4.3 Biological Resources

This section evaluates potential impacts to sensitive biological resources from development facilitated by the proposed 2022 RTP/SCS.

4.3.1 Setting

a. Vegetation Communities and Land Covers

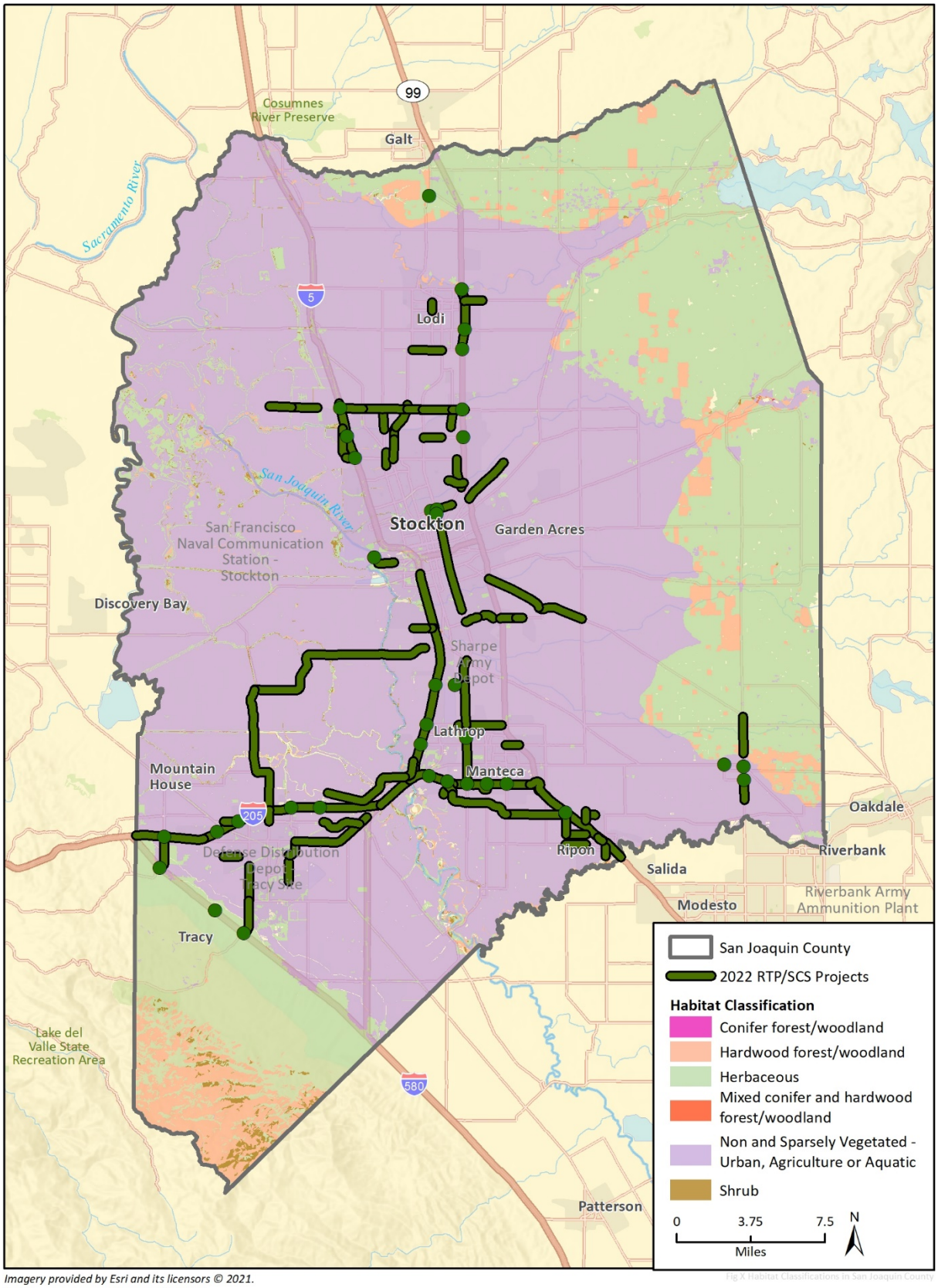
The SJCOG region contains a wide diversity of tree, scrub, estuarine, and herbaceous (grasslands, pastures, certain wetlands) vegetation communities and land covers. Thirty vegetation communities and land covers are mapped using the California Department of Fish and Wildlife (CDFW) – California Wildlife Habitat Relationships (CWHR) classification system within the SJCOG region (CDFW 2014). Of the thirty vegetation communities and land covers, nine are tree dominated, four are shrub dominated, two are herbaceous, ten are either developed, sparsely/non-vegetated or cropland, and five are drainages or wetlands (see Figure 4.3-1). Because of the scale of vegetation data at the regional level, the vegetation communities and land covers presented in Figure 4.3-1 depict a broad illustration of the distribution of CWHR categories (i.e., tree, shrub, herbaceous, etc.) found within the SJCOG region.

A description of each of the vegetation communities and land covers adapted from *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988) is presented below. The vegetation classifications from *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009) that most closely resemble those classified by the CWHR are also presented in each description where possible. It should be noted that these vegetation communities and land covers are generalized, and that site-specific variation is likely to be present. Also note that the CWHR classification system maps vegetation communities and land covers from a broad perspective and that in many areas it is expected that two or more vegetation communities and land cover types may blend with one another. Vegetation communities and land covers which occur within populated areas can also show variation because of a greater exposure to anthropogenic influences such as the introduction of exotic plant species.

Tree-Dominated Vegetation Communities

The SJCOG region is home to a variety of hardwood, coniferous, and mixed woodlands, and forests (see Figure 4.3-1). These tree-dominated vegetation communities can support diverse wildlife populations. Riparian vegetation communities are generally the terrestrial areas adjacent to freshwater bodies forming a vegetated corridor from stream edge to floodplain edge. Riparian vegetation communities occur in and along the major rivers (San Joaquin, Mokelumne, Calaveras, and Stanislaus Rivers), as well as along the many creeks, streams, and sloughs found in the SJCOG region. Riparian areas are rich in wildlife species, providing foraging, migration, roosting, and nesting/breeding habitat. The following are descriptions of types of tree-dominated vegetation communities that occur within the SJCOG region.

Figure 4.3-1 Vegetation Community Classifications in the SJCOG Region



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Additional data provided by CDFW, 2021.

Fig X Habitat Classifications in San Joaquin County

Blue Oak-foothill Pine

This vegetation community is typically diverse in structure both vertically and horizontally and is composed primarily of a mix of hardwoods, conifers, and shrubs. Shrub distributions tend to be clumped, with interspersed patches of annual grassland. Woodlands of this type generally tend to only have small accumulations of dead and downed woody material, compared with other tree vegetation communities in California. Blue oak (*Quercus douglasii*) and foothill pine (*Pinus sabiniana*) typically comprise the overstory of this vegetation communities, with blue oak usually most abundant. In the Coast Range, associated tree species include coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), and California buckeye (*Aesculus californica*). In rocky areas, interior live oak sometimes dominates the overstory especially on north-facing slopes at higher elevations. At lower elevations, where blue oaks make up most of the canopy, the understory tends to be primarily annual grasses and forbs. At higher elevations, where foothill pines and even interior live oaks sometimes comprise the canopy, the understory usually includes patches of shrubs in addition to the annual grasses and forbs. Shrub species that can be associated with this vegetation community include various buckbrush (*Ceanothus* spp.) species and manzanita (*Arctostaphylos* spp.). Other species found in this vegetation community can include California coffeeberry (*Frangula californica*), poison-oak (*Toxicodendron diversilobum*) and silver lupine (*Lupinus albifrons*). This vegetation community is generally located in the foothills of the Central Valley, between 500 and 3,000 feet in elevation. Blue oak-foothill pine vegetation community typically corresponds to the *Quercus douglasii* Woodland Alliance or *Pinus sabiniana* Woodland Alliance as described by Sawyer et al. (2009).

Blue Oak Woodland

Generally, these woodlands have an over story of scattered trees, although the canopy can be nearly closed. The canopy is dominated by broad-leaved trees 16 feet to 50 feet tall, commonly forming open savanna-like stands on dry ridges and gentle slopes. Blue oak is typically the dominant tree species. Shrubs such as poison oak, California coffeeberry, buckbrush (*Ceanothus cuneatus*), and redberry *(Rhamnus crocea*) are often present but rarely extensive and often occur on rock outcrops. Typical understory is composed of an extension of Annual Grassland vegetation described below. Blue oak woodland typically corresponds to the *Quercus douglasii* Woodland Alliance as described by Sawyer et al. (2009).

Eucalyptus Forest

Eucalyptus forest ranges from single-species thickets with little or no shrubby understory to scattered trees over a well-developed herbaceous and shrubby understory. In most cases, eucalyptus groves form a dense stand with a closed canopy. Blue gum eucalyptus (*Eucalyptus globulus*) and red gum eucalyptus (*Eucalyptus camaldulensis*) are the most common eucalyptus species found in these stands. The understory of these areas tends to have extensive patches of leaf litter with limited vegetation but may include species such as poison oak and toyon. Trees within this vegetation community are typically planted in rows for use as a wind break.

Juniper

This habit is characterized as woodlands of open to dense groupings of juniper (*Juniperus spp*.) trees in the form of treelike shrubs or small trees. Denser stands are commonly associated with a grassy understory. In California, this vegetation community has both cismontane and transmontane

associations and usually forms a band between lower desert scrub and higher sagebrush and pinyon-juniper woodlands (Sawyer et al. 2009).

Montane Hardwood

A typical montane hardwood is composed of a pronounced hardwood tree layer, with an infrequent and poorly developed shrub stratum, and a sparse herbaceous layer. In the Coast Range, canyon live oak (*Quercus chrysolepis*) often forms pure stands on steep canyon slopes and rocky ridge tops. It is replaced at higher elevations by scattered huckleberry oak (*Quercus vacciniifolia*) amongst an overstory of various conifers including ponderosa pine (*Pinus ponderosa*), Coulter pine (*Pinus coulteri*), California white fir (*Abies concolor*), and Jeffrey pine (*Pinus jeffreyi*). At mid-elevations, typical associates include Douglas-fir (*Pseudotsuga menziesii*), tanoak (*Notholithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*), California black oak (*Quercus kelloggii*), and bristlecone fir (*Abies bracteata*). At lower elevations knobcone pine (*Pinus attenuata*), foothill pine, Oregon white oak (*Quercus garryana*), and coast live oak are abundant. Understory vegetation is mostly scattered woody shrubs and a few forbs. Elevations range from 300 feet near the Pacific Ocean up to 9,000 feet. Montane hardwood typically corresponds to the *Quercus chrysolepis* Forest Alliance, as described by Sawyer et al. (2009).

Sierran Mixed Conifer

Dominant trees in Sierran Mixed Conifer include white fir, Douglas-fir, ponderosa pine, sugar pine, incense-cedar, and California black oak. White fir tends to be the most ubiquitous species (though most often a minor overstory component) because it tolerates shade. It occurs primarily at middle elevations in El Dorado County. Ponderosa pine dominates at lower elevations and on south slopes. Jeffrey pine commonly replaces ponderosa pine at high elevations, on cold sites, or on ultramafic soils. Red fir is a minor associate at the highest elevations. Deerbrush (*Ceanothus integerrimus*), chinquapin (*Chrysolepis chrysophylla*), squawcarpet (*Ceanothus prostrates*), mountain misery (*Chamaebatia foliolosa*), tanoak, manzanita, currants, and wood rose, are common shrub species in the shrub understory. Grasses and forbs associated with this vegetation community include over 100 species, including bromes, rushes (*Juncus* spp.), and purple needlegrass (*Nassella pulchra)*.

Valley Oak Woodland

This vegetation community can range in structure from savanna-like to forest-like stands. The canopies tend to be partially closed and comprised mostly of winter-deciduous, broad-leaved species such as valley oak. Dense stands typically grow in valley soils along natural drainages and decrease with the transition from lowlands to uplands. Shrubs are also associated with this Valley oak woodland in lowland areas, especially along drainages. Valley oak stands with little or no grazing tend to develop a partial shrub layer of bird disseminated species, such as poison oak, toyon (*Heteromeles arbutifolia*), and California coffeeberry. Ground cover consists of a well-developed carpet of annual grasses and forbs such as wild oat (*Avena* spp.), bromes (*Bromus* spp.), and ryegrass (*Festuca perennis*). Valley oak woodland typically corresponds to the *Quercus lobata* Woodland Alliance as described by Sawyer et al. (2009).

Valley-Foothill Riparian

This vegetation community is associated with drainages, particularly those with low velocity flows, flood plains, and gentle topography. Valley-foothill riparian is generally comprised of a canopy and sub-canopy tree layers dominated by valley oak, cottonwoods (*Populus* sp.), Oregon ash (*Fraxinus*

latifolia), white alder (*Alnus rhombifolia*), and boxelder (*Acer negundo*). The understory shrub layer comprises species such as willows (*Salix* spp.) wild grape (*Vitus californica*), wild rose (*Rosa californica*), blackberry (*Rubus* spp.), blue elderberry (*Sambucus cerulean*) and poison-oak.

Shrub Dominated Vegetation Communities

Shrub-dominated vegetation communities, such as chaparral and desert scrub, are comprised primarily of woody, evergreen shrubs and occur on the inner Coast Range, south of I-580 within the SJCOG region (see Figure 4.3-1). The following are descriptions of shrub-dominated vegetation communities that occur within the region.

Chamise-Redshank Chaparral

Regionally this chaparral type is dominated by pure or nearly pure stands of chamise (*Adenostoma fasciculatum*). Mature chamise-redshank chaparral is single layered, generally lacking well-developed herbaceous ground cover and over story trees. Shrub canopies frequently overlap, producing a nearly impenetrable canopy of interwoven branches. Fire occurs regularly in chamise-redshank chaparral and influences community structure. Within the SJCOG region, chamise-redshank chaparral typically corresponds to the *Adenostoma fasciculatum* Shrubland Alliance as described by Sawyer et al. (2009).

Desert Scrub

This vegetation community type generally has low species diversity and is typically composed of scattered groupings of broad-leaved evergreen or deciduous shrubs. Canopy cover in desert scrub is usually less than 50 percent and bare ground is often observed between plants. Scrub communities in the San Joaquin Valley have historically been dominated by saltbush (*Atriplex spinifera* and *A. polycarpa*) with a few other low-stature shrubs. However, currently this region is largely dominated by other exotic annual grasses and forbs and has large areas devoid of shrubs. This vegetation community is generally found below 4,000 feet.

Mixed Chaparral

Mixed chaparral is a structurally homogeneous brushland type dominated by shrubs with thick, stiff, heavily cutinized evergreen leaves. Shrub height and crown cover vary with age since last burn, precipitation, aspect, and soil type. At maturity, cismontane mixed chaparral typically is a dense, nearly impenetrable thicket. On poor sites, serpentine soils or transmontane slopes, shrub cover may be considerably reduced, and shrubs may be shorter. Leaf litter and standing dead material may accumulate in stands that have not burned for several decades. Mixed chaparral can correspond to multiple alliances as described by Sawyer et al. (2009) depending upon the species composition. These alliances can include, but are not limited to, *Ceanothus cuneatus* Shrubland Alliance and the *Arctostaphylos* spp. Shrubland Alliances.

