Excerpt from Section 3.19.6.6 Cumulative Impacts, Biological Resources and Wetlands

New information on the Crotch bumble bee's candidacy status under the California Endangered Species Act was specifically considered relative to the discussion of cumulative effects in Section 3.19.6.6, Biological Resources and Wetlands. As described in Section 3.19.6.6, the cumulative RSA for special-status species is the San Joaquin Valley. As also described in Section 3.19.6.6, the cumulative RSA was selected to consider a broad, regional consideration of cumulative impacts, and because they capture impacts on biological resources associated with construction and operations of the Central Valley Wye alternatives and regional impacts on biological resources associated with development projects affecting similar habitat types. The cumulative RSA was considered for Crotch bumble bee and was considered to be appropriate, because it is similar to the other biological resources and special-status species affected by the Central Valley Wye Alternatives. Additionally, biologists reviewed the discussion of cumulative conditions, specifically considering the Crotch bumble bee and found that it is also applicable and appropriate for this species and requires no changes.

Within the discussion of the contribution of the Central Valley Wye Alternatives to the loss of suitable habitat for special status species, Section 3.19.6.6, generally considers effects on all special status species together (i.e., as one biological resources topic, cumulatively). The discussion of the contribution of the Central Valley Wye Alternatives to loss of suitable habitat for special status species, including California annual grassland and other special-status plant communities would also apply to the Crotch bumble bee habitats of California annual grassland and scrub, and therefore no specific changes are necessary to specifically address Crotch bumble bee. Section 3.19.6.6 refers back to the mitigation measures in Section 3.7, which now includes mitigation measures to avoid, minimize, and mitigate impacts on habitat for Crotch bumble bee. As noted in Section 3.19.6.6, the mitigation measures ensure that the Central Valley Wye alternatives would not result in cumulatively considerable contributions to the cumulative impacts on special status species and habitats. As augmented by the new mitigation measures for Crotch bumble bee added to the revised Section 3.7, the text and conclusions remain accurate. For these reasons, the current text in Section 3.19 requires no revision to address the Crotch bumble bee.

3.19 Cumulative Impacts

3.19.6.6 Biological Resources and Wetlands

Several resource subtopics are discussed in this subsection and the organization of the discussion has been modified from the format of other resource discussions for clarity and readability. This subsection presents individual discussions of the cumulative condition, the contribution of the Central Valley Wye alternatives, and a CEQA conclusion for six different subtopics: special-status plants and wildlife, special-status plant communities, jurisdictional aquatic resources, critical habitat, essential fish habitat, and wildlife movement corridors.

RSA

The cumulative RSA for habitat, special-status species, and wildlife movement is the San Joaquin Valley, which is larger than the RSAs described in Section 3.7, Biological Resources and Wetlands (see Table 3.7-2). The cumulative RSA for wetlands comprises the following subbasins of the San Joaquin River Basin—Middle San Joaquin-Lower Chowchilla, Fresno River, Lower San Joaquin River, Upper Merced and Upper Tuolumne watersheds (U.S. Geologic Survey 8-digit Hydrologic Unit Codes 18040001, 18040002,18040007, 18040008, and 18040009, respectively)—which is also larger than the RSA described in Section 3.7 (defined for direct impacts as the project footprints, and defined for indirect impacts as the project footprints plus a 250-foot buffer and the entirety of vernal pool coverage). These cumulative RSAs were selected to develop a broad, regional consideration of cumulative impacts, and because they capture impacts on biological resources associated with construction and operations of the Central Valley Wye alternatives and regional impacts on biological resources associated with development projects affecting similar habitat types and occurring within neighboring watersheds.

