

2.9 Biological Resources

This chapter outlines the biological resources (plants, wildlife, and wetlands) of the Bay Area, describing various natural communities, associated rare, threatened and endangered (special-status) species, and areas of ecological significance found in the region. The potential effects of the proposed Plan on sensitive species and their habitats, on jurisdictional waters, and with respect to the fragmentation of existing habitats, are identified and evaluated. The information and analysis presented are regional in scope as appropriate for a program-level EIR. The assessment is intended to assist area-wide issue identification as it relates to regional transportation and land use planning and to provide a basis for project-level analysis for projects implemented under the proposed Plan.

Environmental Setting

PHYSICAL SETTING

Natural Communities of the Bay Area

Driven by a complex interaction of soils, topography, and climate, the Bay Area supports numerous distinct natural communities comprised of a diversity of vegetative types that afford habitat for an equally diverse number of plant and wildlife species. Broad habitat categories in the region include grasslands, coastal scrubs and chaparral, woodlands and forests, riparian systems and freshwater aquatic habitat, and wetlands. Urban and otherwise highly-disturbed habitats, such as agricultural fields, also provide natural functions and values as wildlife habitat and are also considered in this EIR,¹ as are the aquatic resources of the San Francisco Bay-Delta estuary. The following discussion summarizes the natural communities located within the Bay Area and references special-status species associated with these communities.²

¹ Natural communities are assemblages of species that reoccur due to responses to similar combinations of environmental conditions and are not dependent on human intervention. For this discussion, native vegetation pertains to those species present in California prior to European colonization, while species such as wild oats and brome grasses, which were introduced with colonization dominate much of the current California landscape, are considered non-native. Vegetation communities that are dependent on human intervention, such as irrigated agriculture or landscaped or urbanized areas, are considered introduced communities.

² Certain plant and wildlife species are protected pursuant to federal and/or State endangered species laws, or are otherwise protected through a variety of mechanisms. These species are collectively referred to as “special-status species.” See Appendix H for a full definition of the term.

Grasslands

Natural Community Summary

Grasslands within the Bay Area include two basic types: non-native annual grasslands and perennial grasslands, including, among others, serpentine bunchgrass and valley needlegrass grasslands.³ Non-native annual grasslands comprise the vast majority of grassland habitat occurring throughout the Bay Area and consist of a sparse to dense cover of primarily introduced annual grasses associated with a variety of broadleaf herbs and, occasionally native or introduced perennial grasses. The most abundant species are typically non-native annual grasses in the genera *Bromus*, *Avena*, *Festuca*, and *Hordeum*. Broadleaf species common to Bay Area grasslands are quite variable, but often include filaree (*Erodium* spp.), yellow-star thistle (*Centaurea solstitialis*), lupines (*Lupinus* spp.), peppergrass (*Lepidium* spp.), Indian paintbrush (*Castilleja* sp.), and California poppy (*Eschscholzia californica*). In addition to considerable site-to-site variation that is largely based on soils and management practices, there is also much year-to-year variation in species composition in response to the timing and amount of precipitation.

Serpentine bunchgrass and valley needlegrass grasslands are both native perennial grasslands with limited distribution in the Bay Area. The first has limited distribution due to its dependency upon serpentine soils, which are scattered throughout the Coast Ranges. Serpentine bunchgrass grasslands are most widespread in Marin County, on the San Mateo peninsula, and in southern Santa Clara County. This open grassland community is dominated by native perennial bunchgrasses of the genera *Bromus*, *Melica*, *Poa*, *Calamagrostis*, and *Festuca*. Native herbaceous associates include California poppy, tarweed (*Hemizonia* spp.), and lotus (*Lotus* spp.). Valley needlegrass grasslands typically occur on seasonally moist, fine-textured soils and often intergrade with oak woodland communities. This formerly extensive grassland type is dominated by clump-forming purple needlegrass (*Stipa pulchra*) and a variety of native and introduced grasses and herbs.

