.16-1.) For example, work to remove small dams, tide gates, flood gates, and legacy structures could temporarily block boaters' access to boat launches and other river access areas and adversely impair recreational opportunities for trail users. Infrastructure may be removed or relocated along streams and in riparian areas. In addition, establishing, restoring, or enhancing stream, riparian, or tidal habitats may require permanently relocating or decommissioning existing trails or roads, which could increase the use of other recreational facilities. Widening a floodway may also preclude the use of recreational facilities that could be periodically inundated.

Construction activities and constructed facilities for restoration projects permitted under the Order could alter or result in the construction or expansion of existing recreational resources, with resulting environmental impacts. (This potential adverse effect is addressed in Impact 3.16-2.) For example, constructing a floodplain restoration project could generate noise that would impair the use of a nearby recreation area.

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Restoration projects permitted under the Order could temporarily or permanently impede recreational use, which could increase the use of existing recreational resources and facilities, potentially resulting in the substantial physical deterioration or the acceleration of deterioration of resources and facilities. (This potential adverse effect is addressed in Impact 3.16-3.) For example, establishing, restoring, or enhancing stream, riparian, or tidal habitats may require permanently relocating or decommissioning existing trails or roads. Recreationists who use the trails and/or roads would need to use other facilities while the trails or roads are closed. This displacement may increase the use of other existing recreational resources or facilities, potentially leading to their substantial physical deterioration. Therefore, restoration projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the substantial impairment, degradation, and elimination of recreational resources.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measure REC-1 would be required when applicable to a given project as required by Section 15092 of the State CEQA. If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measure REC-1 would continue to be implemented as part of the individual restoration projects permitted under the Order.

As discussed in Section 3.16, *Recreation*, restoration projects permitted under the Order would incorporate several general protection measures: GPM-8, GPM-9, GPM-14, GPM-15, GPM-15, GPM-16, GPM-17, GPM-18, GPM-19, GPM-20, WQHM-1, WQHM-2, WQHM-3, WQHM-4, WQHM-5, WQHM-6, IWW-1, IWW-2, IWW-3, IWW-5, IWW-6, IWW-8, IWW-13, VHDR-1, VHDR-2, VHDR-3, VHDR-4, and VHDR-6. Incorporating these general protection measures would further reduce adverse effects of project construction and operation on recreational resources.

Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. The mitigation measure and general protection measures listed above would reduce impacts on recreation to less than cumulatively significant levels. Therefore, cumulative impacts would be **less than significant**.

4.6.16 Transportation

Construction, constructed facilities (natural or artificial infrastructure), and O&M would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system; substantially increase hazards due to a design feature or incompatible uses; result in inadequate emergency access; and conflict with adopted policies, plans, or

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programs supporting alternative transportation. These significant effects could be temporary or long-term during construction or operation, and could be permanent during operation.

For example, several project types could affect the use of roads, highways, bridges, railroads, navigable waterways, and transit, bicycle, and pedestrian facilities if temporary, long-term, or permanent closures were necessary to accommodate the transport and use of materials and equipment, and the installation or operation of facilities. These project types include the construction and operation of culverts, fish screens, ladders, and pilings; removal of small dams, tide gates, and legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams. Depending on the project design, roads may need to be relocated, potentially resulting in the presence of new and/or rerouted traffic at intersections or road segments that are not designed to accommodate the additional traffic. Operations and construction activities such as the import and export of materials may require an increase in the numbers of trucks at intersections and on road segments, which could lead to a substantial increase in traffic congestion in those locations. These activities also may reduce emergency access and increase emergency response times. Large vehicles entering roadways from construction and operation activities could pose a hazard to oncoming vehicles, bicyclists, and pedestrians. Project facility designs could affect navigation in waterways and cause an increase in potential hazards: They could expose boaters to additional channel hazards, such as debris or collisions when multiple vessels are present in the area at the same time. These changes associated with past, present, and planned future projects could result in a cumulatively significant impact on transportation.