Special-Status Plants and Wildlife

Cumulative Condition

As discussed in Section 3.7, large areas of valley grasslands, saltbush scrub, palustrine wetlands, valley foothill hardwoods, and extensive riparian woodlands have been either lost to development or have been converted to agricultural production. The historical trend of converting or altering these natural communities has compromised the biological complexity of the region and has been a factor in the listing by federal and state agencies of special-status species. Within the cumulative RSA, the majority of land is actively used for agriculture, and urban areas are the second most common type of land use. Native vegetation in these areas is absent or highly disturbed. As a result, any occurrences of special-status plant or wildlife species are considered sensitive resources under the existing, altered conditions of the cumulative RSAs. Under the cumulative condition, ongoing urban development and agricultural practices are expected to continue within the cumulative RSAs. Urban development stemming from the population increase through 2040 would result in the conversion of large areas of land that is presently used for agriculture or is undeveloped to accommodate housing, commercial, office, transportation, parks, and schools. Several large planned development projects such as Yosemite Ranch Estates' 2,500-lot development in Merced County and the 2,062-acre Gateway Village and Gunner Ranch Specific Plans in Madera County would contribute to development in the RSA. Planned transportation projects such as the widening of SR 99 south of Madera, reconstruction of the SR 99/SR 233 interchange, construction of the SR 152 Los Banos bypass, the Central Valley Wye alternatives, and the HSR Merced to Fresno and Fresno to Bakersfield Sections are located within the RSA. Together, the Central Valley Wye alternatives, development planned under land use plans, planned transportation improvements, agricultural and dairy farm expansions, adjacent HSR sections and relevant additional future projects identified in Appendix 3.19-A and 3.19-B constitute the cumulative condition relevant to special-status plants and wildlife.

The permanent conversion of existing land uses to residential, commercial, agricultural, and transportation uses would result in cumulative impacts on special-status plant and wildlife species within the cumulative RSA for these resources. These cumulative impacts would be mostly likely to occur for 46 plant species determined to have a moderate to high potential to occur in the special-

status plant RSA (see Table 3.7-6). Additionally, construction of these projects could result in land disturbance, increased vehicle traffic, and topography alteration, which could lead to disturbance, injury, or mortality of various special-status wildlife species and their respective habitats.

Operation of these planned projects could result in additional cumulative impacts. For example, operation of transportation projects could result in the loss of individual members of special-status species through maintenance and mowing of roadside embankments, or from the death of animals trying to cross transportation facilities. Indirect habitat degradation could occur near developed sites such as through as nighttime lighting that illuminates sensitive habitat areas, or from trash blown from nearby residential and commercial areas. Taken together, these cumulative operations impacts would be considered a cumulative impact on special-status species and habitat.

These species are protected by law and any planned development or transportation projects would be required to incorporate measures to minimize disturbance of special-status species, such as by conducting protocol-level surveys; salvaging, relocating, and propagating identified species; and restoring potential habitat areas after construction. Additionally, the Central Valley Wye alternatives include requirements that would avoid or minimize many of the direct and indirect impacts associated with construction of the HSR system. For example, the IAMFs identified in Section 3.7 include measures to delineate environmentally sensitive and restrictive areas to avoid and minimize the potential direct disturbance of special-status species during construction, and would minimize the indirect impact on special-status plants and other native vegetation occurring outside of the project footprints by requiring the cleaning of construction equipment and incorporating a weed control plan to minimize the spread of invasive species. Other planned development and transportation projects would have in place similar measures to minimize impacts. While these measures would minimize project-specific impacts, they would not completely avoid destruction of habitat or loss of individual members of the species and these effects would combine within the RSA to result in a cumulative impact.

Contribution of the Central Valley Wye Alternatives

As described in Section 3.7, construction of the Central Valley Wye alternatives would result in the removal of vegetation for the placement of permanent infrastructure during construction, and the removal of vegetation within temporary impact areas and from construction vehicles, and disturbance of vegetation from personnel (i.e., trampling, covering, and crushing individual plants, plant populations, or suitable potential habitat for special-status species). The contribution of the Central Valley Wye alternatives to this cumulative impact would vary depending on the alternative and the type of habit affected by each alternative. For example, the SR 152 (North) to Road 19 Wye Alternative would have the greatest potential to contribute to impacts on 16 special-status plant species associated with California annual grassland while the Avenue 21 to Road 13 Wye Alternative would have the greatest potential to contribute to cumulative impacts on 12 special-status plant species associated with aquatic and wetland vegetation (see Section 3.7.7, Environmental Consequences). Mitigation measures would require protocol-level surveys to identify individual members of a species that could be avoided, relocated, or propagated. They would also involve the preparation and implementation of a habitat mitigation plan to offset impacts on habitat for special-status species by creating, restoring, enhancing, and/or preserving habitat that provides the same functions and values as habitat permanently affected by construction. With the implementation of this mitigation, the Central Valley Wye alternatives' incremental contribution from construction to this cumulative impact is not cumulatively considerable.