Grassland habitats of all types are utilized by a wide variety of wildlife. Reptile species typically found in grasslands include western fence lizard (*Sceloporus occidentalis*), western terrestrial garter snake (*Thamnophis elegans*), and western rattlesnake (*Crotalus viridis*). Mammals within this habitat include black-tailed jackrabbit (*Lepus californicus*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), and coyote (*Canis latrans*). Typical foraging birds include raptors such as turkey vulture (*Cathartes aura*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), and red-tailed hawk (*Buteo jamaicensis*), as well as a variety of insect and seed eating birds, such as white-crowned sparrows (*Zonotrichia leucophrys*), Brewer's blackbirds (*Euphagus cyanocephalus*), mourning doves (*Zenaidura macroura*), meadowlarks (*Sturnella neglecta*), and lesser goldfinch (*Carduelis psaltria*).

Special-Status Plants

Special-status plant species typically only occur in specialized habitat within grasslands due to their inability to compete with introduced annual grasses and forbs. Many species are now restricted to serpentine soils or thin soils with low nutrient content that introduced species are unable to colonize. These include white-rayed pentachaeta (*Pentachaeta bellidiflora*), San Francisco popcorn flower (*Plagiobothrys diffusus*), most beautiful jewel-flower (*Streptanthus albidus* ssp. *peramoenus*), Tiburon jewel-flower (*Streptanthus*

³ Holland, R.F., *Preliminary Descriptions of the Terrestrial Natural Communities of California*, Department of Fish and Game, Sacramento, CA, 1986.

niger), Tiburon Indian paintbrush (*Castilleja affinis* ssp. *neglecta*), Tamalpais lessingia (*Lessingia micradenia* var. *micradenia*), Contra Costa goldfields (*Lasthenia conjugens*), fountain thistle (*Cirsium fontinale* var. *fontinale*), Santa Cruz tarplant (*Holocarpha macradenia*), Marin western flax (*Hesperolinon congestum*), Brewer's western flax (*Hesperolinon breweri*), Diablo helianthella (*Helianthella castanea*), diamond-petaled California poppy (*Eschscholzia rhombipetala*), caper-fruited tropidocarpum (*Tropidocarpum capparideum*), and recurved larkspur (*Delphinium recurvatum*). Most of these species may also occur in vegetation communities other than grassland with their distribution generally restricted to specific soil types, hydrologic regimes, elevation range, and geographic distribution. See **Table H-1** in Appendix H for a complete list of special-status species with potential to occur in the Planning Area.

Special-Status Wildlife

A variety of special-status wildlife species are associated with grassland habitats of the Bay Area, including callippe silverspot butterfly (*Speyeria callippe callippe*), mission blue butterfly (*Icaricia icarioides missionensis*), bay checkerspot butterfly (*Euphydryas editha bayensis*), California tiger salamander (*Ambystoma californiense*), western spadefoot toad (*Scaphiopus hammondi*), California red-legged frog (*Rana aurora draytonii*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), San Joaquin whipsnake (*Masticophis flagellum ruddocki*), white-tailed kite (*Elanus leucurus*), golden eagle (*Aquila chrysaetos*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), and San Joaquin kit fox (*Vulpes macrotis mutica*).

Coastal Scrub and Chaparral

Natural Community Summary

Coastal scrub and sage scrub plant communities in the Bay Area are characterized on the basis of the dominant species: California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), coyote brush (*Baccharis pilularis*), black sage (*Salvia mellifera*), and purple sage (*Salvia dorrii*).⁴ Coastal scrub communities are particularly dominant in the drier southern slopes and on exposed rocky slopes and bluffs within the Coast Ranges in the Bay Area. Coastal scrub is best considered as a collection or assemblage of different vegetation series, with various intergrades between the above-described plant communities. Coastal scrubs often intergrade with various chaparral types, and occur in a vegetative mosaic with grasslands and woodlands based on soil type, slope, aspect, and available moisture. Generally, these are communities of dense, low shrubs with sparse understory except in scattered grassy openings.

