

Table 4-1. Summary of Covered Activity Impact Mechanisms and Associated Potential Adverse Impacts for Covered Activity Categories¹

Impact Mechanisms on Covered Species and Natural Communities	Associated Potential Adverse Impacts ²
<i>Permanent Development Projects within and outside UPAs</i>	
Residential, Commercial, Public, and Industrial Facility Permanent Development Projects within UPAs Recreation Facility Permanent Development Projects within UPAs (including associated in-water permanent development projects) Transportation Facility Permanent Development Projects within and outside UPAs (including associated in-water permanent development projects) Pipeline Facility Permanent Development Projects within UPAs Utility Services Facility Permanent Development Projects within UPAs Waste and Wastewater Management Facility Permanent Development Projects within and outside UPAs Flood Control and Stormwater Management Facility Permanent Development Projects within UPAs Agricultural Services Permanent Development Activities outside of UPAs	
Permanent Direct	
<ul style="list-style-type: none"> • Construction of new permanent development footprints (e.g., residential housing, new roads, landfill expansion) • Construction of road surfaces and shoulders within existing road rights-of way (ROWs) and within the construction footprint of existing bridges removes natural communities and covered species habitats within the ROWs • Construction of road surfaces and shoulders within new road ROWs and within the construction footprint of new bridges removes natural communities and covered species habitats within the ROWs • Trenching and excavation associated with installation of pipe and below ground utility-related cable within new and existing utility ROWs 	<ul style="list-style-type: none"> • Removal of habitat • Habitat fragmentation • Alteration of in-channel aquatic habitat structure (only for activities that require operation of equipment in channels)
<ul style="list-style-type: none"> • Operation of equipment to construct/install new permanent development projects • Excavation of open trenches 	<ul style="list-style-type: none"> • Direct injury or mortality of covered and other native wildlife species and removal of covered and other native plant species
Temporary Direct	
<ul style="list-style-type: none"> • Noise and visual disturbances associated with construction/installation-related activities 	<ul style="list-style-type: none"> • Reduced availability of habitat for covered and other native wildlife species

Table 4-1. Summary of Covered Activity Impact Mechanisms and Associated Potential Adverse Impacts for Covered Activity Categories¹ (continued)

Impact Mechanisms on Covered Species and Natural Communities	Associated Potential Adverse Impacts ²
<i>Permanent Development Projects within and outside UPAs</i>	
<ul style="list-style-type: none"> • Introduction of contaminants associated with construction-related activities (e.g., fuel spills) 	<ul style="list-style-type: none"> • Morbidity or mortality of covered and other native species coming in contact with contaminants
<ul style="list-style-type: none"> • Erosion and sedimentation associated with construction-related disturbance of soils 	<ul style="list-style-type: none"> • Reduction in the function of receiving waters and land surfaces as habitat for covered and other native species (e.g., increased turbidity, reduced dissolved oxygen, silting over vegetation)
<ul style="list-style-type: none"> • Impact Mechanisms on Covered Species and Natural Communities 	<ul style="list-style-type: none"> • Associated Potential Adverse Impacts²
Permanent Indirect	
<ul style="list-style-type: none"> • Increased human activity associated with new developments adjacent to natural areas • Increased human activity associated with new recreational developments in and adjacent to natural areas • Increased traffic capacity on improved roads and new traffic on new roads 	<ul style="list-style-type: none"> • Reduced availability of habitat for covered and other native species resulting from increased noise and visual disturbances • Direct injury or mortality of covered and other native wildlife and removal of covered and other native plant species (e.g., increased predation by pets, increased human use in natural areas, increased risk for vehicle-wildlife strikes) • Periodic temporary removal of habitat associated with increased risk of wildfire in natural areas
<ul style="list-style-type: none"> • Increased traffic capacity on improved roads and new traffic on new roads 	<ul style="list-style-type: none"> • Injury and mortality of covered and other native wildlife species associated with increased risk for vehicle strikes
<ul style="list-style-type: none"> • Construction of above ground electric transmission lines 	<ul style="list-style-type: none"> • Direct injury or mortality of covered and other native bird species from strikes with transmission lines and electrocution
<ul style="list-style-type: none"> • Placement of in-stream bridge support structures 	<ul style="list-style-type: none"> • Potential for increased predation risk of covered fish and other native aquatic species through creation of predatory fish “ambush” habitat
<ul style="list-style-type: none"> • Lack of vegetation along linear flood control structures (e.g., levees) bisecting habitat areas 	<ul style="list-style-type: none"> • Increased predation risk for covered and other native amphibians, reptiles, and small mammals
<ul style="list-style-type: none"> • Altered hydrology associated with grading, new detention basins, new roadway surfaces, and modifications to runoff patterns 	<ul style="list-style-type: none"> • Dewatering of vernal pool, riparian, and aquatic habitats supporting covered and other native species • Altered habitat structure and water chemistry in habitats supporting covered and other native species by increasing water availability