Operations of the Central Valley Wye alternatives would avoid or minimize the potential for impacts from maintenance activities that have the potential to trample or crush plant communities and wildlife. These impacts would be avoided through the IAMFs identified in Section 3.7, which would require that maintenance personnel attend a worker environmental awareness program (WEAP) training to understand and identify sensitive biological resources and associated regulatory requirements. Additionally, the Central Valley Wye alternatives would provide wildlife crossings and would not include nighttime lighting. These measures would avoid and/or minimize the potential for trampling or other destruction of special-status plant species or habitat and

minimize the potential for impacts on special-status wildlife species by training maintenance personnel to understand environmental compliance issues. Therefore, it is not anticipated that the Central Valley Wye alternatives would contribute to a cumulative operations impact.

CEQA Conclusion

The historical trend of land use changes in the RSA has led to large-scale alteration and removal of the habitat of numerous special-status plant and wildlife species, and ongoing development continues to degrade remaining habitat. All four of the Central Valley Wye alternatives would result in the removal of vegetation for the placement of permanent infrastructure during construction, and the removal of vegetation within temporary impact areas and from construction activities. The mitigation proposed to address impacts to species habitat includes habitat preservation in combination with restoration and enhancement, would maintain or result in an improvement over existing conditions within the RSA. With implementation of the mitigation measures identified in Section 3.7.8, the Central Valley Wye alternatives would not result in a cumulatively considerable contribution to significant cumulative impacts during construction. Operations of the Central Valley Wye alternatives would not result in cumulatively considerable contributions to significant cumulative impacts because IAMFs incorporated into the Central Valley Wye alternatives would avoid or minimize the potential for trampling or other destruction of special-status plant and wildlife species and their habitats.

Special-Status Plant Communities

Cumulative Condition

Construction of development and transportation projects within the cumulative RSA would result in removal or disruption of plants and vegetation, which could lead to direct and indirect impacts on special-status plant communities from trampling and crushing of plants. Construction activities that directly affect vernal pools, riparian plant communities, seasonal wetlands, and palustrine forested special-status plant communities would result in the removal or disruption of special-status plant communities by construction vehicles and personnel. See the previous discussion under Special-Status Plants and Wildlife for a description of the cumulative condition and the planned development and transportation projects that would contribute to these cumulative impacts.

Many of these habitat areas and species are protected by law and any development or transportation projects would be required to incorporate measures to minimize disturbance of special-status species, such as by conducting protocol-level surveys, avoiding identified areas found to contain special-status plant communities, and restoring potential habitat areas after construction. Furthermore, these projects may be required to provide mitigation, including compensatory mitigation, for impacts on special-status plants, as required by state and federal law (e.g., CEQA, the federal Endangered Species Act, the California Endangered Species Act, and indirectly through the Clean Water Act). For the Central Valley Wye alternatives, IAMFs included in the project design (identified in Section 3.7) would require various controls during construction, such as identifying and delineating habitat features and other environmentally sensitive areas on final construction plans and in the field; controlling weeds, monitoring measures, cleaning construction equipment to prevent the spread of weeds; and limiting vehicle traffic and construction site speeds to avoid and minimize the potential direct disturbance of special-status plant communities during construction. While these measures would reduce individual impacts, they would not completely avoid degradation of special-status plant communities during construction and these impacts would combine within the RSA to result in a cumulative impact. Operation of these planned projects could result in additional cumulative impacts on plant communities. For example, operation of development projects could result in the degradation of plant communities through the spread of non-native and invasive plant species.

Contribution of the Central Valley Wye Alternatives

IAMFs and mitigation measures identified in Section 3.7.8 would minimize disturbance of special-status plant communities by conducting protocol-level surveys to identify special-status plants in areas where permission was not previously granted to allow for removal prior to disturbance; salvaging, relocating, and propagating; incorporating a habitat management plan; and restoring and preserving