Restoration projects permitted under the Order could result in significant temporary, long-term, or permanent adverse effects on transportation by conflicting with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system including transit, roadways, bicycle, and pedestrian facilities. Such effects could include road closures or relocation, potentially by increasing traffic congestion from an increase in the numbers of trucks at intersections and on road segments. (These potential adverse effects are addressed in Impact 3.17-1.)

In addition, projects could conflict with or be inconsistent with State CEQA Guidelines Section 15064.3(b) and result in a significant amount and distance of automobile travel attributed to a restoration project. (This potential adverse effect is addressed in Impact 3.17-2.) Construction and operation activities associated with restoration projects permitted under the Order could substantially increase hazards due to a geometric design feature or incompatible uses. (This potential adverse effect is addressed in Impact 3.17-3.)

Therefore, projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to transportation.

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As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measures TRA-1, TRA-2, TRA-3, TRA-4, TRA-5, TRA-6, TRA-7, and TRA-8 would be required when applicable to a given project as required by Section 15092 of State CEQA Guidelines. Mitigation Measures TRA-1, TRA-2, TRA-3, TRA-4, and TRA-5 would minimize impacts related to a conflict with a plan, ordinance, or policy addressing the circulation system. Mitigation Measure TRA-6 would minimize impacts associated with increased vehicle miles traveled. Mitigation Measures TRA-7 and TRA-8 would minimize hazards due to a geometric design feature or incompatible use.

If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measures TRA-1, TRA-2, TRA-3, TRA-4, TRA-5, TRA-6, TRA-7, and TRA-8 would continue to be implemented as part of the restoration projects permitted under the Order.

In addition, as discussed in Section 3.17, *Transportation*, restoration projects permitted under the Order would incorporate several general protection measures: GPM-6, GPM-10, and WQHM-1. Incorporating these general protection measures would further reduce adverse effects of project construction and O&M on transportation.

Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. In addition, Mitigation Measures TRA-1, TRA-2, TRA-3, TRA-4, TRA-5, TRA-6, TRA-7, and TRA-8 and the applicable general protection measures would reduce the contribution of permitted restoration projects to less than cumulatively considerable in most cases.

Although cumulative impacts would be less than significant in most cases, the extent and location of such actions are not yet to be determined, and because the potential exists for a restoration project to conflict or be inconsistent with State CEQA Guidelines Section 15064.3(b), it is not possible to conclude that the mitigation measures would reduce significant impacts to less than cumulatively considerable in all cases. Therefore, cumulative impacts could remain **significant and unavoidable**.

4.6.17 Tribal Cultural Resources

Construction, constructed facilities (natural or artificial infrastructure), and O&M would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could require the use of heavy equipment and ground disturbance, such as grading of levees for erosion control and inundation of land as part of water storage projects. Construction and operational activities could result in the disturbance or destruction of surficial and subsurface tribal cultural resources, which could result in significant permanent adverse effects on these resources. Operational

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activities also may limit tribal access to sacred locations or gathering sites. Activities occurring in areas with denser concentrations of tribal cultural resources would have a higher potential to affect eligible resources. These changes associated with past, present, and planned future projects would result in a cumulatively significant impact on tribal cultural resources.

Restoration projects permitted under the Order could result in significant permanent adverse effects on tribal cultural resources, by damaging or destroying such resources through the use of heavy equipment or inundation of land as part of water storage projects. Thus, projects may disturb surficial and subsurface tribal cultural resources or limit tribal access to sacred locations or gathering sites in the project area. (This potential adverse effect is addressed in Impact 3.18-1.) Therefore, restoration projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact on tribal cultural resources.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measures CUL-2, CUL-3, and CUL-4 would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. Mitigation Measures CUL-2, CUL-3, and CUL-4 would minimize impacts on tribal cultural resources.

If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measures CUL-2, CUL-3, and CUL-4 would continue to be implemented as part of restoration projects permitted under the Order.

Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. In addition, Mitigation Measures CUL-2, CUL-3, and CUL-4 would reduce the contribution of permitted restoration projects to less than cumulatively considerable in most cases.

However, because the extent and location of such actions are not yet determined, it is not possible to conclude that mitigation measures would reduce the contribution of permitted projects to less than cumulatively considerable in all cases. Therefore, cumulative impacts could remain **significant and unavoidable**.

4.6.18 Utilities and Service Systems and Public Services

Construction, constructed facilities (natural or artificial infrastructure), and O&M would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

Construction of new water systems (e.g., diversion, treatment, and distribution facilities) or expansion of existing systems is prompted by increased customer demand, typically as a result of new land development (such as development that transitions land use from rural to more urban use) or population growth. As described in Section 3.14,

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Population and Housing, and Section 5.1, Growth-Inducing Impacts, restoration projects permitted under the Order would not include new land development or induce substantial population growth that would add new water customer demands or increase long-term water demand from water systems.

Implementation of the restoration projects listed in Table 4-2 are not anticipated to require the relocation of new water or expanded water facilities due to the extensive cost of relocation and potential environmental impacts from the relocation. However, future restoration projects could require the relocation of stormwater outfalls or utilities (e.g., electric power, natural gas, or telecommunication facilities) that would cause significant environmental effects.

Population changes could occur resulting in reasonably foreseeable future development (e.g., new housing or commercial development). These future development projects may require surface water during normal, dry and multiple dry years. Below, these projects are not anticipated to result in insufficient water supplies by meeting existing regulatory requirements (e.g., existing Biological Opinions on the Long-Term Operations of the Central Valley Project and State Water Project). Future restoration projects would need to comply with relevant federal, state, and local regulations and ordinances (including demonstrating there are sufficient water supplies, if needed), as would reasonably foreseeable future development projects.

Constructed facilities, including expansion or modification of floodplains and fish passage improvements, could have effects on water supply availability if water levels are reduced near diversion intakes. However, anticipated changes in water levels resulting from constructed facilities would need to comply with relevant federal, state, and local regulations and ordinances and would not impede operations of existing diversion facilities or substantially change water supply availability to water users.

Implementation of the restoration projects listed in Table 4-2 would generate solid waste from construction and O&M, but the projects could be served by a landfill that has insufficient permitted capacity for the demand. Construction and O&M activities could result in adverse physical impacts by requiring the construction of new or modified fire protection and police protection facilities, schools, and other public facilities if such activities cause the population to increase. Adverse impacts would also occur if additional public facilities would be required to maintain acceptable service ratios, response times, or other performance objectives for the public services in response to the projects. These significant effects could be temporary or long-term during construction and permanent during operations. These changes associated with past, present, and planned future projects would result in a cumulatively significant impact on utilities and public service systems.

Most projects permitted under the Order that would involve earthmoving activities would not generate large amounts of construction waste (e.g., organic materials from borrow areas and restoration construction sites, excavated material, and soil not suitable for earthen structures) that would require disposal at a landfill. (This potential adverse effect is addressed in Impact 3.19-2.) Constructed facilities and O&M could also produce solid waste; however, the magnitude of waste created would be less than that

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produced during construction activities and would most likely be very small relative to landfill capacity.

Restoration projects permitted under the Order could result in substantial adverse physical impacts associated with construction of new or modified fire protection, police protection, schools, and other public facilities. (This potential adverse effect is addressed in Impact 3.19-3.) However, construction activities for restoration projects permitted under the Order would not include new land development or occupied structures that would increase population and add new public service demands. Furthermore, any increases in demand for law enforcement, fire protection, and medical services related to this small change in population in any one county are expected to be negligible.

Therefore, restoration projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the substantial degradation or destruction of utilities and public services.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with general protection measures and mitigation measures would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency.

The extent and location of restoration projects permitted under the Order are not known at this time; however, for the reasons discussed above, projects could result in significant and unavoidable impacts resulting from relocation of stormwater outfalls or utilities (e.g., electric power, natural gas, or telecommunication facilities). Therefore, cumulative impacts could remain **significant and unavoidable**.