Table 4-1. Summary of Covered Activity Impact Mechanisms and Associated Potential Adverse Impacts for Covered Activity Categories¹ (continued)

Impact Mechanisms on Covered Species and Natural Communities	Associated Potential Adverse Impacts ²
<ul style="list-style-type: none"> • Runoff of toxic compounds (e.g., petroleum-based compounds) from new developments (e.g., residential housing, from traffic on new roads, expanded landfills) into aquatic habitat 	<ul style="list-style-type: none"> • Morbidity or mortality of covered and other native species coming in contact with contaminants
<ul style="list-style-type: none"> • Introduction of nonnative species 	<ul style="list-style-type: none"> • Establishment of invasive nonnative ornamental plants in natural areas adjacent to new developments displace or hybridize with native plant species and can affect functions of infested areas as habitat for covered and other native species • Nonnative pet fish, amphibians, and other species released into native habitat can compete or prey on native aquatic fish and wildlife species
Permanent Indirect	
<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
<i>Recurring Maintenance Activities within and outside UPAs</i>	
<ul style="list-style-type: none"> • Recreation Facility Recurring Maintenance Activities within UPAs (including associated in-water permanent development projects) • Transportation Facility Recurring Maintenance Activities within and outside UPAs • Pipeline Facility Recurring Maintenance Activities within UPAs • Utility Service Facilities Recurring Maintenance Activities within UPAs • Waste and Wastewater Management Facility Recurring Maintenance Activities within and outside UPAs • Flood Control and Stormwater Management Recurring Maintenance Activities within and outside UPAs • Vegetation Management Recurring Maintenance Activities within and outside UPAs 	
Permanent Direct	
<ul style="list-style-type: none"> • Dewatering and maintenance of Sycamore Pool along Big Chico Creek 	<ul style="list-style-type: none"> • Direct injury or mortality of covered fish and other native aquatic organisms
<ul style="list-style-type: none"> • Removal of woody and other debris from channels 	<ul style="list-style-type: none"> • Alteration of in-channel aquatic habitat structure and hydrodynamics
<ul style="list-style-type: none"> • Operation of maintenance-related equipment • Excavation of open trenches 	<ul style="list-style-type: none"> • Direct injury or mortality of covered and other native wildlife species and removal of covered and other native plant species
Temporary Direct	

Table 4-1. Summary of Covered Activity Impact Mechanisms and Associated Potential Adverse Impacts for Covered Activity Categories¹ (continued)