(on-site and off-site) of special-status plant species. The incorporation of these measures would avoid some direct and indirect impacts on special-status plant communities; however, some impacts on special-status plant communities would still occur and could combine with the individual impacts of other projects. The contribution to this cumulative impact would vary depending on the alternative selected and the type of habit affected by each alternative. For example, the SR 152 (North) to Road 19 Wye Alternative would have the most impacts on mixed riparian plant communities (1.06 acres) compared to the SR 152 (North) to Road 13 Wye Alternative (0.36 acre). In contrast, the greatest extent of direct impact (0.19 acre) on vernal pools would result from construction of the SR 152 (North) to Road 19 Wye Alternative or the SR 152 (North) to Road 11 Wye Alternative. Construction of the SR 152 (North) to Road 13 Wye Alternative would result in a nearly equal extent of direct impact (0.18 acre) on vernal pools. Construction of the Avenue 21 to Road 13 Wye Alternative would result in the least direct impacts (0.10 acre) on the vernal pool plant community (see Table 3.7-14 in Section 3.7.7). Mitigation measures would require protocol-level surveys to identify individual members of a species that could be avoided, relocated, or propagated. They would also involve the preparation and implementation of a habitat mitigation plan to offset impacts on habitat for special-status species by creating, restoring, enhancing, and/or preserving habitat that provides the same functions and values as habitat permanently affected by construction. With the implementation of this mitigation, the Central Valley Wye alternatives' incremental contribution from construction to this cumulative impact is not cumulatively considerable.

Operations of the Central Valley Wye alternatives would require periodic removal of vegetation and disturbance of plants caused by an increase of maintenance activity. The IAMFs identified in Section 3.7 would require maintenance personnel to attend a WEAP training to understand and identify sensitive biological resources and associated regulatory requirements. Therefore, it is not anticipated that the Central Valley Wye alternatives would contribute to cumulative impacts during operations.

CEQA Conclusion

The historical trend of land use changes in the RSA has led to large-scale alteration and removal of special-status plant communities, and ongoing development continues to degrade remaining habitat. All four of the Central Valley Wye alternatives would result in the disturbance or removal of vegetation within special-status plant communities for the placement of permanent infrastructure during construction, and the removal of vegetation within temporary impact areas and from construction activities. The mitigation proposed to address impacts to special-status plant communities includes habitat preservation in combination with restoration and enhancement, which would maintain or result in an improvement over existing conditions within the RSA. With implementation of the mitigation measures identified in Section 3.7.8, the Central Valley Wye alternatives would not result in a cumulatively considerable contribution to significant cumulative impacts during construction. Operations of the Central Valley Wye alternatives would not result in cumulatively considerable contributions to significant cumulative impacts because IAMFs incorporated into the Central Valley Wye alternatives would avoid or minimize the potential for trampling or other destruction of special-status plant communities.

Jurisdictional Aquatic Resources

Cumulative Condition

Construction of development and transportation projects within the cumulative RSA for aquatic resources would result in the discharge of fill into federal and state jurisdictional wetlands and other waters under Section 404 of the Clean Water Act, and under Section 1600 et seq. of the California Fish and Game Code (including seasonal wetlands, vernal pools, canals, ditches, lacustrine wetlands, retention and detention basins, riparian, and seasonal riverine areas), which could lead to impacts on jurisdictional aquatic resources, including through the removal or modification of local hydrology, and redirection of flow. Areas potentially affected include seasonal wetlands, canals, ditches, lacustrine wetlands, retention and detention basins, riparian, and seasonal riverine complexes. While the discharge of fill material into waters is regulated by state and federal agencies, such discharges may be authorized under certain circumstances.

Under the cumulative condition, ongoing urban development would result in the conversion of large areas of agricultural or undeveloped land to accommodate housing, commercial, office, transportation, parks, and schools. Several large planned development projects such as Yosemite Ranch Estates' 2,500-lot development in Merced County and the 2,062-acre Gateway Village and Gunner Ranch Specific Plans in Madera County would contribute to development in the RSA and could result in some fill of wetlands or other impacts on jurisdictional aquatic resources. Linear transportation projects, such as the widening of SR 99, construction of the SR 152 Los Banos bypass, the Central Valley Wye alternatives, and the HSR Merced to Fresno and Fresno to Bakersfield Sections, are likely to contribute to cumulative impacts on jurisdictional aquatic resources because their linear footprints would result in crossing multiple waterways. Over time, fill activities related to these individual projects can result in a cumulative reduction in jurisdictional areas and these would be considered cumulative impacts. Operation of these planned projects could result in additional cumulative impacts on jurisdictional aquatic resources. For example, operation of development and transportation projects could result in changes in local hydrology and drainage that could degrade nearby waters or introduce non-native and invasive species.