Chaparral is dominated by hard-leaved evergreen shrubs, generally with little or no herbaceous ground cover or overstory trees. Chamise (*Adenostoma fasciculatum*) and a variety of manzanita (*Arctostaphylos* spp.) are the dominant or codominant species throughout Bay Area chaparral communities. Gaps in chaparral support primarily grassland species, ranging from non-native herbaceous annuals and grasses to native perennial bunchgrasses, small ferns, and bulbiferous species.

Coastal scrub and chaparral habitat provide dense vegetative cover for many common small mammals and reptiles including deer mouse (*Peromyscus maniculatus*), California mouse (*Peromyscus californicus*), brush rabbit (*Sylvilagus bachmani*), western fence lizard, common garter snake (*Pituophis catenifer*), common

⁴ Sawyer, J.O. and T. Keeler-Wolf, *A Manual of California Vegetation*. California Native Plant Society. Sacramento, California, 1995.

kingsnake (*Lampropeltis getulus*), and western rattlesnake. Bird species that nest in shrub dominated habitats include California quail (*Callipepla californica*), western scrub-jay (*Apelocoma californica*), bushtit (*Psaltirparus minimus*), California thrasher (*Toxostoma redivivum*), spotted towhee (*Pipilo maculatus*), sage sparrow (*Amphispiza belli*), and Bewick's wren (*Thryomanes bewickii*). Coastal scrub and chaparral provide important foraging habitat for black-tailed deer (*Odocoileus hemionus columbianus*) and other large mammals that prey upon smaller mammals and reptiles in scrub and chaparral habitat including coyote, gray fox (*Urocyon cinereoargenteus*), and raccoon (*Procyon lotor*).

Special-Status Plants

Similar to Bay Area grasslands, distribution of rare plants and wildlife in scrub and chaparral communities often coincides with the distribution of uncommon geological features. In the case of coastal scrub plant communities, an array of plants and wildlife have adapted to serpentine-derived soils in both scrub habitats and grasslands. Conditions such as slope, aspect, precipitation, temperature, degree of exposure, and the presence of suitable soil conditions often control the distribution of rare species.

Special-status serpentine-adapted scrub species include: coyote ceanothus (*Ceanothus ferrisae*), Presidio clarkia (*Clarkia franciscana*), Mt. Diablo bird's beak (*Cordylanthus nidularius*), Marin checker lily (*Fritillaria affinis* var. *tristulis*), fragrant fritillary (*Fritillaria liliacea*), Crystal Springs lessingia (*Lessingia arachnoidea*), smooth lessingia (*Lessingia micradenia* var. *glabrata*), Marin checkerbloom (*Sidalcea hickmanii* var. *viridis*), San Francisco campion (*Silene verecunda* var. *verecunda*), and Tamalpais jewel-flower (*Streptanthus batrachopus*). Plants not specifically adapted to serpentine habitats include: pallid manzanita (*Arctostaphylos pallida*), San Francisco Bay spineflower (*Chorizanthe cuspidata* var. *cuspidata*), woolly-headed spineflower (*Chorizanthe cuspidata* var. *villosa*), yellow larkspur (*Delphinium luteum*), supple daisy (*Erigeron supplex*), Mt. Diablo buckwheat (*Eriogonum truncatum*), coast wallflower (*Erysimum ammobilum*), robust monardella (*Monardella villosa* var. *globosa*), Marin County navarretia (*Navarretia rosulata*), north coast phacelia (*Phacelia insularis* var. *continentis*), and Metcalf Canyon jewel flower (*Streptanthus albidus* ssp. *albidus*). In addition to these species there are twelve species of manzanita considered to be of special-status occurring in Bay Area chaparral habitats.