Impact Mechanisms on Covered Species and Natural Communities	Associated Potential Adverse Impacts ²
<ul style="list-style-type: none"> Dewatering and maintenance of Sycamore Pool along Big Chico Creek 	<ul style="list-style-type: none"> Alteration of in-channel habitat structure for covered and other native aquatic organisms Removal of aquatic habitat Reduction in function of downstream aquatic habitat associated with discharge of sediment from the pool (e.g., increased turbidity) that could affect behavior covered fish and other native aquatic organisms
<ul style="list-style-type: none"> Channel bed disturbance associated with in-channel operation of bridge and flood control/stormwater management maintenance equipment 	<ul style="list-style-type: none"> Reduced availability of habitat for and potential for increased predation risk of covered fish and other native aquatic species associated with increased turbidity
<ul style="list-style-type: none"> Operation of equipment to maintain fire breaks 	<ul style="list-style-type: none"> Change in vegetation structure (i.e., height of herbaceous vegetation)
<ul style="list-style-type: none"> Noise and visual disturbances associated with operation of maintenance-related activities 	<ul style="list-style-type: none"> Reduced availability of habitat for covered and other native species
<ul style="list-style-type: none"> Introduction of contaminants associated with maintenance-related activities (e.g., fuel spills) 	<ul style="list-style-type: none"> Morbidity or mortality of covered and other native species coming in contact with contaminants
Permanent Indirect	
<ul style="list-style-type: none"> Removal of in-channel debris 	<ul style="list-style-type: none"> Change in patterns of erosion and sedimentation Change in channel form
<ul style="list-style-type: none"> Covered Activities Within Water and Irrigation Districts 	
<ul style="list-style-type: none"> Permanent Development: Rerouting of canals (Western Canal Water District, Biggs West Gridley Water District, Butte Water District, and Richvale Irrigation District) 	
Permanent Direct	
<ul style="list-style-type: none"> Excavation and associated activities to construct new canals 	<ul style="list-style-type: none"> Removal of habitat Habitat fragmentation
<ul style="list-style-type: none"> Operation of canal construction-related equipment 	<ul style="list-style-type: none"> Direct injury or mortality of covered and other native wildlife species
Temporary Direct	
<ul style="list-style-type: none"> Noise and visual disturbances associated with canal construction-related activities 	<ul style="list-style-type: none"> Reduced availability of habitat for covered and other native wildlife species
<ul style="list-style-type: none"> Introduction of contaminants associated with construction-related activities (e.g., fuel spills) 	<ul style="list-style-type: none"> Morbidity or mortality of covered and other native species coming in contact with contaminants

Table 4-1. Summary of Covered Activity Impact Mechanisms and Associated Potential Adverse Impacts for Covered Activity Categories¹ (continued)

Impact Mechanisms on Covered Species and Natural Communities	Associated Potential Adverse Impacts ²
<ul style="list-style-type: none"> Erosion and sedimentation associated with construction-related disturbance of soils 	<ul style="list-style-type: none"> Reduction in the function of receiving waters and land surfaces as habitat for covered and other native species (e.g., increased turbidity, reduced dissolved oxygen, silting over vegetation)
Permanent Indirect	
<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
Temporary Indirect	
<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
<i>Recurring Maintenance Activities within Water and Irrigation Districts</i>	
Permanent Direct	
<ul style="list-style-type: none"> Operation of equipment to install replacement structures (e.g., weirs) 	<ul style="list-style-type: none"> Removal of habitat
<ul style="list-style-type: none"> Operation of excavation and other maintenance-related equipment 	<ul style="list-style-type: none"> Direct injury or mortality of covered and other native wildlife species and removal of covered and other native plant species
Temporary Direct	
<ul style="list-style-type: none"> Periodic removal of vegetation from canals and ditches 	<ul style="list-style-type: none"> Removal of habitat
<ul style="list-style-type: none"> Noise and visual disturbances associated with operation of maintenance-related activities 	<ul style="list-style-type: none"> Reduced availability of habitat for covered and other native species
<ul style="list-style-type: none"> Introduction of contaminants associated with maintenance-related activities (e.g., fuel spills) 	<ul style="list-style-type: none"> Morbidity or mortality of covered and other native species coming in contact with contaminants
Permanent Indirect	
<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
Conservation Measures³	
<p><i>CM5: Restore Wetland and Riparian Habitats</i> <i>CM6: Enhance and Manage Protected Natural Communities</i> <i>CM7: Create and Maintain Greater Sandhill Crane Winter Roost Sites</i> <i>CM9: Improve Fish Habitat and Survival</i> <i>CM10: Conserve Butte County Meadowfoam</i> <i>CM12: Reestablish Occurrences of Conservancy Fairy Shrimp, Ahart’s Dwarf Rush, Hoover’s Spurge, Hairy Orcutt Grass, Slender Orcutt Grass, and Greene’s Tuctoria</i></p>	