Contribution of the Central Valley Wye Alternatives

Construction activities associated with all four of the Central Valley Wye alternatives would contribute to these cumulative impacts. As presented in Table 3.7-15 and Table 3.7-16, the greatest extent of direct impact (2.34 acres) on all types of jurisdictional wetlands combined would result from construction of the Avenue 21 to Road 13 Wye Alternative, whereas the least direct impact (0.72 acres) on jurisdictional wetlands would result from construction of the SR 152 (North) to Road 11 Wye Alternative. The greatest extent of direct impact (43.34 acres) on all types of jurisdictional other waters combined would result from construction of the Avenue 21 to Road 13 Wye Alternative, whereas the least direct impact (29.26 acres) on jurisdictional other waters would result from construction of the SR 152 (North) to Road 11 Wye Alternative. As presented in Table 3.7-16, the greatest extent of direct impact (2.97 acres) on all types of riparian habitats considered jurisdictional under Section 1600 et seq. of the California Fish and Game Code combined would result from construction of the Avenue 21 to Road 13 Wye Alternative, whereas the least direct impact (1.53 acres) on jurisdictional riparian habitats would result from construction of the SR 152 (North) to Road 11 Wye Alternative. The greatest extent of direct impact (13.69 acres) on all types of streams and riparian areas considered jurisdictional under Section 1600 et seq. of the California Fish and Game Code would result from construction of the SR 152 (North) to Road 19 Wye Alternative, whereas the least direct impact (9.28 acres) on all types of jurisdictional streams and riparian areas would result from construction of the SR 152 (North) to Road 11 Wye Alternative. Mitigation measures identified in Section 3.7.8 would compensate for permanent and temporary impacts on jurisdictional waters through creation, restoration, enhancement, and preservation of wetlands, which would prevent reduction of or degradation of jurisdictional wetlands. This action would be consistent with the USACE "no net loss of wetlands" policy, which provides that the total area of wetlands must not be reduced through the implementation of compensatory wetland mitigation. These features would also minimize turbidity and siltation and ground disturbing activities by incorporating a dewatering plan and construction site best management practices (BMP).

Operations of the Central Valley Wye alternatives would require maintenance and vehicular activity near jurisdictional aquatic resources. The IAMFs identified in Section 3.7 would require maintenance personnel to attend a WEAP training to understand and identify sensitive biological resources and associated regulatory requirements. With these measures in place, the likelihood of accidental spills, introduction of contaminants/pollutants, and degradation of jurisdictional waters would be minimized and, therefore, it is not anticipated that the Central Valley Wye alternatives would contribute to this cumulative impact during operations.

Mitigation measures identified in Section 3.7.8 would compensate for these cumulative impacts on jurisdictional waters by providing for on-site and off-site mitigation by creating, restoring, enhancing, and preserving "in kind" wetlands or other waters that provide the same functions and values as those permanently affected by construction and implementing a habitat management plan. The implementation of these measures would compensate for direct and indirect impacts on

jurisdictional aquatic resources. Other projects would also likely be required to compensate for loss of jurisdictional aquatic resources, particularly wetlands, pursuant to the requirements of Section 404 of the Clean Water Act. The mitigation measures proposed for the Central Valley Wye alternatives and compliance with the USACE "no net loss of wetlands" policy would avoid a contribution this cumulative impact.

CEQA Conclusion

The historical trend of land use changes in the RSA has led to large-scale removal and degradation of aquatic resources, and ongoing development continues to degrade remaining aquatic resources. All four of the Central Valley Wye alternatives would result in impacts to jurisdictional aquatic resources. With implementation of mitigation measures identified in Section 3.7.8, the Central Valley Wye alternatives would result in no net loss of jurisdictional aquatic resources; therefore, there would not be cumulatively considerable contribution to significant cumulative impacts during construction. Operations of the Central Valley Wye alternatives would not result in cumulatively considerable contributions to significant cumulative impacts because IAMFs incorporated into the Central Valley Wye alternatives would avoid the degradation or removal of remaining aquatic resources.