Special-Status Wildlife

There are relatively few special-status wildlife species within coastal scrub or chaparral habitats. Some of these are highly specialized invertebrates whose life histories are intimately dependent upon serpentine-associated species. These include callippe silverspot butterfly (*Speyeria callippe callippe*) and two non-serpentine-dependent species, San Bruno elfin butterfly (*Incisalia mossii bayensis*) and mission blue butterfly (*Icaricia icarioides missionensis*).

In Contra Costa, Alameda, and northeastern Santa Clara counties, chaparral and scrub habitats and adjacent grasslands support the federal and State threatened Alameda whipsnake (*Masticophis lateralis eryxanthus*). Other special-status wildlife occurring in Bay Area chaparral and scrub communities include silvery legless lizard (*Aniella pulchra pulchra*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), and coast horned lizard (*Phrynosoma blainvillii*). See **Table H-1** in Appendix H for a complete list of special-status species with potential to occur in the planning area.

Woodlands and Forest

Natural Community Summary

The diverse topography, soils, and climate of the Bay Area region support a wide range of woodland and forest types, from the oak savannas of the dry interior to the redwood forests of the coastal hills and mountains.

Bay Area woodlands are either dominated by a single oak species, including coast live oak (*Quercus agrifolia*), blue oak (*Q. douglasii*), California black oak (*Quercus kelloggii*), or valley oak (*Quercus lobata*), or are classified as mixed hardwood woodlands comprised of a variety of tree species including one or more oaks, and most often, big-leaf maple (*Acer macrophyllum*), tan-oak (*Notholithocarpus densiflorus*), California bay (*Umbellularia californica*), madrone (*Arbutus menziesii*), and California buckeye (*Aesculus californica*). Woodland understory vegetation is dependent on canopy cover, which can range from oak savanna with widely spaced trees and annual grasslands as understory, to a denser but still relatively open mixed woodland canopy often seen on north and east facing slopes or in canyons, which supports both shrubs and herbaceous vegetation. Here the shrub layer of the understory often contains toyon (*Heteromeles arbutifolia*), snowberry (*Symphoricarpos albus*), poison oak (*Toxicodendron diversilobum*), gooseberry (*Ribes* spp.), ocean spray (*Holodiscus discolor*), and California blackberry (*Rubus ursinus*). The herb layer can consist of non-native grasses such as soft chess (*Bromus mollis*) and ripgut brome (*Bromus diandrus*) and perennial native bunchgrasses such as blue wildrye (*Elymus glaucus*), intermixed with native and non-native wildflowers including mission bells (*Fritillaria affinis*), chickweed (*Stellaria media*), bedstraw (*Galium aparine*), mugwort (*Artemisia douglasiana*), fiesta flower (*Pholistoma auritum*), and miner's lettuce (*Claytonia perfoliata*). Where canopy cover is most dense, understory is sparse or absent and is typically made up of herbaceous species.

Bay Area oak and mixed woodlands provide water, foraging, nesting, cover, and migratory and dispersal corridors for a variety of wildlife species. Insect eaters such as ash-throated flycatcher (*Myiarchus cinerascens*), plain titmouse (*Parus inornatus*), and dark-eyed junco (*Junco hyemalis*) are woodland foliage gleaners. Bark gleaner species, such as scrub jay, Steller's jay (*Cyanocitta stelleri*), and acorn woodpecker (*Melanerpes formicivorus*), feed on insects as well as acorns. California quail and California towhee (*Pipilo crissalis*) are ground foragers in this habitat. Cooper's hawk and sharp-shinned hawk are often associated with woodland habitat, where they hunt small birds. Mammals such as gray squirrel (*Sciurus griseus*) forage and nest in the canopy of the trees, while long-tailed weasels (*Mustela frenata*) hunt on the ground for shrews (*Sorex* sp.) and California voles (*Microtus californicus*). Larger mammals such as black-tailed deer utilize the oak understory for shelter and food from acorns, berries, and foliage. Amphibians such as Pacific slender salamander (*Batrachoseps attenuatus*), arboreal salamander (*Aneides lugubris*), and ensatina (*Ensatina eschscholtzii*) live under the cover of fallen leaf litter.