Herbaceous Dominated Vegetation Communities

These vegetation communities are generally comprised of areas dominated by grasses and other non-woody species. Most of this type of vegetation in the SJCOG region is comprised of native and non-native grasslands. Native grasslands, which are dominated by perennial bunch grasses, such as purple needlegrass (*Nassella pulchra*), were historically abundant in the region but are now currently patchy in distribution statewide. The following are descriptions of the herbaceous dominated vegetation communities that occur within the SJCOG region.

Annual Grasslands

This vegetation community is composed primarily of non-native annual herbs and forbs and typically lacks shrub or tree cover. The physiognomy and species composition of annual grasslands is highly variable and varies considerably on a temporal scale. Grazing is a common land use within this vegetation community. Common grass species include wild oats, soft chess brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), and red brome (*Bromus madritensis*). Common forb species can include species of filaree (*Erodium* spp.), and bur clover (*Medicago polymorpha*). California poppy can also be quite common in this vegetation community. Annual grassland can correspond to multiple alliances as described by Sawyer et al. (2009) depending upon the species composition. These alliances can include, but are not limited to, *Avena* (*barbata, fatua*) semi-natural stands and *Bromus* (*diandrus, hordeaceus*) – *Brachypodium distachyon* semi-natural stands.

Perennial Grasslands

This vegetation community in California is found in coastal prairies under maritime influence and relics in communities dominated by annual grasses and forbs. This vegetation community is dominated by perennial grass species such as California oatgrass (*Danthonia californica*), Pacific hairgrass (*Deschampsia holciformis*), and sweet vernalgrass (*Anthoxanthum odoratum*). Grazing by domestic livestock or wild herbivores such as Roosevelt elk can substantially alter community structure through reduction of plant height and removal of biomass.

Developed, Sparsely/Non-Vegetated, and Cropland Land Covers

Developed, sparsely to non- vegetated, and cropland land covers are abundant in the SJCOG region (Figure 4.3-1). Developed land covers are usually sparsely or non-vegetated and are associated with urban and agricultural areas and are highly disturbed. Species that occur in these areas are typically adapted to anthropogenic disturbance and/or comprised of ornamental species. Sparsely vegetated land covers also tend to be associated with rock outcrops and cliffs. The following are descriptions of developed and sparsely/non-vegetated land covers that occur within the SJCOG region.

Cropland

This land cover is characterized by areas in active agriculture used to grow annual or perennial herbaceous crops and is entirely man-made. The structure of vegetation can vary in size, shape, and growing pattern. The dominant cropland use is row crops and can also include hay and grain. Subcategories of cropland classifications include, but are not limited to, dryland grain crop, irrigated hayfield crop and irrigated row and field crop, irrigated hayfield, rice, and pasture. Orchards and vineyards are classified separately.

Orchard/Vineyard

This land cover is characterized by typically open, single-species tree- or woody vine-dominated agricultural areas. Depending on the tree or vine type and pruning methods, they are usually low, bushy plants with an open understory to facilitate harvest. Trees such as citrus, avocados, and olives are evergreen, and other common tree crops such as walnuts and stonefruits are deciduous. The understory is usually composed of low growing grasses and other herbaceous plants but may be managed to prevent understory growth totally or partially, such as along tree rows. Vineyards, comprised of grape vines, also share similar characteristics. Subcategories of orchard/vineyard classifications include, but are not limited to, deciduous orchard and evergreen orchard.

Urban

This land cover is also completely man-made and is comprised of residential, commercial, and industrial developed areas. Plant species within urban areas are typically comprised of ornamental plants and non-native invasive plant species, with large, developed areas lacking vegetation.

Barren

This land cover is defined by the absence of vegetation. Any area with less than two percent total herbaceous vegetation cover and less than 10 percent relative cover by tree or shrub species is defined as barren (Mayer and Laudenslayer 1988). Structure and composition of the substrate is largely determined by the region of the state as well as surrounding environment. Examples of barren land cover include areas of exposed parent rock or talus.

b. Drainages and Wetlands

Drainages

Several large rivers end in the SJCOG region where they flow into the Delta. The largest of these, the San Joaquin River, divides into three channels as it enters the Delta: "Old River," "Middle River," and the "mainstem" of the San Joaquin River. The Mokelumne, Calaveras, and Stanislaus rivers are the other major rivers in the SJCOG region. Two additional major waterways, the Delta-Mendota Canal and the California Aqueduct, occur within the SJCOG region.

Several creeks and tributaries are associated with the riverine watersheds including Mormon Slough, Dry Creek, Corral Hollow, Hospital Creek, Lone Tree Creek, Little Johns Creek, Duck Creek, Mosher Slough, Bear Creek, Paddy Creek, and Potter Creek. The drainages within these watersheds are of biological importance as they provide valuable foraging habitat, breeding habitat, and movement corridors for a wide variety of animal species, including sensitive species such as delta smelt (*Hypomesus transpacificus*), riparian brush rabbit (*Sylvilagus bachmani riparius*), riparian woodrat (*Neotoma fuscipes riparia*), and California red-legged frog (*Rana draytonii*). Many of these rivers and their tributaries are also federally designated critical habitat for the delta smelt.

Wetlands

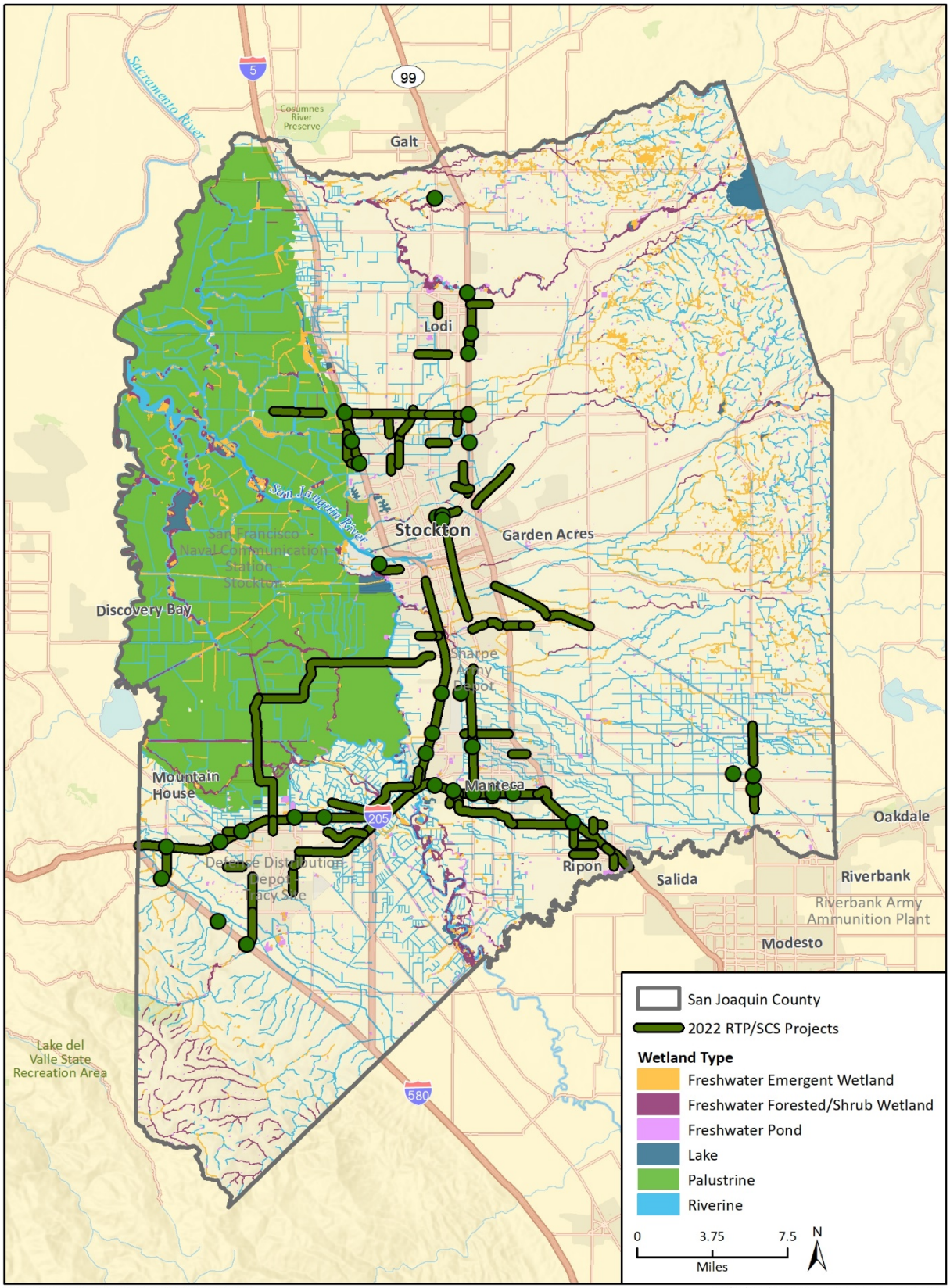
Wetlands are regarded as important biological resources both because of their rarity and because they provide a variety of ecosystem services. Several types of wetlands exist in the SJCOG region, including freshwater marshes, vernal pools, and riparian habitats. A map illustrating wetlands in the SJCOG region is shown in Figure 4.3-2.

In addition to vernal pools, several areas within the SJCOG region contain wetlands mapped by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI; USFWS 2021a). A general description of each of the classifications used in the NWI is provided below. Of those wetland types mapped by the NWI, estuarine, fresh emergent wetland, lacustrine, riverine, and saline emergent wetland habitats are also mapped by the CWHR.

Vernal Pools

These seasonal wetlands are small depressions that fill with water during the winter, gradually drying during the spring and becoming completely dry in the summer. These pools are found in only a few places in the world outside of California. Vernal pool vegetation is adapted to the cycle of

Figure 4.3-2 Wetland and Drainages in the SJCOG Region



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Additional data provided by National Wetland Inventory, 2021.

brief inundation followed by seasonal drying. Vernal pools are characterized by herbaceous plants that may begin their growth as aquatic or semi-aquatic plants and transition to a dry land environment as the pool dries, while other species germinate in the mud as the pool begins to dry. Most vernal pool plants are annual herbs, many of which are endemic to vernal pools. Wildlife species supported by vernal pools include California tiger salamander *(Ambystoma californiense*) and vernal pool fairy shrimp (*Branchinecta lynchi*).

Freshwater Emergent Wetlands

Freshwater emergent wetlands include all non-tidal waters dominated by emergent herbaceous plant species, mosses, and/or lichens. Wetlands of this type are also low in salinity. The NWI also includes in this category wetlands that lack vegetation if they are less than 20 acres in size, do not have an active wave-formed or bedrock shoreline feature, have a low water depth less than 6.6 feet. Freshwater emergent wetlands are characterized by erect, rooted herbaceous hydrophytes. Dominant vegetation is generally perennial monocots. All emergent wetlands are inundated or saturated frequently enough that the roots of the vegetation prosper in an anaerobic environment. The wetlands may vary in size from small clumps to vast areas covering several kilometers. The acreage of Freshwater Emergent Wetlands in California has decreased dramatically since the turn of the century due to drainage and conversion to other uses, primarily agriculture.

Freshwater Forested/Shrub Wetlands

These wetlands include non-tidal waters that are dominated by trees and shrubs, with emergent herbaceous plants, mosses and/or lichens. The NWI also includes within this category wetlands that lack vegetation can be included in this class if they also exhibit the same criteria as described for freshwater emergent wetlands. Freshwater forested/shrub wetlands are generally dominated by woody vegetation such as shrubs and trees. This wetland category also can include riparian habitats.

Freshwater Ponds

Freshwater ponds include non-tidal waters, typically less than 20 acres in size and typically with vegetative cover along its edges such as trees, shrubs, emergent herbaceous plants, mosses, and/or lichens. Freshwater ponds can be man-made or natural and typically consist of an area of standing water with variable amounts of shoreline. These wetlands and deep-water habitats are dominated by plants that grow on or below the surface of the water. This wetland type is also mapped by the CWHR and categorized as lacustrine habitat which includes vernal pools; however, we have recognized vernal pools as unique features and thus provided a separate description that was previously presented.

Lakes

Lakes are a lacustrine system which includes wetlands and deep-water habitats that are located in a topographic depression or dammed river channel. These areas tend to be greater than 20 acres. Vegetation cover within this habitat is generally less than 30 percent and often occurs in the form of emergent or surface vegetation. Substrates are composed of at least 25 percent cover of particles smaller than stones.

Riverine

Riverine habitats are stream systems that include all wetlands and deep-water habitats contained in natural or artificial channels that contain periodically or continuously flowing water. This system

may also form a connecting link between two bodies of standing water. Substrates generally consist of rock, cobble, gravel, or sand. Features mapped as riverine wetlands in the NWI include drainages as previously described.

c. Special-Status Species

For the purpose of this EIR, special-status species are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS under the federal Endangered Species Act; those listed or proposed for listing as rare, threatened, or endangered by the CDFW under the California Endangered Species Act (CESA); animals designated as "Species of Special Concern," "Fully Protected," or "Watch List" by the CDFW. Those plants ranked as California Rare Plant Rank (CRPR) 1 or 2 are typically regarded as rare, threatened, or endangered under CEQA by lead agencies and were considered as such in this EIR. The CRPR utilizes the following code definitions:

- **List 1A** = Plants presumed extinct in California
- **List 1B.1** = Rare or endangered in California and elsewhere; seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- **List 1B.2** = Rare or endangered in California and elsewhere; fairly endangered in California (20-80 percent occurrences threatened)
- **List 1B.3** = Rare or endangered in California and elsewhere, not very endangered in California (<20 percent of occurrences threatened, or no current threats known)
- **List 2** = Rare, threatened or endangered in California, but more common elsewhere

CRPR List 3 species are "review list," and CRPR 4 species are considered "watch list" species. CRPR 3 and 4 species do not typically warrant analysis under CEQA except where they are part of a unique community, from the type locality, or designated as rare or significant by local governments, or where cumulative impacts could result in population–level effects. The CRPR 3 and 4 species reported from the region are not locally designated as rare or significant by the County of San Joaquin General Plan or General Plans for incorporated cities within the SJCOG region and are not part of a unique community. Additionally, the SJCOG region is not known to be the type locality for any ranked plant species. Therefore, potential impacts to CRPR 3 and CRPR 4 species were not considered in this analysis.

Species of Special Concern (SSC) is a category used by the CDFW for those species which are considered indicators of regional habitat changes or are considered to be potential future protected species. Species of Special Concern do not have any special legal status except that which may be afforded by the Fish and Game Code. The SSC category is intended by the CDFW for use as a management tool to include these species into special consideration when decisions are made concerning the development of natural lands, and these species are considered sensitive as described under the CEQA Appendix G questions.

Queries of the USFWS Information, Planning and Conservation System (IPaC; USFWS 2021b), the CDFW California Natural Diversity Database (CNDDB) (CDFW 2021a), and California Native Plant Society (CNPS) *Online Inventory of Rare, Threatened and Endangered Plants of California* (CNPS 2021) were conducted. These queries were conducted to obtain comprehensive information regarding state and federally listed species considered to have potential to occur within the SJCOG region.