Critical Habitat

Cumulative Condition

Construction of transportation and development projects within the cumulative RSA could result in the destruction or degradation of federally designated critical habitat. Critical habitat areas have been designated within the cumulative RSA for eight species, including plant and aquatic species. Although some of these upland critical habitat areas are largely protected from development, some loss or degradation of critical habitat areas, such as of vernal pools, are anticipated under the cumulative condition and would be considered cumulative impacts. Additionally, indirect impacts of planned development and transportation projects could also combine to contribute to these impacts, such as through the spread of invasive species that could compromise the habitat value of these critical habitat areas. See the previous discussion under Special-Status Plants and Wildlife for a description of the cumulative condition and the planned development and transportation projects that would contribute to these cumulative impacts. Operation of these planned projects could result in additional cumulative impacts on critical habitat areas. For example, operation of development and transportation projects could result in changes in local hydrology and drainage that could degrade nearby vernal pools or introduce non-native and invasive species.

Contribution of the Central Valley Wye Alternatives

Critical habitat areas for eight species (San Joaquin Orcutt grass, vernal pool fairy shrimp, vernal pool tadpole shrimp, Conservancy fairy shrimp, Central Valley steelhead, Colusa grass, fleshy owl's-clover, and Greene's tuctoria) exists within the vicinity of the Central Valley Wye alternatives. As discussed in Section 3.7, there would be impacts critical habitat associated with vernal pool species from construction of two of the Central Valley Wye alternatives, SR 152 (North) to Road 19 Wye Alternative (4.72 acres), and the SR 152 (North) to Road 11 Wye Alternative (0.21 acre). The Site 7—Le Grand Junction/Sandy Mush Road, Warnerville – Wilson 230 kV Transmission Line associated with the SR 152 (North) to Road 19 Wyes Alternative would also have indirect impacts to Central Valley steelhead critical habitat. As shown in Table 3.7-10, the SR 152 (North) to Road 13 Wye alternative and the Avenue 21 to Road 13 Wye alternative would have no impacts on critical habitat.

The IAMFs identified in Section 3.7 would identify critical habitat and minimize, although not avoid, direct impacts on special-status plant communities from construction. While these critical habitat areas are protected by law to reduce impacts from HSR and other projects, this designation does not forbid development or construction, and these two alternatives would contribute to this cumulative impact during construction.

Operations of the Central Valley Wye alternatives would require maintenance and increased vehicular activity near critical habitats. The IAMFs identified in Section 3.7 would require maintenance personnel to attend a WEAP training to understand and identify sensitive biological resources and associated regulatory requirements. With these measures in place, the likelihood accidental spills, introduction of contaminants/pollutants, and degradation of, or direct impacts on, critical habitat would be minimized. Therefore, it is not anticipated that any of the Central Valley Wye alternatives would contribute to this cumulative impact during operations. Mitigation measures identified in Section 3.7.8 would require on-site and off-site restoration and preservation of critical habitat by creating, restoring, enhancing, and preserving habitat that provides the same functions and values as those permanently affected by construction. With these measures and the delineation of habitat features as environmental site assessments during final construction plans and in the field, the likelihood of direct removal or effect on the long-term viability of critical habitat would be minimized. Therefore, the incremental contribution related to the construction of the SR 152 (North) to Road 19 Wye and SR 152 (North) to Road 11 Wye Alternatives to this cumulative impact is not cumulatively considerable.

CEQA Conclusion

The historical trend of land use changes in the RSA has led to large-scale alteration and removal of critical habitat, and ongoing development continues to degrade remaining habitat. Two of the Central Valley Wye alternatives would contribute to significant cumulative impacts on critical habitat areas for vernal pool associated species, and one of the two would also contribute to significant cumulative impacts on critical habitat for Central Valley steelhead. With implementation of mitigation measures identified in Section 3.7.8, these impacts would be reduced and there would not be cumulatively considerable contributions to significant cumulative impacts during construction. Operations of the Central Valley Wye alternatives would not result in cumulatively considerable contributions to significant cumulative impacts because IAMFs incorporated into the Central Valley Wye alternatives would minimize the potential for direct and indirect impacts to critical habitat. Therefore, CEQA does not require additional mitigation.