Bay Area forest types are generally found at higher elevations of the Coast Ranges in areas with adequate moisture and are either dominated by a mix of hardwood species on drier slopes, as noted above for mixed woodlands, sometimes with one or more coniferous tree species, including coast redwood (*Sequoia sempervirens*) and Douglas fir (*Pseudotsuga menziesii*) or are dominated by conifers, with tan-oak and big-leaf maple as common associates. Typical understory species include wood rose (*Rosa gymnocarpa*), coastal wood fern (*Dryopteris arguta*), ocean spray, bracken fern (*Pteridium aquilinum*), yerba buena (*Clinopodium douglasii*), hazelnut (*Corylus cornuta*), creeping snowberry (*Symphoricarpos mollis*), and poison oak. Blue blossom (*Ceanothus thyrsiflorus*) and toyon are common in sunnier openings.

Redwood forest typically occupies coastal areas where fog drip and precipitation create moist and humid conditions. Redwood and Douglas fir dominate the canopy, their fallen needles forming a thick layer of duff. Several hardwood tree species are also associated with redwood forest including tan oak, California bay, big-leaf maple, madrone, and several oak species. The redwood forest understory is often sparse where canopy is dense and slopes are steep, but contains a diversity of species generally not found in adjacent plant communities. These include huckleberry (*Vaccinium ovatum*), hazelnut, thimbleberry (*Rubus parviflorus*), sword fern (*Polystichum munitum*), and redwood sorrel (*Oxalis oregana*). Redwood violet (*Viola sempervirens*), western trillium (*Trillium ovatum*), red clintonia (*Clintonia andrewsiana*), and several fern species often occur on moister slopes along ravines.

Mixed hardwood forest wildlife is similar to that described above for woodland habitats. Redwood and Douglas fir forest wildlife is generally lower in diversity than other forest types, in part because the canopy density of second-growth forest precludes the establishment of many understory plants. Moist conditions in the understory support amphibians, such as yellow-eyed salamander (*Ensatina eschscholtzii xanthopicta*), California slender salamander (*Batrachoseps attenuatus*), and giant salamander (*Dicamptodon ensatus*), as well as coastal rubber boa (*Charina bottae*). Birds found in the redwood forest include brown creeper (*Certhia americana*), varied thrush (*Ixoreus naevius*), chestnut-backed chickadee (*Poecile rufescens*), and Steller's jay.

Special-Status Plants

Special-status plant species associated with woodland habitats are often also found in adjacent chaparral and scrub habitats. In the Bay Area, these species include: rayless ragwort (*Senecio aphanactis*), hooked popcorn-flower (*Plagiobothrys uncinatus*), Mt. Diablo phacelia (*Phacelia phacelioides*), Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*), showy madia (*Madia radiata*), Mt. Hamilton lomatium (*Lomatium observatorium*), Jepson's linanthus (*Linanthus jepsonii*), coast lily (*Lilium maritimum*), Contra Costa goldfields (*Lasthenia conjugens*), drymaria-like western flax (*Hesperolinon drymarioides*), Diablo helianthella (*Helianthella castanea*), talus fritillary (*Fritillaria falcata*), Hillsborough chocolate lily (*Fritillaria biflora* var. *ineziana*), San Mateo woolly sunflower (*Eriophyllum latilobum*), Brandegee's eriastrum (*Eriastrum brandegeae*), western leatherwood (*Dirca occidentalis*), Hospital Canyon larkspur (*Delphinium californicum* ssp. *interius*), robust spineflower (*Chorizanthe robusta* var. *robusta*), big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*), Marin manzanita (*Arctostaphylos virgata*), Mt. Diablo fairy lantern (*Calochortus pulchellus*), large-flowered fiddleneck (*Amsinckia grandiflora*), and Sharsmith's onion (*Allium sharsmithae*).