Special-status Plants and Animals

The SJCOG region is home to several species protected by federal and state agencies. Important animal species can be found in a variety of habitats in the SJCOG region. The CNDDB (CDFW 2021a), CNPS (2021), and USFWS IPaC (2021b) together list 91 special-status plant and animal species (34 plant species and 57 animal species [inclusive of special animals]) that occur or have potential to occur within the SJCOG region. The status and habitat requirements of those species are presented in Appendix B as Tables A-1 and A-2, respectively.

In addition, although not listed in the CNDDB, mountain lions (*Puma concolor*) are legally classified as "specially protected species." In July 2019, the Center for Biological Diversity petitioned CDFW to list mountain lions as threatened under the CESA within a proposed evolutionarily significant unit (ESU) located in Southern California and along the central coast of California. In April 2020, the Commission found that listing of this ESU may be warranted and designated mountain lion within the ESU as a candidate species under CESA. Mountain lions inhabit diverse habitats across most of California and can be found wherever deer are present, which includes the foothills and mountainous areas within the SJCOG region.

d. Sensitive Communities and Critical Habitat

Several natural communities considered sensitive by the CDFW occur within the SJCOG region (CDFW 2021a). The CNDDB lists eight natural communities that occur with the region. The Sensitive Natural Communities List in the CNDDB is not currently maintained and no new information has been added in several years. As such, the CDFW maintains a List of Vegetation Alliances and Associations[1] (CDFW 2020). According to the CDFW's Vegetation Program, Alliances with State ranks of S1-S3 are considered to be imperiled, and thus, potentially of special concern. Because this analysis is at the regional level and programmatic, vegetation mapping and analysis at the alliance and association level is not available at this time and would need to be conducted at the project level. That said, some sensitive vegetation alliances and associations are already known to occur within the SJCOG region as a subset of the habitats described above in Sections 4.3.1.a and 4.3.1.b. For instance, some oak woodland alliances within the SJCOG region, notably *Quercus lobata* Woodland Alliance, which most resembles the valley oak woodland described in Section 4.3.1.a, are considered sensitive.

Federally designated critical habitat for eight species also occurs in the SJCOG region (Figure 4.3-3). These sensitive communities and critical habitats are also listed in Table 4.3-1.

[1] CDFW classifies vegetation at the two finest levels of alliance and association. The alliance is defined by plant species composition, habitat conditions, physiognomy, and diagnostic species; at least one of the diagnostic species is typically found in the uppermost or dominant stratum (Jennings et al. 2009). The association is the most detailed classification level and reflects more specific characteristics of vegetation such as finer-level differences in species composition, topography, soils, substrate, climate, hydrology, and disturbance regime (FGDC 2008). Unlike alliances, associations often recognize two or more diagnostic species found in different vegetation layers (Sawyer et al. 2009).

Figure 4.3-3 Critical Habitat in the SJCOG Region

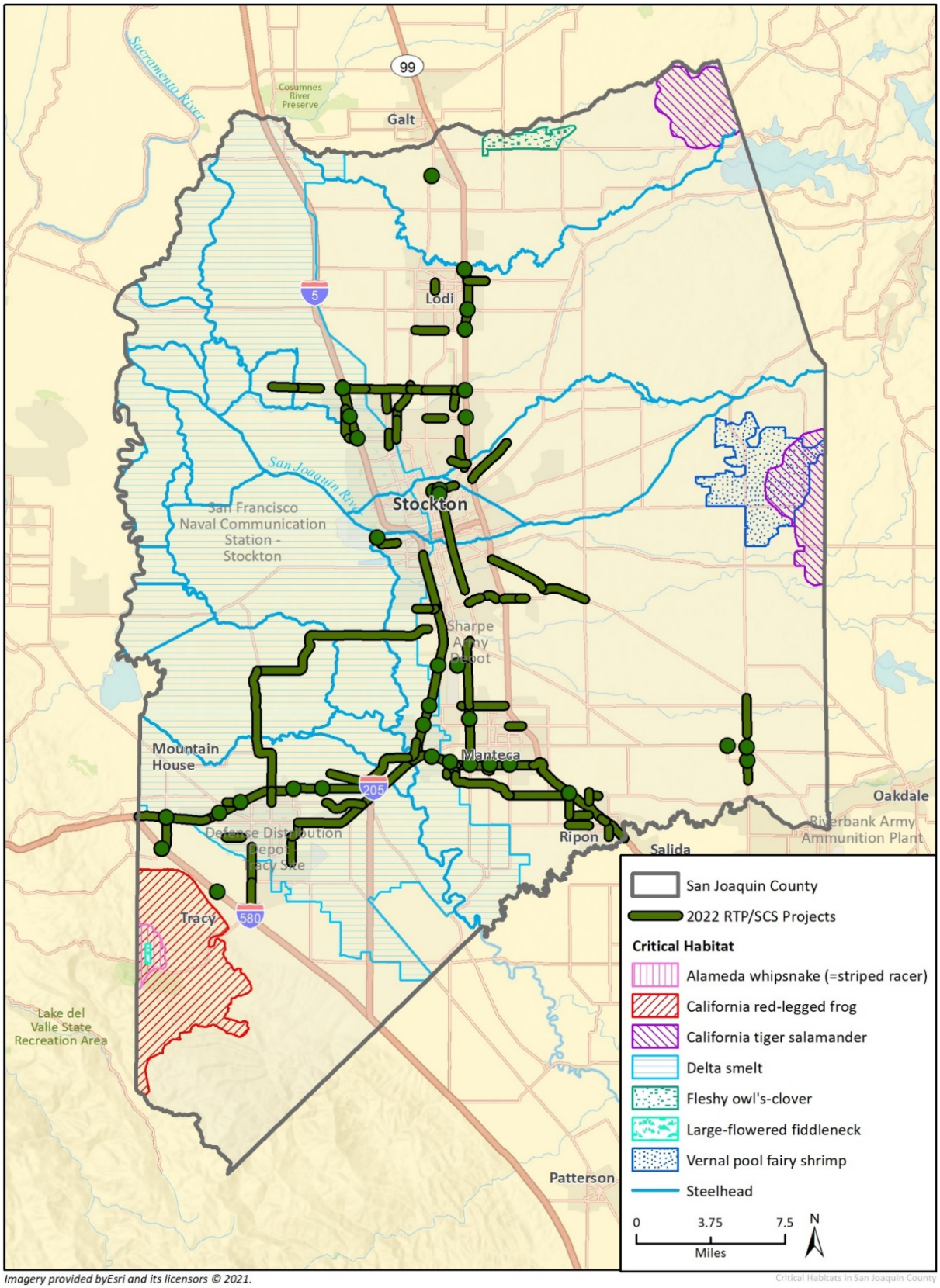


Table 4.3-1 Sensitive Communities and Critical Habitats Documented within the SJCOG Region

Communities Considered Sensitive by CDFW
Coastal and Valley Freshwater Marsh
Elderberry Savanna
Great Valley Cottonwood Riparian Forest
Great Valley Mixed Riparian Forest
Great Valley Oak Riparian Forest
Northern Claypan Vernal Pool
Northern Hardpan Vernal Pool
Valley Oak Woodland
Critical Habitats
Alameda whipsnake (=striped Racer) (*Masticophis lateralis euryxanthus*)
California red-legged frog (*Rana draytonii*)
California tiger salamander (*Ambystoma californiense*)
delta smelt (*Hypomesus transpacificus*)
fleshy Owl's-clover (*Castilleja campestris* ssp. *suculenta*)
large-flowered fiddleneck (Amsinckia grandiflora)
steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus* pop. 11)
vernal pool fairy shrimp (*Branchinecta lynchi*)

Sources: CNDDB (CDFW 2021a); USFWS IPaC (2021b)

e. Wildlife Movement Corridors

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network.

The habitats within the link do not necessarily need to be the same as the habitats that are being linked. Rather, the link merely needs to contain sufficient cover and forage to allow temporary inhabitation by ground-dwelling species. Typically, habitat linkages are contiguous strips of natural areas, though dense plantings of landscape vegetation can be used by certain disturbance-tolerant species. Depending upon the species using a corridor, specific physical resources (such as rock outcroppings, vernal pools, or oak trees) may need to be located within the habitat link at certain intervals to allow slower-moving species to traverse the link. For highly mobile or aerial species, habitat linkages may be discontinuous patches of suitable resources spaced sufficiently close together to permit travel along a route in a short period of time.

Wildlife movement corridors can be both large and small scale. Essential Connectivity Areas (ECA) as mapped in the report *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California* (Spencer et al. 2010) represents connectivity at the state level. ECAs are regions in which land conservation and management actions should be prioritized to maintain and

enhance connectivity between areas of high ecological importance. ECAs are mapped based on coarse ecological condition indicators, rather than the needs of particular species and thus serve the majority of species in each region. It is important to recognize that even areas outside of Natural Landscape Blocks and ECAs support important ecological values and should not be immediately discounted as lacking conservation value without further review.

Four ECAs are mapped within the SJCOG Region (see Figure 4.3-4). The Mandeville Island-Staten Island ECA is located in the northwestern portion of the SJCOG region in the Delta. The Bear Slough-Browns Creek ECA is also located in the northwestern portion of the SJCOG region near the Consumes River Preserve. The remaining two ECAs, Bear Mountains-Duck Creek ECA and Duck Creek North Fork-Coyote Creek ECA overlap each other in the northeastern portion of the SJCOG region near Comanche Reservoir.

Small scale corridors important to wildlife movement are also present within the SJCOG region, many of which are not mapped as ECAs. These include the various rivers, creeks, drainages, and other topographic features that facilitate movement, such as the San Joaquin, Mokelumne, and Calaveras Rivers and other drainages as depicted in Figure 4.3-4. These corridors provide a means to facilitate regional connectivity for a number of wildlife species as a wildlife corridor. These areas are identified as important movement corridors for species such as San Joaquin kit fox (*Vulpes macrotis mutica*), steelhead (*Oncorhynchus mykiss irideus*), riparian birds, and other small carnivores. Additionally, the southwestern portion of the SJCOG region extends into the northern Diablo Mountain range which may serve as a movement corridor for the state provisionally protected Southern California/Central Coast evolutionarily significant unit (ESU) of mountain lion (*Puma concolor*).

4.3.2 Regulatory Setting

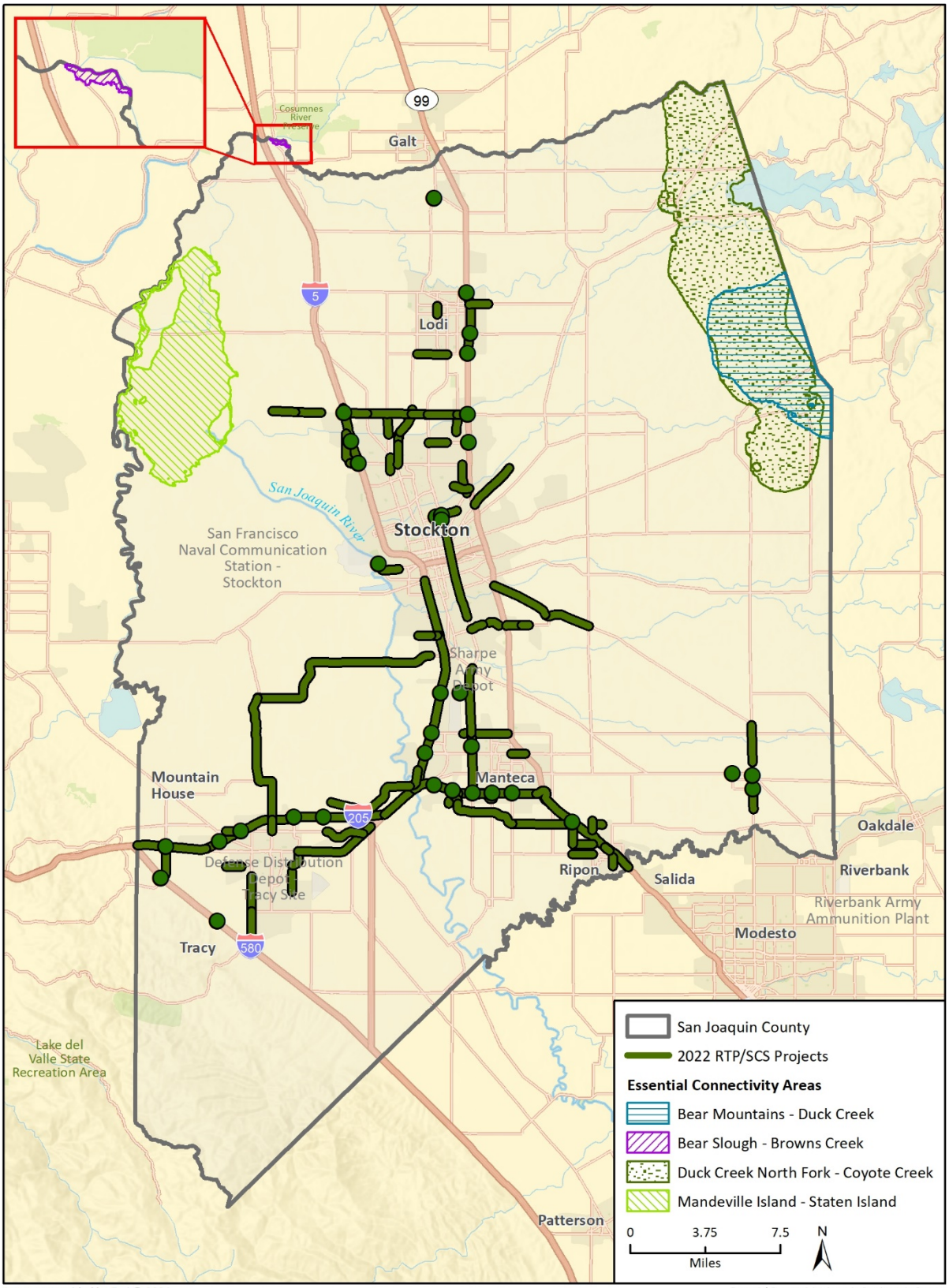
Federal, state, and local authorities under a variety of statutes and guidelines share regulatory authority over biological resources. The primary authority for general biological resources lies within the land use control and planning authority of local jurisdictions, which in this instance includes SJCOG, San Joaquin County, and the incorporated cities in the SJCOG region. The CDFW is a trustee agency for biological resources throughout the State under the California Environmental Quality Act (CEQA) and also has direct jurisdiction under the California Fish and Game Code (CFGC), which includes, but is not limited to, resources protected by the State of California under CESA.

a. Federal Laws, Regulations, and Policies

Endangered Species Act

Under the Federal Endangered Species Act (FESA), authorization is required to "take" a listed species. Take is defined under FESA Section 3 as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under federal regulation (50 CFR Sections 17.3, 222.102); "harm" is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Critical habitat is a specific geographic area(s) that is essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. FESA Section 7 outlines procedures for federal interagency cooperation to conserve federally listed species and designated critical habitat.

Figure 4.3-4 Essential Connectivity Areas in the SJCOG Region



Imagery provided by Esri © 2021.
Additional data provided by CDFW, 2021.

Section 7(a)(2) of FESA and its implementing regulations require federal agencies to consult with USFWS or National Marine Fisheries Service (NMFS) to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species, or result in the destruction or adverse modification of critical habitat. For projects where federal action is not involved and take of a listed species may occur, the project proponent may seek to obtain an incidental take permit under FESA Section 10(a). Section 10(a) allows USFWS to permit the incidental take of listed species if such take is accompanied by an HCP that includes components to minimize and mitigate impacts associated with the take.