The extent and location of restoration projects permitted under the Order are not known at this time; however, for the reasons discussed above, projects are not anticipated to result in insufficient water supplies available to serve the project during normal, dry, or multiple dry years; result in insufficient permitted capacity of the local landfill to accommodate the project's solid wastes; or result in the construction of new or modified fire protection, police protection, schools, and other public facilities. Therefore, cumulative impacts could remain **less than significant**.

4.6.19 Wildfire

Construction, constructed facilities (natural or artificial infrastructure), and O&M would introduce new physical features, such as culverts, bridges, fish screens, ladders, or pilings. They would also involve removal of small dams, tide gates, flood gates, or legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams.

These facilities, features, and actions could result in the temporary, long-term, or permanent increases in risk for fire exacerbation or result in downslope or downstream risks due to runoff, post-fire slope instability, or drainage changes. These significant effects could be temporary or long-term during construction and permanent during

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O&M. These changes associated with past, present, and planned future projects would result in a cumulatively significant wildfire impact.

Restoration projects permitted under the Order could exacerbate fire risk if located in a High or Very High Fire Hazard Severity area. (This potential adverse effect is addressed in Impact 3.20-1.) For example, heavy construction equipment and passenger vehicles could drive on vegetated areas before clearing and grading, which could increase the fire danger. Construction equipment or heated mufflers could throw sparks, or oils, lubricants, and other combustible materials could accidentally ignite, resulting in a fire. Construction activities such as steel cutting and welding, while typically used only for unanticipated equipment maintenance during most individual restoration project types, are also potential sources of ignition.

In addition, increased surface runoff and erosion is possible in a post-fire environment where surface vegetation has been removed and steep slopes can increase the velocity of runoff flows. (This potential adverse effect is addressed in Impact 3.20-2.) For example, restoration projects involving the removal of nonnative terrestrial and aquatic invasive species and revegetation with native plants could lead to unstable soil conditions or increased runoff. Therefore, restoration projects permitted under the Order could result in a cumulatively considerable incremental contribution to a significant cumulative impact related to wildfire.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measure FIRE-1 would be required when applicable to a given project as required by Section 15092 of the State CEQA Guidelines. Mitigation Measure FIRE-1 requires restoration projects in areas designated as Very High or High Fire Hazard Safety Zones to prepare and submit a project-specific fire prevention plan for project construction and operation to the CEQA lead agency for review before the start of construction. Mitigation Measure FIRE-1 also requires that a draft of the fire prevention plan be distributed to each fire agencies (e.g., the California Department of Forestry and Fire Protection and county or local municipal fire agencies) before the start of any construction activities in areas designated as Very High or High Fire Hazard Severity Zones. Furthermore, Mitigation Measure FIRE-1 requires that the final plan be approved by these agencies before the start of construction activities and that the CEQA lead agency implement the plan during all construction and maintenance activities.

If necessary, impacts of individual restoration projects would be addressed in future environmental analyses that would be conducted by the appropriate project proponents. Mitigation Measure FIRE-1 would continue to be implemented as part of the restoration projects that would be permitted under the Order.

Implementation of the mitigation measures would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency. Mitigation Measure FIRE-1 would reduce the contribution of permitted restoration projects to less than considerable in most cases.

Furthermore, in some cases, restoration projects permitted under the Order are expected to result in beneficial or neutral impacts because the specific purpose of these

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projects would be to correct existing conditions that contribute to resource degradation. For example, restoration projects (i.e., bioengineered bank stabilization and removal of pilings and other in-water structures, and removal of nonnative invasive species and revegetation with native plants) would reduce the input of fine sediment and remove potential contaminant sources and hazards, which would improve water quality and fire resilience, increase bank stability, and improve overall hydrologic connection. In addition, Mitigation Measure FIRE-1 would reduce the contribution of permitted projects to less than cumulatively considerable in all cases. Therefore, cumulative impacts would be **less than significant**.