Special-Status Wildlife

Special-status woodland wildlife species include those described for grassland and riparian habitats in addition to purple martin (*Progne subis*), and species such as tree swallow (*Tachycineta bicolor*), Bullock's oriole (*Icterus bullockii*), and many other nesting birds, which are protected under the Migratory Bird Treaty Act and the California Fish and Game Code (see the Regulatory Setting later in this section). Bay Area forests in San Mateo, Marin, Sonoma and Napa Counties support the federally and State listed marbled murrelet (*Brachyramphus marmoratus*) and the federally listed and California species of special concern Northern spotted owl (*Strix occidentalis caurina*).

Riparian

Natural Community Summary

Riparian plant communities are tree- or shrub-dominated communities that occur along streams and rivers. Riparian forests, woodlands, and scrub are often separated from one another depending on the amount and density of tree canopy versus shrub canopy. Forests support a closed or nearly closed canopy of trees with variable understory, while woodlands have an open canopy of trees with an understory that is primarily grassy or herbaceous. Shrubs, rather than trees, dominate riparian scrub habitat, which is common both in the coastal mountains of San Mateo, Marin, and Sonoma counties, and in the more arid regions of the east and south Bay Area. The composition and density of riparian vegetation is very much dependent upon the duration of flowing or near-surface water, the amplitude and periodicity of flow (brief, high-velocity flows versus more sustained flows), and the texture of the substrate (cobble, gravel, sand, silt, clay). Different reaches of a stream may support different types of riparian vegetation. The major rivers, streams, and other surface waters that support riparian vegetation in the Bay Area are presented in **Figure 2.8-1** of *Chapter 2.8: Water Resources*. The most well developed riparian vegetation occurs in relatively undisturbed reaches of the largest Bay Area streams, including Sonoma Creek, the Russian River, the Napa River, Putah Creek, Alameda Creek, Coyote Creek, the Guadalupe River, San Francisquito Creek, Llagas Creek, and others listed in *Chapter 2.8*.

Typical dominant species in the forests, woodlands, and scrubs along Bay Area rivers and streams are Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), various species of willow (*Salix* spp.), coast live oak, valley oak, and white alder (*Alnus rhombifolia*). Where they are not modified by urbanization, lower stream reaches typically intergrade into broad freshwater to brackish emergent wetlands dominated by cattails and bulrush (*Scirpus* spp.). Where the riparian habitat has been degraded, either through alteration of the hydrology or direct disturbance to vegetation, including along many urban stream reaches, the non-native blue gum eucalyptus (*Eucalyptus globulus*), fennel (*Foeniculum vulgare*), poison hemlock (*Conium maculatum*), perennial pepperweed (*Lepidium latifolium*), giant reed (*Arundo donax*), or French broom (*Genista monspessulana*) are often dominant, as seen in portions of most large Bay Area streams. Upper stream reaches are also often lacking riparian cover due to long-standing grazing, agricultural practices, or channelization due to urbanization. Most remaining riparian vegetation is afforded regulatory protection by the California Department of Fish and Wildlife (CDFW). A discussion of specific regulations is provided in the Regulatory Setting below.

Within the urbanized portions of the Bay Area, riparian habitats, even though often degraded, support the densest and most diverse wildlife communities available. The diversity of plant species, multilayered vegetation, and perennial water provides a variety of foods and microhabitat conditions for wildlife. Mature willows, oaks, sycamores, and other riparian trees provide high-quality nesting habitat for the region's avifauna.

Special-Status Plants

Special-status riparian plants in the Bay Area include western leatherwood (*Dirca occidentalis*), Mason's lilaeopsis (*Lilaeopsis masonii*), Sonoma alopecurus (*Alopecurus aequalis* var. *sonomensis*), and Davidson's bush mallow (*Malacothamnus davidsonii*). See **Table H-1** in Appendix H for a complete list of special-status species with potential to occur in the planning area.