USFWS and NMFS share responsibility and regulatory authority for implementing FESA (7 USC Section 136, 16 USC Section 1531 et seq.).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it is unlawful, except as permitted by regulations, "to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, […] any migratory bird, or any part, nest, or egg of any such bird" (16 USC Section 703(a)). The Bald and Golden Eagle Protection Act is the primary law protecting eagles, including individuals and their nests and eggs. The USFWS implements the Migratory Bird Treaty Act (16 United States Code [USC] Section 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668). Under the Act's Eagle Permit Rule (50 CFR 22.26), USFWS may issue permits to authorize limited, non-purposeful take of bald eagles and golden eagles.

Clean Water Act

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE), with EPA oversight, has authority to regulate activities that result in discharge of dredged or fill material into wetlands or other "waters of the United States." Perennial and intermittent creeks are considered waters of the United States if they are hydrologically connected to other jurisdictional waters. In achieving the goals of the Clean Water Act, the U.S. Army Corps of Engineers seeks to avoid adverse impacts and offset unavoidable adverse impacts on existing aquatic resources. Any discharge of dredged or fill material into jurisdictional wetlands or other jurisdictional "waters of the United States" would require a Section 404 permit from the USACE prior to the start of work. Typically, when a project involves impacts to waters of the United States, the goal of no net loss of wetlands is met by compensatory mitigation; in general, the type and location options for compensatory mitigation should comply with the hierarchy established by the Corp/EPA 2008 Mitigation Rule (USEPA 2021) (in descending order): (1) mitigation banks; (2) in-lieu fee programs; and (3) permittee-responsible compensatory mitigation. Also, in accordance with Section 401 of the Clean Water Act, applicants for a Section 404 permit must obtain water quality certification from the appropriate Regional Water Quality Control Board (RWQCB).

b. State Laws, Regulations, and Policies

Endangered Species Act and Fully Protected Species

California Endangered Species Act (CESA; Fish and Game Code Section 2050 et. seq.) prohibits take of State-listed threatened and endangered species without a CDFW incidental take permit. Take under CESA is restricted to direct harm of a listed species and does not prohibit indirect harm by way of habitat modification.

Protection of fully protected species is described in Fish and Game Code Sections 3511, 4700, 5050 and 5515. These statutes prohibit take or possession of fully protected species. Incidental take of fully protected species may be authorized under an approved NCCP or Habitat Conservation Plan (HCP). The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) is the HCP for the SJCOG region.

California Fish and Game Code Sections 3503, 3503.5 and 3511

California Fish and Game Code sections 3503, 3503.5 and 3511 describe unlawful take, possession, or destruction of birds, nests, and eggs. Fully protected birds (CFGC Section 3511) may not be taken or possessed except under specific permit. Section 3503.5 of the Code protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs.

California Fish and Game Code Sections 1360-1372

Sections 1360 through 1372 of the California Fish and Game Code comprise the Oak Woodlands Conservation Act. The act was enacted to protect oak woodland habitats that were being diminished by development, firewood harvesting, and agricultural conversions. The Oak Woodlands Conservation Program was established as a result of the act and is intended to provide project funding opportunities for private landowners, conservation organizations, and cities and counties to conserve and restore oak woodlands. The program authorizes the Wildlife Conservation Board to purchase oak woodland conservation easements and provide grants for land improvements and oak restoration efforts. Section 21083.4 of CEQA requires counties to determine if a project within their jurisdiction may result in conversion of oak woodlands that would have a significant adverse effect on the environment. If the lead agency determines that a project would result in a significant adverse effect on oak woodlands, mitigation measures to reduce the significant adverse effect of converting oak woodlands to other land uses are required.

Native Plant Protection Act

The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (CFGC Section 1900 et seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare. Under Section 1913(c) of the NPPA, the owner of land where a rare or endangered native plant is growing is required to notify the department at least 10 days in advance of changing the land use to allow for salvage of the plant(s).

Section 1600 et seq. of the California Fish and Game Code

Section 1600 et seq. of the CFGC prohibits, without prior notification to CDFW, the substantial diversion or obstruction of the natural flow of, or substantial change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. In order for these activities to occur, the CDFW must receive written notification regarding the activity in the manner prescribed by the department and may require a lake or streambed alteration agreement. Lakes, ponds, perennial, and intermittent streams and associated riparian vegetation, when present, are subject to this regulation.

Natural Community Conservation Planning Act

The Natural Communities Conservation Planning (NCCP) Act was established by the California Legislature, is directed by the CDFW, and is implemented by the state, as well as public and private

partnerships to protect habitat in California. The NCCP Act takes a regional approach to preserving habitat. An NCCP identifies and provides for the regional protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. Once an NCCP has been approved, CDFW may provide take authorization for all covered species, including fully protected species, Section 2835 of the CFGC.

Porter-Cologne Water Quality Control Act

The State Water Resources Control Board (SWRCB) and each of nine local RWQCB has jurisdiction over "waters of the State" pursuant to the Porter-Cologne Water Quality Control Act which are defined as any surface water or groundwater, including saline waters, within the boundaries of the State. SWRCB adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a water of the state; 3) wetland delineation procedures; and 4) procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities (SWRCB 2021).

California Department of Transportation - California Streets and Highways Code Section 156.3

Assessments and remediation of potential barriers to fish passage for transportation projects using State or federal transportation funds are required. Such assessments must be conducted for any projects that involve stream crossings or other alterations and must be submitted to the CDFW. New projects must be constructed so that they do not present a barrier to fish passage

c. Regional and Local Laws, Regulations, and Policies

San Joaquin County Multi-Species Habitat Conservation and Open Space Plan

The SJMSCP was adopted by the San Joaquin Transportation Authority on November 14, 2000. The key purpose of the SJMSCP is to provide a strategy for balancing the need to conserve open space and the need to convert open space to non-open space uses while protecting the region's agricultural economy; preserving landowner property rights; providing for the long-term management of plant, fish, and wildlife species, especially those that are currently listed, or may be listed in the future, under the FESA or the CESA; providing and maintaining multiple open-spaces which contribute to the quality of life of the residents of the SJCOG region; and accommodating a growing population while minimizing costs to project proponents and society at large.

The SJMSCP is an HCP based on a 50-year planning horizon. An HCP is a federal and/or state planning document that is prepared pursuant to Section 10 of the FESA. An approved HCP within a defined plan area allows for the incidental take of federally listed species and habitat that are otherwise protected under FESA during development activities.

The SJMSCP compensates for conversions of open space for the several activities including transportation projects. These activities will be undertaken by both public and private individuals and agencies throughout the County and within the incorporated cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy. Public agencies including Caltrans and the San Joaquin Council

of Governments also will undertake activities related to transportation projects which will be covered by the SJMSCP.

SJCOG administers the SJMSCP, a voluntary mitigation plan, and holds the mitigation land. Project applicants are given the option of participating in the SJMSCP to streamline compliance with required local, state, and federal laws regarding biological resources, and typically avoid having to approach each agency independently. According to the SJMSCP, adoption and implementation by local planning jurisdictions provides adequate compensation and mitigation for impacts to plants, fish, and wildlife. SJMSCP-permitted activities within the boundaries of the SJCOG region fulfill conservation and open space obligations and policies of local general plans, resolution, ordinances, and other regulations as they pertain to plants, fish, and wildlife. Adoption and implementation of the SJMSCP also secures compliance pursuant to the state and federal laws such as CEQA, the National Environmental Policy Act (NEPA), the Planning and Zoning Law, the State Subdivision Map Act, the Porter-Cologne Act, and the Cortese-Knox Act regarding species covered under the SJMSCP. If an implementing agency chooses not to participate in the SJMSCP, it will be required to provide alternative mitigation in an amount and kind equal to that provided in the SJMSCP.

Land Use and Resource Management Plan

The Land Use and Resource Management Plan (LURMP) was adopted by the Delta Protection Commission (DPC) in 2010 to serve as a long-term resource management plan for land uses within the Primary Zone of the Delta as mandated by Public Resources Code section 29760 et seq. Approximately one-third of the SJCOG region is located within the Primary Zone, and therefore is subject to goal, policies, and standards set forth in the LURMP. For portions of the SJCOG region that are in the Secondary Zone, or outside of the legal Delta, the DPC may comment on projects that could impact Primary Zone resources. The cities of Stockton, Manteca, Lathrop, and Tracy lie within the Secondary Zone and have the potential to impact Primary Zone resources.

County and City General Plans

General Plans are created by cities and counties to guide the growth and land development of their communities. As such, General Plans typically contain elements which address protection of biological resources. These elements consist of goals, policies and actions that protect natural resources, such as environmentally sensitive habitats, special-status species, native trees, creeks, wetland, and riparian habitats. Local jurisdictions approve development as long as it is consistent with those elements of the General Plan.

Some resources are afforded protection via local ordinances such as those that protect trees, riparian corridors, and environmentally sensitive habitats. The County and incorporated cities within the SJCOG region have municipal codes which protect natural resources and addresses compliance with environmental regulations.

San Joaquin County General Plan 2035

The Natural and Cultural Resources Element of the San Joaquin County General Plan includes goals to protect the biological resources found within the County. The goals and policies of the General Plan are aimed at protecting and conserving listed species and their habitat, critical habitat, the Delta, and river environments. In addition, the General Plan includes a policy requiring the County to protect, preserve, and enhance important natural resource habitat, biological diversity, and the ecological integrity of natural systems in the County.

City General Plans and Regulations

The City of Stockton has numerous goals and policies related to biological resources in the Envision Stockton 2040 General Plan (2018) and the Stockton Municipal Code. The General Plan includes policies and actions to protect biological resources. Policy LU-5.2 requires that the City protect natural resource areas, fish and wildlife habitat, scenic areas, open space areas, agricultural lands, parks, and other cultural/historic resources from encroachment or destruction by incompatible development. This policy is achieved through Action LU-5.2A requiring compliance with the terms of the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) to protect critical habitat and special status species. Additionally, Action LU-2.5B requires projects on or within sites that have potential to contain special status species or their habitats to prepare a baseline assessment by a qualified biologist, and to avoid, if feasible, or minimize impacts to these resources through project design features or compensation in consultation with the qualified biologist. The Stockton Municipal Code contains includes Section 16.72.245, *Heritage Trees*, to provide for the protection and preservation of heritage trees within Stockton's limits. Under this section, it is unlawful for a heritage tree in the city to be harmed, injured, defaced, destroyed, or removed without first obtaining a permit from the Stockton Community Development Department in compliance with Chapter 16.130 of the Stockton Municipal Code, *Heritage Tree Permit*.

The City of Tracy contains a Biological Resources section of the Open Spaces and Conservation element of its 2025 General Plan, including several goals and policies related to protection of biological resources and sensitive habitats within the city (City of Tracy 2011). Goal OSC-1 is focused on protecting rare, endangered, and threatened plant and animal species throughout Tracy by preserving habitats that support these species (Objective OSC-1.1). Implementation Policies include OSC-P1 (meet regulations for habitat and species protection), OSC-P2 (participate with SJCOG to enforce the SJMSCP), OSC-P3 (incorporate native plantings in new development and reduce non-native species). The Tracy Municipal Code includes Chapter 7.08 to protect street trees and vegetation throughout the city and require permits from the Parks and Community Services Director prior to removal of any city street tree or shrubbery.

Other cities in the SJCOG Region, such as Manteca and Lodi, have similar provisions, goals, policies, and regulations in their General Plans and municipal ordinances.

4.3.3 Impact Analysis

a. Methodology and Significance Thresholds

Data used for this analysis included aerial photographs, topographic maps, the CNDDB, the CNPS online inventory of rare and endangered plants, accepted scientific texts to identify species and to generally characterize the existing conditions of the project sites. Federal special-status species inventories maintained by the USFWS were reviewed in conjunction with the CNDDB and CNPS online inventory. Potential disturbance associated with construction projects or land use development as discussed in 2022 RTP/SCS, were compared to the identified biological resource occurrences to determine whether an impact may occur.

Data on biological resources were collected from numerous sources, including relevant literature, maps of natural resources, and data on special-status species and sensitive habitat information obtained from the CDFW CNDDB (2021a), CDFW BIOS (2021b), CWHR (CDFW 2014), CNPS online Inventory of Rare and Endangered Plants of California (2021), and the USFWS IPaC (2021b). The USFWS NWI (2021a) and Critical Habitat Mapper (2021c) were also queried.

Appendix G of the State CEQA Guidelines identifies the following criteria for determining whether development facilitated by the proposed 2022 RTP/SCS would have a significant impact on biological resources, namely an analysis of whether or not the 2022 RTP/SCS would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
3. Have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

b. Project Impacts and Mitigation Measures

The following section discusses potential impacts and mitigation measures that may be associated with projects contained within the 2022 RTP/SCS. Section 4.3.3.c summarizes the impacts associated with capital improvement projects proposed in 2022 RTP/SCS. Due to the programmatic nature of the 2022 RTP/SCS, a precise, project-level analysis of the specific impacts associated with individual transportation and land use projects is not possible at this time. In general, however, implementation of proposed transportation improvements and future projects under the land use scenario envisioned by the 2022 RTP/SCS could result in the impacts as described in the following section.

Threshold 1:	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service

Impact BIO-1 IMPLEMENTATION OF TRANSPORTATION IMPROVEMENTS AND THE LAND USE SCENARIO ENVISIONED BY 2022 RTP/SCS MAY RESULT IN IMPACTS TO SPECIAL-STATUS PLANT AND ANIMAL SPECIES, EITHER DIRECTLY OR THROUGH HABITAT MODIFICATIONS. THIS IMPACT WOULD BE SIGNIFICANT BUT MITIGABLE.

For the purposes of this analysis, special-status plant and wildlife species include those designations described under Section 4.3.1.c above. Most of the transportation improvements proposed under 2022 RTP/SCS consist of minor expansions of existing facilities. However, these projects could affect areas occupied by special-status plant and wildlife species. As mentioned above, there are 91 special-status species known to occur or with potential to occur with the SJCOG region. Thirty of these species are given high levels of protection by the federal government through listing under

FESA or by the State government through listing under CESA or Fully Protected (wildlife only). The remaining species show in Tables A-1 and A-2 in Appendix B are protected through CEQA and/or through local ordinances. Most special-status species have very limited ranges within the SJCOG region and are associated with sensitive habitats, such as riparian habitats and drainages.

Because of the programmatic nature of 2022 RTP/SCS, a precise, project-level analysis of the specific impacts of individual transportation projects on special-status species is not possible at this time. As future transportation system improvement projects identified in the 2022 RTP/SCS are planned and designed, site-specific environmental review will be conducted by the agencies responsible for implementing such projects. However, some special-status species are expected to be encountered at the locations where projects administered under 2022 RTP/SCS would occur, and it is assumed that certain resources would not be avoided and that potentially significant impacts would occur.

Projects such as those that occur over or in the vicinity of rivers and creeks are within suitable habitat for species such as California red-legged frog (federally Threatened and State SSC) delta smelt (federally Threatened and State Endangered), riparian brush rabbit (federally Endangered and State Endangered), and riparian woodrat (federally Endangered and State SSC). Many of the creeks and rivers found within the SJCOG region are considered accessible by delta smelt and currently support or have historically supported delta smelt populations.