Table 4-1. Summary of Covered Activity Impact Mechanisms and Associated Potential Adverse Impacts for Covered Activity Categories¹ (continued)

Impact Mechanisms on Covered Species and Natural Communities	Associated Potential Adverse Impacts ²
Permanent Direct	
Grading, planting, and other ground disturbing restoration-related actions	<ul style="list-style-type: none"> • Alteration of the structure and composition of existing vegetation • Removal of habitat for species that use affected habitat and do not use restored habitats • Change in agricultural crop types (with creation of greater sandhill crane roost sites)
Operation of habitat enhancement-, restoration, and management-related equipment	<ul style="list-style-type: none"> • Direct injury or mortality of covered and other native wildlife species and removal of native plant species
<ul style="list-style-type: none"> • Placement of spawning gravel in channels Removal of woody and other debris from channels 	<ul style="list-style-type: none"> • Alteration of in-channel aquatic habitat structure
Temporary Direct	
<ul style="list-style-type: none"> • Operation of vegetation control-related equipment 	<ul style="list-style-type: none"> • Change in vegetation structure and composition
<ul style="list-style-type: none"> • Noise and visual disturbances associated with equipment operation 	<ul style="list-style-type: none"> • Reduced availability of habitat for covered and other native wildlife species
<ul style="list-style-type: none"> • Introduction of contaminants associated with vegetation control-related activities (e.g., fuel spills) 	<ul style="list-style-type: none"> • Morbidity or mortality of covered and other native species coming in contact with contaminants
<ul style="list-style-type: none"> • Channel bed disturbance associated with in-channel operation of equipment/placement of spawning gravels 	<ul style="list-style-type: none"> • Reduction in water quality (e.g., increased turbidity) • Change in abundance and diversity of benthic invertebrates • Reduced availability of habitat for and potential for increased predation risk of covered fish and other native aquatic species associated with increased turbidity
<ul style="list-style-type: none"> • Erosion and sedimentation associated with restoration-related disturbance of soils 	<ul style="list-style-type: none"> • Reduction in the function of receiving waters and land surfaces as habitat for covered and other native species (e.g., increased turbidity, reduced dissolved oxygen, silting over vegetation)
Permanent Indirect	
<ul style="list-style-type: none"> • Altered hydrology associated with grading or other modifications to runoff patterns 	<ul style="list-style-type: none"> • Change in vernal pool hydrology and type and diversity of vernal pool plant species
<ul style="list-style-type: none"> • In-channel placement of gravel • Removal of woody and other debris from channels 	<ul style="list-style-type: none"> • Change in patterns of erosion and sedimentation • Change in channel form

Table 4-1. Summary of Covered Activity Impact Mechanisms and Associated Potential Adverse Impacts for Covered Activity Categories¹ (continued)

Impact Mechanisms on Covered Species and Natural Communities	Associated Potential Adverse Impacts ²
Temporary Indirect	
• None	• None

¹ See Section 4.2 for a full description of impact mechanisms by covered activity category.

² These impacts would only occur if natural communities and covered species are present in the area of impact, are susceptible to the impact, and effective avoidance and minimization measures are not applied. Does not include potential beneficial impacts that may be associated with implementation of the activities.

³ Only conservation measures that include actions that could adversely impact natural communities or covered species are included in this table.