Special-Status Wildlife

Special-status avifauna that nest in Bay Area riparian corridors include yellow warbler (*Dendroica petechia*), yellow-breasted chat (*Icteria virens*), and accipiters such as Cooper's hawk (*Accipiter cooperii*), and sharp-shinned hawk (*A. striatus*). Habitat destruction, habitat fragmentation, and nest parasitism by the brown-headed cowbird (*Molothrus ater*) are suspected causes of the two former species' decline. The western red bat (*Lasiurus blossevillii*), a California species of special concern, often roosts in tree foliage in riparian corridors.

The federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is dependent upon the elderberry bush (*Sambucus nigra* ssp. *caerulea*) throughout its entire life history. Elderberry bushes occur statewide and commonly occur in riparian corridors, but may also be present in isolated stands or in woodlands outside riparian habitats. The range of the valley elderberry longhorn beetle includes portions of Solano County and eastern Contra Costa and Alameda counties.

Aquatic Habitat

Natural Community Summary

Rivers and Streams

Rivers and streams of the Bay Area have several common ecological attributes:

- As a result of urbanization, many smaller streams on the San Francisco Peninsula, south San Francisco Bay, East Bay, and in portions of the North Bay have been channelized or otherwise developed for flood control or agriculture.
- Most of these waterways are small, seasonal streams, and in the case of urbanized streams, many maintain perennial flows from urban runoff sources during late summer months.
- There are a handful of native streams and rivers in each county that account for the majority of freshwater flows to San Francisco Bay and provide the greatest opportunities for special-status plants and wildlife species.

The Bay Area is drained by many small to mid-sized rivers and creeks spread throughout the region. The Sacramento-San Joaquin River Delta contributes the majority of the freshwater input to San Francisco Bay; however, this discussion concentrates on other tributaries in the region that provide important riverine and aquatic habitat. In the North Bay, Petaluma River, Sonoma Creek, and Napa River account for much of the freshwater flows into San Pablo Bay. Relatively smaller, though biologically important contributions are made by Gallinas Creek, Novato Creek, Corte Madera Creek, and Miller Creek in Marin County. In general, there are few impediments or obstructions in these creeks, and their watersheds. These tributaries are less channelized, offering habitat for listed native salmonids including coho salmon (*Oncorhynchus kisutch*) and steelhead (*Oncorhynchus mykiss irideus*). The Russian River in Sonoma County also provides good habitat for salmonids. Solano County watersheds are also relatively undeveloped, including the Putah Creek watershed. Lake Berryessa limits the availability of headwater habitats in Putah Creek to anadromous fish, but this creek still provides valuable aquatic resources.

Stream resources in the East Bay, South Bay, and San Francisco Peninsula have been degraded by urban development, particularly adjacent to and within stream courses. As a result of these changes, only a handful of major streams in these areas support native fisheries and special-status fisheries. These include

Alameda Creek, which drains the largely undeveloped watershed of the Sunol Valley and Livermore-Amador Valley, Coyote Creek, Guadalupe River, and Los Gatos Creek in the South Bay, and San Francisquito Creek, Permanente Creek, and San Mateo Creek on the San Francisco Peninsula. In Gilroy and Morgan Hill, Llagas Creek transports flows southward to the Pajaro River. Major dams or other fish impediments that prevent fish from reaching the upper watersheds are present in all of these streams, with the exception of San Francisquito Creek.

Habitat for common fish species occurs primarily in the streams listed in *Chapter 2.8: Water Resources* though other smaller streams in the Bay Area can and do support them.