In addition to the rivers and creeks that may be impacted as described above, future transportation projects under 2022 RTP/SCS could impact upland habitats and the sensitive species that may occupy them. For example, San Joaquin kit fox (a federally Endangered and State Threatened species, may be present in grassland habitats near roads where projects could occur. The federally Threatened and State Threatened California tiger salamander can also occupy annual grassland habitats containing small mammal burrows if such habitat is within 1.24 miles (the dispersal distance of the species) of known or potentially suitable breeding habitat such as vernal pools and other seasonal ponds. Three special-status bat species may be affected by proposed projects where they occur under bridges or similar structures, or in native habitat adjacent to construction areas. Furthermore, the wide variety of habitats within the 2022 RTP/SCS area can support many species of nesting birds, including sensitive species such as the State Threatened Swainson's hawk (*Buteo swainsoni*) and the State SSC burrowing owl (*Athene cunicularia*). Disturbance of special-status plants could result in reductions in local population size, habitat fragmentation, or lower reproductive success.

Implementing agencies have the option to participate in the SJMSCP to reduce impacts to biological resources resulting from a proposed project to a level of less-than-significant if the proposed project is consistent with the SJMSCP. However, direct impacts to special-status species include injury or mortality occurring during implementation of projects under 2022 RTP/SCS. Direct impacts also include habitat modification and loss such that it results in the mortality or otherwise alters the foraging and breeding behavior substantially enough to cause injury. Indirect impacts could occur due to the spread of invasive non-native species that out-compete native species and/or alter habitat towards a state that is unsuitable for special-status species. For example, the spread of certain weed species can reduce the biodiversity of native habitats, potentially eliminating special-status plant species and reduce the availability of suitable forage and breeding sites for special-status wildlife species. Indirect impacts could also result due to increased access by humans and domestic animals, particularly in areas where trails may be planned. Increased human and domestic animal (especially dogs) presence foster the spread of non-native invasive plant species and disrupt the normal behaviors of animal species.

In addition to direct and indirect impacts that may result from transportation improvement projects, the 2022 RTP/SCS also contains a future land use scenario that emphasizes infill development and transit-oriented development (TOD). This land use scenario focuses future development concentrated in existing urbanized areas, which would minimize impacts to biological resources in non-urbanized areas. However, it is possible that sensitive plant and wildlife species would be located on future infill and TOD sites, as well as more undeveloped project sites. As a result, future development projects would impact plant and wildlife species that may be present on or in proximity to undeveloped areas. Many special-status wildlife species are associated with creeks even in the most densely developed urban areas. Both native and non-native trees and shrubs throughout urban areas may support nesting birds. Impacts of land use projects would be significant because substantial adverse effects on special-status species would occur.

Mitigation Measures

For transportation projects under their jurisdiction, SJCOG shall implement, and transportation project sponsor agencies can and should implement, the following mitigation measures developed for the 2022 RTP/SCS program for applicable transportation projects that would result in biological resource impacts, and where feasible and necessary based on site-specific considerations. San Joaquin County and incorporated cities in the County can and should implement these measures where relevant to land use projects implementing 2022 RTP/SCS. Project-specific environmental documents may adjust these mitigation measures as necessary to respond to site-specific conditions.

BIO-1(a) Biological Resources Screening and Assessment

On a project-by-project basis, a preliminary biological resource screening shall be performed as part of the environmental review process to determine whether the project has any potential to impact biological resources. If it is determined that the project has no potential to impact biological resources, no further action is required. If the project would have the potential to impact biological resources, prior to construction, a qualified biologist shall conduct a biological resources assessment (BRA) to document the existing biological resources within the project footprint plus a buffer and to determine the potential impacts to those resources. The biological resources assessment shall evaluate the potential for impacts to all biological resources including, but not limited to: special-status species, nesting birds, wildlife movement, sensitive plant communities, critical habitat, Essential Fish Habitat, and other resources judged to be sensitive by local, state, and/or federal agencies. In addition, the assessment shall document potential modifications to existing infrastructure suitable for wildlife movement (e.g., culvert, underpass, etc.) Pending the results of the BRA, design alterations, further technical studies (i.e., protocol surveys) and/or consultations with the USFWS, CDFW and/or other local, state, and federal agencies may be required. If the project cannot be designed without complete avoidance, the sponsor agency shall coordinate with the appropriate regulatory agency (i.e., USFWS, NMFS, CDFW, USACE) to obtain regulatory permits and implement project - specific mitigation prior to any construction activities. The following mitigation measures [BIO-1(b) through BIO-1(j)] shall be incorporated only as applicable into the BRA for projects where specific resources are present or may be present and impacted by the project. Note that specific surveys described in the mitigation measures below may be completed as part of the biological resources assessment where suitable habitat is present. The results of the biological resources screening and assessment shall be provided to the implementing agency for review and approval.

BIO-1(b) Special-status Plant Species Surveys

If completion of the project-specific biological resources assessment determines that special-status plant species have potential to occur on-site, surveys for special-status plants shall be completed prior to any vegetation removal, grubbing, or other construction activity of each project (including staging and mobilization). The surveys shall be floristic in nature and shall be seasonally timed to coincide with the target species identified in the project-specific BRA. All plant surveys shall be conducted by a qualified biologist approved by the implementing agency no more than two years prior to project implementation. All special-status plant species identified on-site shall be mapped onto a site-specific aerial photograph or topographic map. Surveys shall be conducted in accordance with the most current protocols established by the CNPS, CDFW and/or USFWS. A report of the survey results shall be submitted to the implementing agency for review. If special-status plant species are identified, mitigation measure BIO-1(c) shall apply.

BIO-1(c) Special-status Plant Species Avoidance, Minimization, and Mitigation

If state or federally listed and/or CRPR 1 and 2 species are found during special-status plant surveys [pursuant to mitigation measure BIO-1(b)], then the project shall be re-designed to avoid impacting these plant species to the maximum extent feasible. Occurrences of these species that are not within the immediate disturbance footprint but are located within 50 feet of disturbance limits shall have bright orange protective fencing installed at least 30 feet beyond their extent, or other distance as approved by a qualified biologist, to protect them from harm. If CRPR 3 and 4 species are found, the biologist shall evaluate to determine if they meet criteria to be considered special-status, and if so, the same process as identified for CRPR 1 and 2 species shall apply.

If special-status plants species cannot be avoided and would be impacted by a project implemented under the 2022 RTP/SCS, all impacts shall be mitigated at a minimum ratio of 1:1 (number of acres or individuals restored to number of acres or individuals impacted) for each species as a component of habitat restoration. A restoration plan shall be prepared and submitted to SJCOG, and/or the local jurisdiction overseeing the project for approval. The restoration plan shall include, at a minimum, the following components:

- Description of the project/impact site (i.e., location, responsible parties, areas to be impacted by habitat type);
- Goal(s) of the compensatory mitigation project [type(s) and area(s) of habitat to be established, restored, enhanced, and/or preserved; specific functions and values of habitat type(s) to be established, restored, enhanced, and/or preserved];
- Description of the proposed compensatory mitigation site (location and size, ownership status, existing functions and values);
- Implementation plan for the compensatory mitigation site (rationale for expecting implementation success, responsible parties, schedule, site preparation, planting plan);
- Maintenance activities during the monitoring period, including weed removal as appropriate (activities, responsible parties, schedule);
- Monitoring plan for the compensatory mitigation site, including no less than quarterly monitoring for the first year (performance standards, target functions and values, target acreages to be established, restored, enhanced, and/or preserved, annual monitoring reports);
- Success criteria based on the goals and measurable objectives; said criteria to include numeric criteria to be selected based on the scale of the restoration effort and the restoration technique used:

  - At least 80 percent survival of container plants, and/or
  - Successful establishment the required number of individuals planted from seed to meet required replacement ratios; and/or
  - Sampling-based recruitment/survival criteria to achieve vegetative cover or total number of surviving individuals equal to at least 70 percent of the equivalent metric in reference sites for the same habitat type; sampling-based criteria must use a scientifically valid vegetation sampling method;

- An adaptive management program and remedial measures to address any shortcomings in meeting success criteria;
- Notification of completion of compensatory mitigation and agency confirmation; and
- Contingency measures (initiating procedures, alternative locations for contingency compensatory mitigation, funding mechanism).

BIO-1(d) Endangered/Threatened Species Habitat Assessment and Protocol Surveys

Specific habitat assessment and survey protocol surveys are established for several federally and/or state endangered or threatened species. If the results of the biological resources assessment determine that suitable habitat may be present for any such species, protocol habitat assessments/surveys shall be completed in accordance with CDFW and/or USFWS/NMFS protocols prior to issuance of any construction permits/project approvals.

Alternatively, in lieu of conducting protocol surveys, the implementing agency may choose to assume presence within the project footprint and proceed with development of appropriate avoidance measures, consultation, and permitting, as applicable.

If the target species is detected during protocol surveys, or protocol surveys are not conducted and presence assumed based on suitable habitat, mitigation measure BIO-1(e) shall apply.

BIO-1(e) Endangered/Threatened Species Avoidance and Compensatory Mitigation

If habitat is occupied or presumed occupied by federal and/or state listed species and would be impacted by the project, the implementing agency shall re-design the project in coordination with a qualified biologist to avoid impacting occupied/presumed occupied habitat to the maximum extent feasible. Disturbance limits shall have bright orange protective fencing installed at least 50 feet beyond their extent, or other distance as approved by a qualified biologist, to protect the habitat. If occupied or presumed occupied habitat cannot be avoided, the implementing agency shall provide the total acreages for habitat that would be impacted prior to the issuance of construction permits/approvals. The implementing agency shall purchase credits at a USFWS, and/or CDFW approved conservation bank and/or establish conservation easements or funds for acquisition of conservation easements as compensatory mitigation to offset impacts to federal and/or state listed species habitat.

Compensatory mitigation shall be provided at the following ratios for permanent impacts in accordance with the *San Joaquin County Multi-Species Habitat Conservation and Open Space Plan* (SJMSCP 2000) of not less than 1:1 (area mitigated: area impacted) for agricultural habitat lands and 3:1 for natural lands (non-wetland). Compensatory mitigation may be combined/nested with

special-status plant species and sensitive community restoration where applicable. Temporary impact areas shall be restored to pre-project conditions.

If the implementing agency establishes conservation easement(s) (on- and/or off-site) to serve as compensatory mitigation for federal and/or state listed species habitat impacts, compensatory mitigation areas shall have a restrictive covenant prohibiting future development/disturbance and shall be managed in perpetuity to encourage persistence and enhancement of the preserved target species. Compensatory mitigation lands cannot be located on land that is currently held publicly for resource protection. The compensatory mitigation areas shall be managed by a conservation lands management entity or other qualified easement holder. In addition, the implementing agency shall retain a qualified biologist to prepare a Habitat Mitigation and Monitoring Plan (HMMP) to ensure the success of compensatory mitigation sites that are to be conserved for compensation of permanent impacts to federal and/or state listed species. The HMMP shall identify long term site management needs, routine monitoring techniques, techniques, and success criteria, and shall determine if the conservation site requires restoration to function as a suitable mitigation site. If restoration is required on the conservation site, the HMMP shall contain the restoration components outlined under the Restoration Plan listed in measure BIO-1(c). The HMMP shall be submitted to the implementing agency for approval.

BIO-1(f) Endangered/Threatened Species Avoidance and Minimization

The following measures shall be applied to aquatic and terrestrial species, where appropriate. Project sponsors shall select from these measures as appropriate depending on site conditions, the species with potential for occurrence, and the results of the biological resources screening and assessment (measure BIO-1[a]).

- Preconstruction surveys for federal and/or state listed species with potential to occur shall be conducted where suitable habitat is present by a qualified biologist not more than 48 hours prior to the start of construction activities. The survey area shall include the proposed disturbance area and all proposed ingress/egress routes, plus a 100-foot buffer. If any life stage of federal and/or state listed species is found within the survey area, the appropriate measures in the BO or Habitat Conservation Plan(HCP)/Incidental Take Permit (ITP) issued by the USFWS/NMFS (relevant to federal listed species) and/or the ITP issued by the CDFW (relevant to state listed species) shall be implemented; or if such guidance is not in place for the activity, the USFWS, NMFS and/or CDFW shall be consulted to determine the appropriate course of action. The results of the pre-construction surveys shall be submitted to the implementing agency for review and approval prior to start of construction.
- Ground disturbance shall be limited to the minimum necessary to complete the project. The project limits of disturbance shall be flagged. Areas of special biological concern shall have highly visible orange construction fencing.
- All projects occurring within/adjacent to aquatic habitats (including riparian habitats and wetlands) shall be completed between April 1 and October 31, to avoid impacts to sensitive aquatic species.
- All projects occurring within or adjacent to sensitive habitats that may support federally and/or state endangered/threatened species shall have a qualified biologist present during all initial ground disturbing/vegetation clearing activities. Once initial ground disturbing/vegetation clearing activities have been completed, said biologist shall conduct daily pre-activity clearance surveys for endangered/threatened species. Alternatively, and upon approval of the CDFW and/or USFWS or as outlined in project permits, said biologist may conduct site inspections at a

minimum of once per week to ensure all prescribed avoidance and minimization measures are begin fully implemented.

- No endangered/threatened species shall be captured and relocated without authorization from the CDFW and/or USFWS.
- If pumps are used for dewatering activities, all intakes shall be completely screened with wire mesh not larger than five millimeters to prevent animals from entering the pump system.
- If at any time during construction of the project an endangered/threatened species enters the construction site or otherwise may be impacted by the project, all project activities shall cease. At that point the USFWS, NMFS and/or CDFW shall be consulted to determine the appropriate course of action, or the appropriate measures implemented in accordance with the BO or HCP/ITP issued by the USFWS (relevant to federal listed species) and/or the ITP issued by the CDFW (relevant to state listed species) and work can then continue as guided by those documents and the agencies as appropriate.
- All vehicle maintenance/fueling/staging shall occur not less than 100 feet from any riparian habitat or water body. Suitable containment procedures shall be implemented to prevent spills.
- No equipment shall be permitted to enter wetted portions of any affected drainage channel.
- All equipment operating within streambeds (restricted to conditions in which water is not present) shall be in good conditions and free of leaks. Spill containment shall be installed under all equipment staged within stream areas and extra spill containment and clean up materials shall be located in close proximity for easy access.
- At the end of each workday, excavations shall be secured with cover, or a ramp shall be provided to prevent wildlife entrapment.
- All trenches, pipes, culverts, or similar structures shall be inspected for animals prior to burying, capping, moving, or filling.

BIO-1(g) Non-Listed Special-status Animal Species Avoidance and Minimization

Depending on the species identified in the BRA, measures shall be selected from among the following to reduce the potential for impacts to non-listed special-status animal species:

- Preconstruction clearance surveys shall be conducted within 14 days prior to the start of construction (including staging and mobilization). The surveys shall cover the entire disturbance footprint plus a minimum 100-foot buffer and shall identify all special-status animal species that may occur on-site. All non-listed special-status species shall be relocated from the site either through direct capture or through passive exclusion. A report of the preconstruction survey shall be submitted to the implementing agency for their review and approval prior to the start of construction.
- A qualified biologist shall be present during all initial ground disturbing activities, including vegetation removal, to recover special-status animal species unearthed by construction activities.
- Upon completion of the project, a qualified biologist shall prepare a final compliance report documenting all compliance activities implemented for the project, including the preconstruction survey results. The report shall be submitted within 30 days of completion of the project.
- If special-status bat species may be present and impacted by the project, within 30 days of the start of construction a qualified biologist shall conduct presence/absence surveys for special-status bats, in consultation with the CDFW, where suitable roosting habitat is present. Surveys

shall be conducted using acoustic detectors and by searching tree cavities, crevices, and other areas where bats may roost. If active bat roosts or colonies are present, the biologist shall evaluate the type of roost to determine the next step.