Essential Fish Habitat

Cumulative Condition

Essential fish habitat (EFH) occurs in the San Joaquin River, which flows south to north across the cumulative RSA to the east of Los Banos. A segment of the river within the RSA is designated as EFH for the recovery of Pacific (Chinook) Salmon by the National Oceanic and Atmospheric Administration. Since 2009, the San Joaquin River Restoration Program has been initiating the restoration of flows conducive to Chinook salmon through a series of restoration programs and projects, including the Mendota Pool Bypass and Reach 2B Improvements, Reach 4B and Eastside Bypass, Arroyo Canal, and Sack Dam, which are resulting in beneficial effects on quality of the EFH. Construction of bridges and aerial structures over the San Joaquin River from projects such as the Central Valley Wye alternatives, widening of SR 99 south of Madera, and proposed improvements to SR 152 could result in direct and indirect impacts on EFH in the San Joaquin River through construction along riverbanks and through increased turbidity and siltation. Existing permitting requirements for in-water work and stormwater pollution prevention regulations would reduce potential impacts but there could still be cumulative impacts related to increased turbidity and siltation resulting from construction. These cumulative impacts are limited to construction activity along the riverbanks and no impacts associated with operations or maintenance activities are anticipated under the cumulative condition.

Contribution of the Central Valley Wye Alternatives

For the Central Valley Wye alternatives, construction over the San Joaquin River would increase turbidity and siltation and would contribute to cumulative impacts on EFH. The IAMFs identified in Section 3.7 would require that the project biologist consult with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife to identify appropriate work windows for federally listed species, including federally listed fish in the San Joaquin River. If work cannot be conducted when the channel lacks flowing and/or standing water, a dewatering plan would be

required in consultation with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. Prior to construction, a dewatering plan would be required for review and approval by the resource agencies. The plan would include appropriate measures to minimize turbidity and siltation. The implementation of these measures would minimize some direct impacts on EFH; however, the degradation of EFH by the Central Valley Wye alternatives during construction would be unavoidable and there would be a cumulatively considerable contribution to these cumulative impacts. The extent of direct impacts on EFH for each alternative would depend upon the final design to determine the exact distance of each aquatic crossing, the shading potential and the number of piers installed within or over EFH.

Operations of the Central Valley Wye alternatives could require periodic maintenance and increased vehicular activity near streams or rivers with EFH which could result in increased turbidity and siltation. The IAMFs identified in Section 3.7 would require that maintenance personnel attend a WEAP training to understand and identify sensitive biological resources and associated regulatory requirements. With these measures in place, the likelihood for accidental spills, introduction of contaminants/pollutants, and degradation of, or direct impacts on, EFH would be minimized. They would also minimize the impacts on water quality from increased erosion, sedimentation, siltation, and runoff caused by alterations in hydrology during operations-related maintenance such as vegetation removal, drain cleaning, and litter removal; wind erosion impacts (including from unvegetated rights-of-way and passing high-speed trains); increased risk of fire in adjacent open spaces because of increased human activity; and the introduction of noxious plant species from increased human activity/disturbance. These IAMFs would minimize impacts and there would not be cumulative impacts during operations.

Mitigation measures identified in Section 3.7.8 would require on-site and off-site restoration and preservation of fish habitat and a plan for fish rescue. With these mitigation measures, the Central Valley Wye alternatives' incremental contribution from construction to this cumulative impact is not cumulatively considerable.

CEQA Conclusion

Cumulative projects in the RSA could increase the turbidity and siltation in the San Joaquin River, degrading EFH. All four of the Central Valley Wye alternatives would result in cumulatively considerable contributions to significant cumulative impacts on EFH. With implementation of mitigation measures identified in Section 3.7.8, these impacts would be reduced and there would not be cumulatively considerable contributions to significant cumulative impacts during construction. Therefore, CEQA does not require additional mitigation. Operations of the Central Valley Wye alternatives would not result in cumulatively considerable contributions to significant cumulative impacts because IAMFs incorporated into the Central Valley Wye alternatives would minimize the potential for accidental discharge of pollutants to the San Joaquin River, therefore avoiding impacts to EFH.