- If a maternity colony is present, all construction activities shall be postponed within a 250-foot buffer around the maternity colony until it is determined by a qualified biologist that the young have dispersed or as recommended by CDFW through consultation. Once it has been determined that the roost is clear of bats, the roost shall be removed immediately.
- If a roost is determined by a qualified biologist to be used by a large number of bats (large hibernaculum), alternative roosts, such as bat boxes if appropriate for the species, shall be designed and installed near the project site. The number and size of alternative roosts installed will depend on the size of the hibernaculum and shall be determined through consultations with the CDFW.
- If other active roosts are located, exclusion devices such as valves, sheeting or flap-style one-way devices that allow bats to exit but not re-enter roosts discourage bats from occupying the site.

BIO-1(h) Preconstruction Surveys for Nesting Birds

For construction activities occurring during the nesting season (generally February 1 to September 15), surveys for nesting birds covered by the CFGC, the MBTA, and Bald and Golden Eagle Protection Act shall be conducted by a qualified biologist no more than 14 days prior to vegetation removal activities.

A qualified biologist shall conduct preconstruction surveys for raptors. The survey for the presence of bald and golden eagles, shall cover all areas within of the disturbance footprint plus a one-mile buffer where access can be secured. The survey area for all other nesting bird and raptor species shall include the disturbance footprint plus a 300-foot and 500-foot buffer, respectively.

If active nests (nests with eggs or chicks) are located, the qualified biologist shall establish an appropriate avoidance buffer ranging from 50 to 300 feet based on the species biology and the current and anticipated disturbance levels occurring in vicinity of the nest. The objective of the buffer shall be to reduce disturbance of nesting birds. All buffers shall be marked using high-visibility flagging or fencing, and, unless approved by the qualified biologist, no construction activities shall be allowed within the buffers until the young have fledged from the nest or the nest fails.

For bald or golden eagle nests identified during the preconstruction surveys, an avoidance buffer of up to one mile shall be established on a case-by-case basis in consultation with the USFWS and CDFW. The size of the buffer may be influenced by the existing conditions and disturbance regime, relevant landscape characteristics, and the nature, timing, and duration of the expected disturbance. The buffer shall be established between February 1 and September 15; however, buffers may be relaxed earlier than September 15 if a qualified ornithologist determines that a given nest has failed or that all surviving chicks have fledged, and the nest is no longer in use.

A report of these preconstruction nesting bird surveys and nest monitoring (if applicable) shall be submitted to the implementing agency for review and approval prior to the start of construction.

BIO-1(i) Fence and Signpost Restriction

Any fencing posts or signs installed temporarily or permanently throughout the course of the project shall have the top three post holes covered or filled with screws or bolts to prevent the entrapment of wildlife, specifically the talons of birds of prey. Also, fencing shall incorporate wildlife

friendly design elements, such as smooth wires and having a 6-inch or greater gap above grade. Fencing shall also be designed to be wildlife friendly (e.g., smooth top wire, smooth bottom wire at 6 inches above grade, etc.).

BIO-1(j) Worker Environmental Awareness Program (WEAP)

Prior to initiation of construction activities (including staging and mobilization), all personnel associated with project construction shall attend WEAP training, conducted by a qualified biologist, to aid workers in recognizing special-status resources that may occur in the project area. The specifics of this program shall include identification of the sensitive species and habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and mitigation measures required to reduce impacts to biological resources within the work area. A fact sheet conveying this information shall also be prepared for distribution to all contractors, their employers, and other personnel involved with construction of the project. All employees shall sign a form documenting that they have attended the WEAP and understand the information presented to them.

IMPLEMENTING AGENCIES AND TIMING

Implementing agencies for transportation projects are SJCOG and transportation project sponsor agencies. Implementing agencies for land use projects are cities and the County. These mitigation measure shall, or can and should, be applied during permitting and environmental review and implemented during construction, as applicable.

Significance After Mitigation

Compliance with the above mitigation measures would reduce impacts to special-status species and their habitat to less than significant levels because the mitigation measures require pre-project surveys and biological monitoring, focused biological surveys, avoidance or minimization of project related disturbance or loss of special-status species, compensation for disturbed or loss of special-status species habitat and coordination with permitting agencies, as required prior to project implementation.

Threshold 2:	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service
Threshold 3:	Have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means

Impact BIO-2 IMPLEMENTATION OF TRANSPORTATION IMPROVEMENTS AND THE LAND USE SCENARIO ENVISIONED BY 2022 RTP/SCS MAY RESULT IN IMPACTS TO SENSITIVE HABITATS, INCLUDING STATE OR FEDERALLY PROTECTED WETLANDS. THIS IMPACT WOULD BE SIGNIFICANT BUT MITIGABLE.

Due to the programmatic nature of 2022 RTP/SCS, a precise, project-level analysis of the specific impacts of individual transportation projects on sensitive habitats is not possible at this time. However, several of the projects that may be implemented under 2022 RTP/SCS have the potential to impact sensitive habitats, as mapped on Figure 4.3-2. The extent and severity of the impacts is not known at this time, but some examples of potential impacts include, but are not limited to: construction and reconstruction/widening of bridges over rivers and creeks, including the San

Joaquin River, Mormon Slough, Little Johns Creek, and Duck Creek. These types of projects would have potential to impact riparian areas, as well as the water bodies. In addition, projects such as multi-use trails and bike paths may also involve development along riparian corridors. Riparian areas provide wildlife habitat, and movement corridors, enabling both terrestrial and aquatic organisms to move along river systems between areas of suitable habitat. Construction of the proposed facilities could have both direct impacts due to disturbance of riparian flora and fauna and indirect impacts due to increased erosion and sedimentation, which would adversely affect downstream water quality.

In addition, other sensitive habitats, including oak woodlands, could occur at locations of transportation improvement projects and land use development sites. As noted in Section 4.3.1.c, vegetation alliances with State ranks of S1-S3 are considered imperiled and thus, potentially of special concern and sensitive (CDFW 2020). Impacts to these sensitive communities, including oak woodlands, would be significant.

Direct impacts to sensitive habitats include loss of habitat during construction of the project. Indirect impacts include habitat degradation due to introduction of invasive plant species incidentally from construction equipment and through selection of invasive landscape plants, as well as through erosion of disturbed areas.

The future land use scenario envisioned by the 2022 RTP/SCS would concentrate development primarily within existing urbanized areas. As a result, future infill and TOD projects are likely to result in only limited impacts to riparian habitat or sensitive habitat, though areas that have been relatively free of ground disturbance may contain sensitive native habitats such as Elderberry Savanna, Northern Claypan Vernal Pool, Northern Hardpan Vernal Pool, Valley Oak Woodland, or other vegetation alliances and associations that are deemed sensitive by the CDFW. Furthermore, some areas mapped by CWHR as somewhat disturbed habitats, such as annual grasslands, may at the local scale include sensitive native vegetation with unique assemblages of native plants, such as areas dominated by native wildflowers, vernal pools, and native grasslands.

In conclusion, implementation of 2022 RTP/SCS would have substantial adverse impacts on sensitive habitats, including State and federally protected wetlands, and this impact is therefore significant.

Mitigation Measures

For transportation projects under their jurisdiction, SJCOG shall implement, and transportation project sponsor agencies can and should implement, the following mitigation measures for applicable transportation projects that would result in biological resource impacts, and where feasible and necessary based on site-specific considerations. San Joaquin County and incorporated cities in the County should implement these measures, where relevant to land use projects implementing 2022 RTP/SCS. Project-specific environmental documents may adjust these mitigation measures as necessary to respond to site-specific conditions.

BIO-2(a) Aquatic Resources Jurisdictional Delineation and Impact Avoidance

If the results of measure BIO-1(a) indicates projects implemented under the 2022 RTP/SCS occur within or adjacent to wetland, drainages, riparian habitats, or other areas that may fall under the jurisdiction of the CDFW, USACE, and RWQCB, a qualified biologist shall complete an aquatic resources delineation in accordance with the requirement set forth by each agency. The result shall be submitted to the implementing agency, USACE, RWQCB, CDFW as appropriate, for review and approval, and the project shall be designed to minimize impacts to jurisdictional areas to the extent

feasible. The delineation shall serve as the basis to identify potentially jurisdictional areas to be protected during construction, through implementation of the avoidance and minimization identified in measure BIO-2(f).

If jurisdictional areas are expected to be impacted, then the RWQCB would require a Waste Discharge Requirements (WDR) permit and/or Section 401 Water Quality Certification (depending upon whether the feature falls under federal jurisdiction). If CDFW asserts its jurisdictional authority, then a Streambed Alteration Agreement pursuant to Section 1600 et seq. of the CFGC would also be required prior to construction within the areas of CDFW jurisdiction. If the USACE asserts its authority, then a permit pursuant to Section 404 of the Clean Water Act would likely be required.

BIO-2(b) Wetlands, Drainages, and Riparian Habitat Restoration

Impacts to jurisdictional drainages, wetlands and riparian habitat shall be mitigated in accordance with the SJMSCP at a minimum ratio of 2:1 preservation plus 1:1 creation for vernal pools within the *Vernal Pool Zone*, as mapped by the SJMSCP Zone Map, and at least 1:1 creation plus 2:1 preservation for wetlands other than vernal pools (acres of habitat restored to acres impacted) and shall occur on-site or as close to the impacted habitat as possible. A mitigation and monitoring plan shall be developed by a qualified biologist in accordance with the restoration plan component requirements in mitigation measure BIO-1(c) above and shall be implemented for no less than five years after construction of the segment, or until the implementing agency and/or the permitting authority (e.g., CDFW or USACE) has determined that restoration has been successful. Alternatively, mitigation shall be accomplished through purchase of credits from an approved wetlands mitigation bank.

BIO-2(c) Landscaping Plan

If landscaping is proposed for a specific project, a qualified biologist/landscape architect shall prepare a landscape plan for that project. This plan shall indicate the locations and species of plants to be installed. Drought tolerant, locally native plant species shall be used. Noxious, invasive, and/or non-native plant species that are recognized on the Federal Noxious Weed List, California Noxious Weeds List, and/or California Invasive Plant Council Inventory as moderate to highly invasive species shall not be permitted. Species selected for planting shall be regionally appropriate native species that are known to occur in the adjacent native habitat types.

BIO-2(d) Sensitive Vegetation Community Avoidance and Mitigation

If the results of measure BIO-1(a) indicates projects implemented under the 2022 RTP/SCS would impact sensitive vegetation communities, impacts to sensitive communities shall be avoided through final project design modifications. Bright orange construction fencing shall be placed a minimum of 30 feet outside the edge of areas of sensitive communities that will be retained prior to any initiation of ground disturbance activities and shall remain in place until construction is complete. No vehicles, person, materials, or equipment shall be allowed in protected areas.

If the implementing agency determines that sensitive communities cannot be avoided, impacts shall be mitigated on-site or offsite at a ratio of 1:1 for permanently impacted sensitive communities (habitat restored for habitat lost). Temporarily impacted areas shall be restored to pre-project conditions. A Restoration Plan shall be developed by a qualified biologist. The restoration plan shall be implemented for a period of not less than five years. Off-site habitat acquisition and off-site restoration and/or enhancement may be considered if onsite restoration is determined as

unachievable, as long as the off-site proposals result in equal compensatory value. Replacement ratios for off-site mitigation may be different than those required for onsite mitigation. The plan shall include, at a minimum, the same components in accordance with the restoration plan component requirements in mitigation measure BIO-1(c) above.

BIO-2(e) Invasive Weed Prevention and Management Program

Prior to start of construction for each project that occurs within or adjacent to native habitats, an Invasive Weed Prevention and Management Program shall be developed by a qualified biologist to prevent invasion of native habitat by non-native plant species. The plan shall be submitted to the implementing agency for review and approval. A list of target species shall be included, along with measures for early detection and eradication.

The plan, which shall be implemented by the project sponsor, shall also include, but not be limited to, the following measures to prevent the introduction of invasive weed species:

- During construction, the project shall make all reasonable efforts to limit the use of imported soils for fill. Soils currently existing on-site should be used for fill material. If the use of imported fill material is necessary, the imported material must be obtained from a source that is known to be free of invasive plant species.
- To minimize colonization of disturbed areas and the spread of invasive species, the contractor shall: stockpile topsoil and redeposit the stockpiled soil after construction or transport the topsoil to a permitted landfill for disposal.
- The erosion control/ restoration plans for the project must emphasize the use of native species that are expected to occur in the area and that are considered suitable for use at the project site.
- All erosion control materials, including straw bales, straw wattles, or mulch used on-site must be free of invasive species seed.
- Exotic and invasive plant species shall be excluded from any erosion control seed mixes and/or landscaping plant palettes associated with the proposed project
- All disturbed areas shall be hydroseeded with a mix of locally native species upon completion of work in those areas. In areas where construction is ongoing, hydroseeding shall occur where no construction activities have occurred within six (6) weeks since ground disturbing activities ceased. If exotic species invade these areas prior to hydroseeding, weed removal shall occur in consultation with a qualified biologist and in accordance with the restoration plan.

BIO-2(f) Wetlands, Drainages, and Riparian Habitat Best Management Practices During Construction

The following best management practices shall be required for development within or adjacent to wetlands, drainages, or riparian habitat:

- Access routes, staging, and construction areas shall be limited to the minimum area necessary to achieve the project goal and minimize impacts to other waters including locating access routes and ancillary construction areas outside of jurisdictional areas.
- To control sedimentation during and after project implementation, appropriate erosion control materials shall be deployed to minimize adverse effects on jurisdictional areas in the vicinity of the project.

- Project activities within the jurisdictional areas should occur during the dry season (typically between June 1 and November 1) in any given year, or as otherwise directed by the regulatory agencies.
- During construction, no litter or construction debris shall be placed within jurisdictional areas. All such debris and waste shall be picked up daily and properly disposed of at an appropriate site.
- All project-generated debris, building materials, and rubbish shall be removed from jurisdictional areas and from areas where such materials could be washed into them.
- Raw cement, concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic species resulting from project-related activities, shall be prevented from contaminating the soil and/or entering wetlands, drainages, or riparian habitat.
- All refueling, maintenance, and staging of equipment and vehicles shall occur at least 100 feet from bodies of water and in a location where a potential spill would not drain directly toward aquatic habitat (e.g., on a slope that drains away from the water source). Prior to the onset of work activities, a plan must be in place for prompt and effective response to any accidental spills.

IMPLEMENTING AGENCIES AND TIMING

Implementing agencies for transportation projects are SJCOG and transportation project sponsor agencies. Implementing agencies for land use projects are cities and the County. These mitigation measure shall, or can and should, be applied during permitting and environmental review and implemented during construction, as applicable.

Significance After Mitigation

The above mitigation measures require focused biological surveys, best management practices to avoidance or minimization impacts, compensation for disturbed or loss of sensitive communities and wetlands, and coordination with permitting agencies, as required, prior to project implementation. Compliance with the above mitigation measures and existing State, federal and/or local regulations would reduce impacts to sensitive communities and wetlands to less than significant levels.

Threshold 4:	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites

Impact BIO-3 IMPLEMENTATION OF TRANSPORTATION IMPROVEMENTS AND THE LAND USE SCENARIO ENVISIONED BY 2022 RTP/SCS MAY SUBSTANTIALLY INTERFERE WITH WILDLIFE MOVEMENT, INCLUDING FISH MIGRATION, AND/OR IMPEDE THE USE OF NATIVE WILDLIFE NURSERY SITES. THIS IMPACT WOULD BE SIGNIFICANT AND UNAVOIDABLE.

As discussed above in Section 4.3.1, *Setting*, the SJCOG region contains four mapped ECAs (CDFW 2021b). These areas are composed primarily of wildlands located within the northwestern and northeastern portions of the SJCOG region. Additionally, several small scale and important local movement corridors include some agricultural and developed areas (mostly rural residential) along the various rivers, creeks, drainages, and other topographic features in the SJCOG region, such as the San Joaquin, Mokelumne, and Calaveras Rivers and other drainages as depicted in Figure 4.3-2.

Many of these smaller scale wildlife movement corridors are bisected by major roadways. As such, several transportation projects in the 2022 RTP/SCS may overlap with areas of mapped ECAs or other locally important wildlife movement corridors including rivers and watercourses within the region.

Large swaths of undeveloped areas within the SJCOG region provide vegetative cover suitable for the movement of many terrestrial wildlife species, including medium to large-sized, mobile mammals with relatively large home ranges, such as coyote, deer, bobcat, grey fox, and mountain lion, and also provide foraging and breeding habitat for many species. Wildlife species can move through these vegetated areas routinely with some species also using concrete-lined or earthen stormwater channels in the area for movement.

As previously discussed under Impacts BIO-1 and BIO-2, transportation improvement projects and the land use scenario envisioned by the 2022 RTP/SCS could occur within areas that support sensitive habitat (e.g., riparian areas, undeveloped natural areas). Direct and indirect disturbances to these areas could potentially interfere with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors within the SJCOG region.

Fragmentation of habitat by roads and development throughout the San Joaquin Delta and surrounding open space areas is already a serious issue, and retaining existing connectivity (e.g., roadless area) between large undeveloped areas is considered important for the long-term viability of wildlife populations in the area, and therefore is very desirable from the standpoint of conservation planning.

Even in more urbanized areas such as Stockton, Lodi, and Tracy, there are pockets of natural areas that are considered native wildlife nursery sites (e.g., San Joaquin River, Oak Grove Regional Park, and Mossdale Crossing Regional Park). These areas have the potential to support nesting birds and other breeding wildlife. Development projects are required to comply with CFGC sections (e.g., Sections 3503, 3503.5, 3513, and 4150); thus, it is unlikely that infill development or TOD accommodated under the 2022 RTP/SCS would result in the disturbance or destruction of active nest sites or the unauthorized take of birds or nongame mammals. Nevertheless, if development activities directly (e.g., cutting of trees or other vegetation, or removal of man-made structures containing an active bird nest or denning wildlife) or indirectly (e.g., if activities sufficiently harassed birds to cause nest abandonment) affect nesting birds and nongame mammals, a violation of the Fish and Game Code would result.

Larger predatory mammals known to occur in the SJCOG region do not travel in large groups requiring large swaths of land;[2] thus, the reduction in capacity of migratory corridors would be less than significant. Conversely, game species such as mule deer, would be confined to narrower movement channels, which could lead to a reduction in capacity and could present a more opportunistic situation for predators (i.e., may increase predation rates). If prey species are dispersing through a more confined corridor, this may provide a bottleneck of which a predator can take advantage, although there is no clear evidence that predation rates universally increase in a negative way due to corridors, and the relationship between predation and corridors is complex (Conservation Corridor 2021).

Development of wider roadways and associated infill development and TOD may also result in wildlife attempting to cross roadways at inopportune areas, (i.e., areas that are significantly

[2] This discussion is related to the carrying capacity of a movement corridor and not the home range requirement of a given large predatory mammal.

narrower and confined by steeper hillsides or other barriers). This potential shift may lead to an increase in road mortality. Thus, impacts to wildlife movement based on existing and post-project opportunities would be considered significant without incorporation of mitigation.

Direct impacts to wildlife include increased noise and human presence during construction, as well as increased trash which may attract predators to the project site and discourage wildlife use of surrounding natural habitat. Indirect impacts include invasion of natural habitats by non-native species and increased presence of humans and domestic animals over the long-term. These edge effects of development in and adjacent to open space have the potential to adversely affect wide ranging predators, such as mountain lions. In addition, transportation improvement projects could include new segments of fencing or walls that that could hinder wildlife movement.

The future land use scenario envisioned by 2022 RTP/SCS would encourage infill development and TOD within existing urbanized areas. Most of the future infill and TOD development projects would be placed on parcels that provide limited or no wildlife movement. However, even the elimination of limited wildlife movement could further isolate areas of native habitat occupied by both sensitive and common native wildlife species. Based on the above analysis, impacts related to transportation projects and impacts related to the future land use scenario envisioned by the 2022 RTP/SCS would be potentially significant.

Mitigation Measures

For transportation projects under their jurisdiction, SJCOG shall implement, and transportation project sponsor agencies can and should implement, the following mitigation measures for applicable transportation projects that would result in biological resource impacts, and where feasible and necessary based on site-specific considerations. These measures in addition to Mitigation Measure BIO-1(i) under Impact BIO-1 to incorporate wildlife friendly design elements, would apply to any transportation projects under the 2022 RTP/SCS that would result in impacts to wildlife movement. San Joaquin County and incorporated cities in the County should implement these measures where relevant to land use projects implementing 2022 RTP/SCS. Project-specific environmental documents may adjust these mitigation measures as necessary to respond to site-specific conditions.

BIO-3(a) Project Design for Wildlife Connectivity

All projects including long segments of fencing and lighting shall be designed to minimize impacts to wildlife. Fencing or other project components shall not block wildlife movement through riparian or other natural habitat. Where fencing or other project components that may disrupt wildlife movement is required for public safety concerns, they shall be designed to permit wildlife movement by incorporating design features such as:

- A minimum 16 inches between the ground and the bottom of the fence to provide clearance for small animals;
- A minimum 12 inches between the top two wires, or top the fence with a wooden rail, mesh, or chain link instead of wire to prevent animals from becoming entangled; and
- If privacy fencing is required near open space areas, openings at the bottom of the fence measure at least 16 inches in diameter shall be installed at reasonable intervals to allow wildlife movement, or the fence may be installed with the bottom at least 16 inches above the ground level.

- If fencing or other project components must be designed in such a manner that wildlife passage would not be permitted, wildlife crossing structures such as overpasses, underpasses, culverts, etc., shall be incorporated into the project design as appropriate.
- Lighting installed as part of any project shall be designed to be minimally disruptive to wildlife (see mitigation measure AES-3(a) Roadway Lighting for lighting requirements)

BIO-3(b) Maintain Connectivity in Drainages

No permanent structures shall be placed within any drainage or river that would impede wildlife movement (i.e., no hardened caps or other structures in the stream channel perpendicular to stream flow be left exposed or at depth with moderate to high risk for exposure as a result of natural bed scour during high flow events and thereby potentially create impediments to passage).

In addition, upon completion of construction within any drainage, areas of stream channel and banks that are temporarily impacted shall be returned to pre-construction contours and in a condition that allows for unimpeded passage through the area once the work has been complete.

If water is to be diverted around work sites, a diversion plan shall be submitted to SJCOG and/or local jurisdiction for review and approval prior to issuance of project construction permits/approvals. The diversion shall be designed in a way as to not impede movement while the diversion is in place.

BIO-3(c) Construction Best Management Practices to Minimize Disruption to Wildlife

The following construction BMPs shall be incorporated into all grading and construction plans in order to minimize temporary disruption of wildlife, which could hinder wildlife movement:

- Designation of a 20 mile per hour speed limit in all construction areas.
- Daily construction work schedules shall be limited to daylight hours only.
- Mufflers shall be used on all construction equipment and vehicles shall be in good operating condition.
- All trash shall be placed in sealed containers and shall be removed from the project site a minimum of once per week.
- No pets are permitted on project site during construction.

Significance After Mitigation

Compliance with the above mitigation measures would reduce impacts to wildlife movement by requiring projects to be designed in a way that maintains connectivity. However, it cannot be guaranteed that movement of terrestrial species will not be impeded at the regional scale due to the large scale of the 2022 RTP/SCS. No additional feasible mitigation measures are available to reduce impacts on wildlife movement. Thus, this impact would remain significant and unavoidable.

Threshold 5:	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

Impact BIO-4 IMPLEMENTATION OF TRANSPORTATION IMPROVEMENTS AND THE LAND USE SCENARIO ENVISIONED BY 2022 RTP/SCS WOULD NOT CONFLICT WITH ANY LOCAL POLICIES OR ORDINANCES PROTECTING BIOLOGICAL RESOURCES, SUCH AS A TREE PRESERVATION POLICY. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Most municipalities in the SJCOG region have local ordinances and policies in place that protect native habitat and/or native and nonnative trees in urban landscapes, as well as in unincorporated County lands. These ordinances and policies vary in their definitions of protected trees (e.g., certain species, percent within the public right-of-way, aesthetically suitable, deep-rooted trees, or a combination thereof) and in the requirements for ordinance or policy compliance. In addition, counties and cities may have local ordinances or policies that are intended to protect other biological resources such as wetlands and drainages, riparian habitat, and other sensitive habitat areas.

Protected trees (i.e., heritage oaks) and other biological resources which are protected by city and/or County ordinances and/or policies are expected to be encountered at the locations where projects administered under the 2022 RTP/SCS would occur and therefore there is potential for conflict with local ordinances and/or policies. Most of the transportation projects in the 2022 RTP/SCS are expansions or maintenance of existing roads. Because ground disturbances would be fairly limited as a result, the potential removal of native trees and disturbances to other biological resources protected by local policies or ordinances are expected to be minimal for most projects.

In addition to potential conflicts with local policies and/or ordinances that may result from transportation improvement projects, 2022 RTP/SCS also contains a future land use scenario that emphasizes infill development and TOD. This land use scenario focuses future development concentrated in existing urbanized areas, although some development would occur in more undisturbed areas. This would reduce impacts to biological resources that are protected by city and/or County ordinances; however, there remains the potential for conflict with local policies and ordinances from development associated with the future land us scenario.

All future development projects potentially occurring within local jurisdictions as well as the transportation projects proposed for implementation under the 2022 RTP/SCS would be required to follow city and/or County development requirements, including compliance with local policies, ordinances, and applicable permitting procedures related to protection biological resources. Project-level analysis would identify potentially significant conflicts with local policies and ordinances as well as minimize, mitigate, or avoid those impacts through the design, siting, and permitting process; and provide mitigation for any significant impacts as a condition of project approval and permitting. Therefore, the potential for approved development projects under the future land use scenario as well as proposed transportation project to conflict with local policies or ordinances protecting biological resources is considered less than significant.

Mitigation Measures

Mitigation measures are not required because this impact would be less than significant.

Threshold 6:	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan

Impact BIO-5 IMPLEMENTATION OF THE TRANSPORTATION IMPROVEMENTS AND THE LAND USE SCENARIO ENVISIONED BY THE 2022 RTP/SCS WOULD NOT CONFLICT WITH THE PROVISIONS OF AN ADOPTED HABITAT CONSERVATION PLAN, NATURAL COMMUNITY CONSERVATION PLAN, OR OTHER APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN. IMPACTS WOULD BE SIGNIFICANT BUT MITIGABLE.

There is one adopted conservation plan within the SJCOG region. The SJMSCP was adopted by the San Joaquin Transportation Authority on November 14, 2000. The SJMSCP is intended to comprehensively minimize and mitigate impacts to the region's special-status plant and wildlife species. The SJMSCP estimates an overall habitat conversion of 109,302 acres of open space land to non-open space uses through the 50-year term of the SJMSCP.

The 2022 RTP/SCS would not alter land use designations in any way that would adversely affect known wildlife linkages, migration corridors, etc. within areas covered by the SJMSCP. Individual 2022 RTP/SCS transportation and development projects must comply with the SJMSCP. Land use and transportation projects included in the 2022 RTP/SCS would be reviewed on an individual basis to ensure that the biological impacts are within the parameters established by the SJMSCP. Implementing agencies have the option to participate in the SJMSCP to reduce impacts to biological resources resulting from a proposed project to a level of less-than-significant if the proposed project is consistent with the SJMSCP.

The small quantity of low–quality habitat loss associated with implementation of the 2022 RTP/SCS would be considered a less than significant effect because of the amount of similar and higher value vegetation communities and land cover types within the SJCOG region that are already held in conservation or designated as open space. However, due to the programmatic nature of this analysis, the extent and severity of potential conflicts with the SJMSCP is not known at this time. Therefore, implementation of Mitigation Measures BIO-1(a) through BIO-3(c) should be applied to each future project, as appropriate, that is tiering off from this Program EIR. Adherence to Mitigation Measure BIO-1(a) through BIO-3(c) in addition to individual 2022 RTP/SCS project review by lead agencies would ensure that impacts related to compliance with the SJMSCP remain less than significant and would ensure that projects as they are designed do not result in conflict with the SJMSCP.

Mitigation Measures

Implementation of Mitigation Measures BIO-1(a) through BIO-3(c) are required.

Significance After Mitigation

Implementation of Mitigation Measures BIO-1(a) through BIO-3(c) would reduce impacts to a less than significant level.

c. Specific RTP Projects That May Result in Impacts

Table 4.3-2 identifies those projects that may create biological resource impacts. Projects that may have potential impacts are illustrated on Figure 2-2 through Figure 2-9 in Section 2, *Project Description*. The individual projects listed below could create significant biological impacts but would not necessarily do so. Additional specific analysis will need to be conducted as the individual

projects are implemented to determine the actual magnitude of impact. Mitigation measures discussed above could apply to these specific projects.