Wildlife Movement Corridors

Cumulative Condition

Several major known habitat linkages provide wildlife movement within the cumulative RSA, including the Eastman Lake–Bear Creek essential connectivity areas (ECA), Ash Slough–Merced National Wildlife Refuge ECA, San Luis Canal-Kesterson National Wildlife Refuge ECA, Sandy Mush Road Area, and other modeled wildlife corridors. Construction of development and transportation improvement projects could create barriers within natural lands such that they would interfere with the movement of wildlife species. These mapped wildlife movement corridors cover large areas that are currently divided by roads and influenced by agricultural activities and nearby development. Proposed improvements to roadways and development along major arterials, such as for Highway 152, would introduce new features into the landscape that could degrade these wildlife movement corridors during construction and operations.

The Central Valley Wye alternatives include IAMFs that would require the creation of wildlife-crossing features at frequent intervals and along sensitive areas to facilitate wildlife movement and minimize or avoid impacts on wildlife corridors. The incorporation of these measures would

minimize the impacts of interfering with established wildlife movement corridors and other impacts relating to the potential for isolation of populations. In areas where the Central Valley Wye alternatives would cross existing barriers to wildlife movements, such as roads and the UPRR right-of-way, there would be an opportunity to improve existing wildlife movement opportunities. While these design features could improve wildlife movement in some areas, overall opportunities for wildlife movement within the cumulative RSA would be diminished. Therefore, there would be a cumulative impact on known and modeled wildlife corridors.

Contribution of the Central Valley Wye Alternatives

As discussed in Section 3.7, the Central Valley Wye alternatives would affect known and modeled wildlife corridors from construction. The SR 152 (North) to Road 19 Wye Alternative would have the greatest potential impact on wildlife movement corridors because it would affect the greatest area of land compared to the other three alternatives, especially within the Eastman Lake–Bear Creek ECA. The SR 152 (North) to Road 11 Wye Alternative would have the least potential impact on wildlife movement corridors. By including wildlife-crossing features in the project design, the Central Valley Wye alternatives are expected to maintain existing wildlife movement corridors within the project footprints. Impacts would still occur and would be temporary, lasting from 1 to 2 months, up to 3 years during construction, and there could be permanent impacts from the introduction of the new linear infrastructure. These impacts could combine with those from other construction projects and disrupt seasonal migrations and animal foraging and mating opportunities. Therefore, any of the Central Valley Wye alternatives' contributions to these cumulative impacts would be considerable. Feasible mitigation measures have been identified in Section 3.7.8, and no additional mitigation is proposed. There would still be cumulative impacts from construction after mitigation.

During operations, maintenance activities are not expected to affect wildlife movement corridors because activities would be dispersed over time and location, diluting potential impacts. Impacts on wildlife movement corridors from operations would include disturbance from the passage of trains (noise, motion, and startle effects). As discussed in Section 3.7.7.5 in Impact BIO#45, Indirect Impacts on Wildlife Movement Corridors, the level of impact caused by a particular alternative would be dependent on the number, type, and length of wildlife corridor crossed by an alternative, as well as the frequency of passing trains. In general, for the Central Valley Wye alternatives, these potential effects would be limited as a result of the short duration of train passes and the infrequent use of the wildlife crossings by wildlife. Therefore, while disturbance to wildlife corridors from operations could combine with other regional projects' impacts to disrupt normal movement within wildlife corridors, the Central Valley Wye alternatives' contributions to these cumulative impacts would not be cumulatively considerable.

CEQA Conclusion

Existing linear features and development divide wildlife movement corridors in the RSA, and cumulative projects. Existing and planned linear transportation projects and other development within the RSA could degrade wildlife movement features through the introduction of new barriers into the landscape and thereby further limiting wildlife movement, resulting in significant cumulative impacts on known and modeled wildlife corridors. The Central Valley Wye alternatives would include IAMFs and mitigation measures that would maintain wildlife-crossing opportunities by requiring the creation of wildlife-crossing features at frequent intervals and along sensitive areas to facilitate wildlife movement and minimize or avoid impacts on wildlife corridors. With implementation of mitigation measures identified in Section 3.7.8, there would not be cumulatively considerable contributions to significant cumulative impacts during construction. Operations of the Central Valley Wye alternatives would not result in cumulatively considerable contributions to significant cumulative impacts because operations and maintenance activities would be dispersed over time and place and the potential disturbance to wildlife would be limited as a result of the short duration of train passes and infrequent use of the wildlife crossings by wildlife. Therefore, CEQA does not require mitigation.