Table 4.3-2 2022 RTP/SCS Projects with Potential to Impact Biological Resources

Project Title	Project Type	Description
Caltrans		
CT-1: SR 99/120 Connector Project Phase 1A	HWY	Widen the eastbound SR 120 to southbound SR 99 connector ramp from one lane to two lanes.
CT-2: I-205 Managed Lanes	HWY	Widen I-205 from 6 to 8 lanes from Alameda County line to Eleventh Street
CT-3: I-205 Managed Lanes	HWY	Widen I-205 from 6 to 8 lanes from Eleventh Street to MacArthur Drive
CT-4: I-205 Managed Lanes	HWY	Widen I-205 from 6 to 8 lanes from MacArthur Drive to I-5
CT-5: I-5 HOV Mossdale	HWY	Widen to add HOV lanes with HOV connector ramps to I-205 and SR-120
CT-6: SR-120	HWY	Widen 4 to 6 lanes
CT-7: SR-99 HOV	HWY	Widen 6 to 8 lanes including reconstruction of SR-99/Main Street and SR-99/Wilma Avenue interchanges and pedestrian overcrossing
CT-8: SR-99/120 Connector Project Phase 1B	HWY	Widen the northbound SR 99 to westbound SR 120 connector ramp from one-lane to two-lanes; Add an auxiliary lane in the existing median of westbound SR 120 from Main Street to SR 99; Convert the existing 99/120 separation structure to two lanes and construct a new separation structure to service the eastbound 120 to northbound 99 connector ramp
CT-9: I-5 HOV	HWY	Widen from 6 to 8 lanes including auxiliary lanes from hammer Lane to North of Eight Mile Road
CT-10: I-5 HOV	HWY	Widen 6 to 8 lanes from French Camp Road to Charter Way
CT-11: I-5 HOV	HWY	Widen 6 to 8 lanes from Louise Avenue to French Camp Road
CT-12: SR 99/120 Connector Project Phase 1C	HWY	Add braided off ramps from SR 99 and SR 120 to Austin Road; Add loop on ramp from Austin Road to northbound SR 99 and to westbound SR 120; Add auxiliary lane in each direction on SR 99 from SR 120 to approximately 1.9 mile south of Austin Road and relocate the frontage road
CT-13: SR 99 Widening	HWY	Widen 4 to 6 lanes, environmental only
CT-14: Caltrans Intercity Rail	Rail	In San Joaquin County between Escalon and Stockton, construct double main track, panelized turnouts, relocate/renew siding turnout, and realign existing trackage.
City of Escalon		
E-1: SR-120 / Brennan Avenue	ST/RDS	Intersection improvements
E-2: Ullrey Avenue /McHenry Avenue Intersection	ST/RDS	Reconstruct intersection, including addition of turn pockets, improvement of traffic signal and installation of train pre-emption system for UPRR railroad crossing/
E-3: Escalon BNSF grade separation	ST/RDS	Construct a grade separation in Escalon at the BNSF Railroad
City of Lathrop		
La-1: SR 120 at Yosemite Avenue/Guthmiller Road	HWY	Reconstruct interchange

Project Title	Project Type	Description
La-2: Golden Valley Parkway	ST/RDS	Construct new roadway parallel to I-5, 2 lanes from Brookhurst Boulevard to Stewart Road
La-3: Golden Valley Parkway	ST/RDS	Construct new roadway parallel to I-5, 4 lanes from Stewart Road to Paradise Road
La-4: Golden Valley Parkway	ST/RDS	Widen from 2 to 4 lanes, from Brookhurst Boulevard to Stewart Road
La-5: Lathrop Transfer Station	Rail	Lathrop Transfer Station between ACE and Central Valley Service
City of Lodi		
Lo-1: SR-99 at SR-12 West (Kettleman Lane)	HWY	Reconstruct interchange and widen to free-flowing interchange
Lo-2: SR-99 at Harney Lane	HWY	Reconstruct interchange to provide 6 through lanes on SR-99, 4 lanes on Harney between Reynolds Ranch Parkway and SR-99 and modify on-ramps and off-ramps
Lo-3: SR-99 at Turner Road	HWY	Reconstruct interchange to provide operational and safety improvements on SR-99 at Turner Road
Lo-4: Harney Lane	ST/RDS	Widen from 2/3 lane collector to 4-lane divided arterial
Lo-5: Victor Road (SR-12)	ST/RDS	Widen from 2 to 4 lanes. Add center dual left turn lane, turn pockets at intersections and median separation with landscape
Lo-6: Ham Lane	ST/RDS	Widen 2/3 lanes to 4 lanes
Lo-7: Grapeline Capital	Transit	Transit station expansion
Lo-8: Southwest Transit Transfer Station	Transit	Construct transit transfer station in southwest Lodi
City of Manteca		
M-1: SR-120 at McKinley Avenue	HWY	Construct new interchange
M-2: SR-120 at Airport Way	HWY	Reconstruct interchange
M-3: SR-120 at Main Street	HWY	Reconstruct interchange
M-4: SR-99 at Raymus Expressway	HWY	Construction of new interchange – environmental only
M-5: Atherton Drive	ST/RDS	Construct new 4 lane roadway (gap closure)
M-6: Airport Way	ST/RDS	Widen from 2 to 4 lanes from SR-120 to Yosemite Avenue
M-7: Airport Way	ST/RDS	Widen from 2 to 4 lanes from Lathrop Road to Roth Road
M-8: Louise Avenue	ST/RDS	Widen from 2 to 4 lanes from Main Street to SR-99
M-9: Atherton Drive	ST/RDS	Construct new 4 lane roadway from McKinley Avenue to West of Airport Way
M-10: Lathrop Road	ST/RDS	Widen from 2 to 4 lanes from Est of UPRR to SR-99
M-11: Raymus Expressway	ST/RDS	Construct new 4 lane expressway from Main Street to SR-99
M-12: Airport Way	ST/RDS	Widen from 2 to 4 lanes from Yosemite Avenue to Lathrop Road
M-13: Raymus Expressway	ST/RDS	Construct new 2 lane expressway from ST-120 to Woodward Avenue
M-14: Atherton Drive	ST/RDS	Construct new 4 lane roadway from Woodward Avenue to McKinley Avenue
M-15: Raymus Expressway	ST/RDS	Construct new 2 lane expressway from Woodward Avenue to Main Street
M-16: Airport Way	ST/RDS	Widen from 4 to 6 lanes from SR 120 to Lathrop Road
M-17: Airport Way/UPRR	ST/RDS	Construct 5 lane grade separation over the UPRR

Project Title	Project Type	Description
M-18: Bus Maintenance and Storage Facility	Transit	Construct a bus maintenance and storage facility
City of Ripon		
R-1: Jack Tone Road, Phase 1	ST/RDS	Widen from 2 to 6 lanes from Santos Road to South Clinton Avenue
R-2: Garrison Road Gap Closure	ST/RDS	Construct 2 lane extension of Garrison Road
R-3: W. Ripon Road	ST/RDS	Widen from 2 to 6 lanes from Jack Tone Road to Olive Expressway
R-4: Canal Boulevard Extension	ST/RDS	Construct 4 lane extension of Canal Boulevard from Jack Tone Road to Olive Expressway
R-5: Olive Expressway	ST/RDS	Construct 6 lane Olive Expressway from Canal Boulevard to Raymus Expressway, environmental only
R-6: Transit Capital Improvements	Transit	Construct benches, shelters, and transit maintenance facility
R-7: Ripon Multimodal Station	Transit	Construct Multimodal Station
City of Stockton		
S-1: I-5 at Hammer Lane	HWY	Interchange modification and auxiliary lanes
S-2: I-5 at Otto Drive	HWY	Construction of a new interchange and auxiliary lanes
S-3: I-5 at Eight Mile Road	HWY	Modification of interchange
S-4: SR-99 at Eight Mile Road	HWY	Reconstruct interchange
S-5: SR-99 at Morada	HWY	Reconstruct interchange
S-6: Airport Way	ST/RDS	Intersection and operational improvements from Harding Way to Industrial Road
S-7: Morada Lane	ST/RDS	Widen from 3 to 6 lanes from West Lane to UPRR
S-8: Alpine Avenue	ST/RDS	Widen from 2 to 4 lanes with a middle turn lane. Construct curb, gutter, sidewalks, and driveways from UPRR (SPRR) to Wilson Way
S-9: Arch Road	ST/RDS	Widen from 2 to 6 lanes from Fite Court to Frontier Way
S-10: Arch Road	ST/RDS	Widen from 2 to 6 lanes from Frontier Way to SR-99
S-11: Maranatha Drive	ST/RDS	Construction of new 4 lane road from March Lane to Hammer Lane
S-12: Maranatha Drive	ST/RDS	Construction of new 4 lane road from Wilson Way to March Lane
S-13: Lower Sacramento Road	ST/RDS	Widen from 4 to 6 lanes from Armor Drive to Morada Lane
S-14: Lower Sacramento Road	ST/RDS	Widen from 2 to 6 lanes from Marlette Road to Pixley Slough
S-15: Lower Sacramento Road	ST/RDS	Widen from 4 to 6 lanes from Morada Lane to Hammer Lane
S-16: Eight Mile Road	ST/RDS	Widen from 2 to 4 lanes from New Road D to New Road F
S-17: Eight Mile Road	ST/RDS	Widen from 2 to 4 lanes from New Road F to New Road E
S-18: Eight Mile Road	ST/RDS	Widen from 5 to 6 lanes from I-5 to Thornton Road
S-19: Eight Mile Road	ST/RDS	Widen from 2 to 4 lanes from Thornton Road to Lower Sacramento Road
S-20: Eight Mile Road	ST/RDS	Widen from 2 to 6 lanes from Lower Sacrament Road to West Lane
S-21: Eight Mile Road	ST/RDS	Widen from 2 to 6 lanes from West Lane to Holman Road
S-22: Eight Mile Road	ST/RDS	Widen from 2 to 6 lanes from Holman Road to SR 99
S-23: Arch Road	ST/RDS	Widen from 2 to 6 lanes from Newcastle Road to Fite Court
S-24: French Camp Road	ST/RDS	Widen from 2 to 6 lanes from Wolfe Road to Manthey Road

Project Title	Project Type	Description
S-25: March Lane Extension	ST/RDS	Construction of new 8 lane road from Holman Road to SR 99
S-26: Mariposa Road	ST/RDS	Widen from 2 to 4 lanes from Stagecoach Road to Austin Road
S-27: Alpine Road/UPRR (east)	ST/RDS	Construct a 4-lane grade separation
S-28: Alpine Road/UPRR (west)	ST/RDS	Construct at-grade quiet zone improvements
S-29: West Lane at UPRR	ST/RDS	Construct a 6-lane grade separation
S-30: Stockton Diamond Grade Separation	Rail	In Stockton, construct track connections and grade separate the BNSF Stockton Subdivision and UPRR Fresno Subdivision diamond crossing
City of Tracy		
T-1: I-205/Lammers Road/Eleventh Street	HWY	Construct interchange I-205 at Eleventh Street, realign and widen Eleventh Street to 6-lanes north of Grant Line to Byron Road. Construct auxiliary lane Hansen to Eleventh, in westbound I-205 Eleventh Street to Grant Line Road.
T-2: I-580 at International Parkway/Patterson Pass Road	HWY	Reconstruct interchange
T-3: I-205 at Mountain House/International Parkway	HWY	Reconstruct interchange
T-4: I-205 Grant Line Road	HWY	Modification of existing interchange
T-5: I-205 at Chrisman Road	HWY	Phase I; Construct new interchange east-west ramps
T-6: I-205/MacArthur Interchange Modification	HWY	Modification of existing interchange – environmental only
T-7: I-580 at Corral Hollow Road	HWY	Modification of existing interchange – environmental only
T-8: I-580 at Lammers Road	HWY	Construction of new interchange – environmental only
T-9: I-580 at Iron Horse	HWY	Construction of new interchange – environmental only
T-10: International Parkway	ST/RDS	Widen from 2 to 4 lanes, including reconstruction of Delta-Mendota Canal and California Aqueduct bridges from I-205 to I-580
T-11: Corral Hollow Road	ST/RDS	Widen from 2 to 4 lanes from Parkside Drive to Linne Road
T-12: Schulte Road	ST/RDS	Extend 4 lane roadway from Faith Lane to Lammers Road
T-13: Grant Line Road	ST/RDS	Widen from 5 to 6 lanes from Naglee Road to Lammers Road
T-14: Corral Hollow Road Widening	ST/RDS	Widen 2 to 4 lanes including ROW and construction of two bridges from Linne Road to I-580
T-15: MacArthur Drive	ST/RDS	Extend 4 lane roadway on new alignment and construct railroad grade separation from Mt. Diablo Road to Eleventh Street
T-16: Tracy Boulevard	ST/RDS	Widen from 4 lane minor arterial to 4-lane major arterial from I-205 to Eleventh Street
San Joaquin County		
SJC-1: Howard Road	ST/RDS	Passing lanes and channelization from Tracy Boulevard to Matthews Road
SJC-2: Grant Line Road Corridor Improvements	ST/RDS	Realign roadway and widen from 2 to 4 lanes with operational and safety improvements from Tracy City Limits to 11th Street
SJC-3: Tracy Boulevard	ST/RDS	Passing lanes and channelization from I-205 to Howard Road
SJC-4: Eleventh Street	ST/RDS	Operational and safety improvements along corridor and at intersections from Tracy City limits to I-5

Project Title	Project Type	Description
SJC-5: Roth Road	ST/RDS	Widen from 2 to 4 lanes with shoulders from UPRR to Airport Way
SJC-6: Airport Way	ST/RDS	Widen from 2 to 4 lanes from Roth Road to French Camp Road
SJC-7: Escalon Bellota Road	ST/RDS	Widen from 2 to 4 lanes with shoulders from Escalon City Limits to Mariposa Road
SJC-8: Mariposa Road	ST/RDS	Widen roadway from 2 to 3 lanes and widen BNSF railroad grade separation from 2 to 4 lanes from Austin Road to Jack Tone Road
SJC-9: Lower Sacramento Road/UPRR (near Woodson Road)	ST/RDS	Replace grade separation of roadway and railway

Bike/Ped - Bicycle or Pedestrian
HWY – Highway
ST/RDS = Street or Roadway
Transit = Public Transportation Infrastructure
Various = Project/funding of different types

4.3.4 Cumulative Impacts

The cumulative impact analysis area for biological resources consists of the SJCOG region and adjoining counties. Information regarding these adjoining counties can be found in Section 3.1 – *Environmental Setting,* Table 3-1. Future development in this region that could impact biological resources is considered in the analysis. This cumulative extent is used to evaluate potential direct and indirect, and permanent and temporary impacts to special-status species, sensitive habitats, wildlife movement, local policies and ordinances protecting biological resources, and approved habitat conservation plans within the context of regional diminishment of these resources.

Biological resources impacts resulting from cumulative development within the cumulative impact analysis area would include direct and indirect impacts to sensitive/special status species or their habitat; impacts to riparian, wetland, or other sensitive natural communities; or interference with wildlife movement. Similarly, development pursuant to other local and regional planning efforts within the cumulative impact analysis area would impact these resources, and as a result, cumulative impacts would be significant. Due to the potential direct and indirect impacts that may occur, the 2022 RTP/SCS would contribute considerably to this significant cumulative impact.

Mitigation Measures BIO-1(a) through BIO-3(c) presented in Section 4.3.3.b set requirements for surveys and actions to be taken if biological resources have potential to be impacted by 2022 RTP/SCS projects as well as the future land use scenario. If implementing agencies and/or project sponsors adopt these mitigation measures and comply with existing State, local and/or federal regulations, the contribution of the proposed 2022 RTP/SCS to cumulative impacts would be reduced. However, as discussed above, the 2022 RTP/SCS contribution to significant cumulative impacts to special-status species and their habitats; riparian, wetland, or other sensitive natural communities; and wildlife movement remain cumulatively considerable post-mitigation.

2022 RTP/SCS projects and projects within the cumulative impact analysis area would be required to comply with ordinances and requirements protecting biological resources as well as the SJMSCP. Potential effects related to the SJMSCP and compliance with the applicable ordinances and requirements would be location-specific, and therefore would not result in a cumulative impact related to conflicts with local ordinances, plans, or the SJMSCP.

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