Lacustrine

Lacustrine habitats are permanent water bodies that do not support emergent vegetation (except around their margins) and are not subject to tidal exchange; they include natural and man-made lakes and ponds, oxbows, flooded gravel pits, and flooded islands. Vegetation can include submerged plants such as pondweeds (*Potamogeton* spp.) and algae in deepwater habitat, while near shore habitat may support smartweeds (*Polygonum* spp.), cattails (*Typha* spp.), spikerush (*Eleocharis* spp.), and other freshwater wetland vegetation. Lakes and ponds may support willow scrub along the shoreline. Bay Area reservoirs are typically stocked with game fish, including rainbow trout (*Oncorhynchus mykiss*), striped bass (*Morone saxatilis*), largemouth bass (*Micropterus salmoides*), sunfish (*Lepomis* sp.), brown bullhead catfish (*Ameiurus nebulosus*), and channel catfish (*Ictalurus punctatus*), among others. Resident waterfowl using lacustrine habitat include a variety of ducks such as mallard (*Anas platyrhynchos*) and American coot (*Fulica americana*), Canada geese (*Branta canadensis*), and wading birds, such as great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), and great egret (*Ardea alba*).

Special-Status Plants

With the exception of several species, such as eel-grass pondweed (*Potamogeton zosteriformis*) there are few special-status plants occurring in freshwater aquatic habitat of the region.

Special-Status Wildlife

As noted above, special-status fish occur in a limited number of rivers and streams in the Bay Area. Species include the federally listed tidewater goby (*Eucyclogobius newberryi*), coho salmon—central California Evolutionarily Significant Unit (ESU), steelhead—northern California Distinct Population Segment (DPS), central California coast DPS, and south/central California coast DPS, chinook salmon—California coast ESU (*Oncorhynchus tshawytscha*), and Sacramento splittail (*Pogonichthys macrolepidotus*). Several species of limited distribution and rarity occur exclusively in the lower reaches of drainages near and within the Delta, such as longfin smelt (*Spirinchus thaleichthys*) and the State- and federally listed threatened Delta smelt (*Hypomesus transpacificus*).

Suitable steelhead and coho spawning habitat is found in streams and rivers where there is less development. Several small, cool-water drainages in Marin County support coho salmon, which apparently do not successfully reproduce south of the Golden Gate.⁵ Steelhead require higher gradient,

⁵ Federal Register, *Designated Critical Habitat for Central California Coast and Southern Oregon/Northern California Coasts Coho Salmon*. Federal Register, Vol. 64, No. 86, May 5, 1999, p. 24049, 1999.

upper reaches of streams, with access to the ocean during emigration and spawning, and cool year-round water temperatures for the juveniles' rearing habitat. Steelhead populations are documented from San Francisquito Creek, Green Valley Creek, Suisun Creek, San Pablo Creek, Coyote Creek, Steven's Creek, Guadalupe River, Corte Madera, Miller Creek, Novato Creek, Sonoma Creek, Napa River, Huichica Creek, Petaluma River, San Lorenzo Creek, San Leandro Creek, and Alameda Creek, and they are known to sporadically migrate into and occasionally breed in smaller streams throughout the Bay Area.

The federally listed endangered California freshwater shrimp (*Syncaris pacifica*) occurs in low gradient, structurally diverse perennial streams in the northern Bay Area.⁶ Of the 17 streams that support this species, those in the Bay Area include Sonoma Creek, the Napa River, and Huichica Creek, which drain to San Pablo Bay; and Laguna de Santa Rosa (Santa Rosa Creek) and its tributaries, which drain to the Russian River. The 1998 Recovery Plan for this species seeks the long-term protection of aquatic and riparian habitat as criteria for species delisting.

Bridges of various rivers and streams provide nesting opportunities for birds protected under the federal Migratory Bird Treaty Act and the California Fish and Game Code (see the Regulatory Setting later in this section), including barn swallows (*Hirundo rustica*) and cliff swallows (*Petrochelidon pyrrhonota*), and the purple martin (*Progne subis*), a California species of special concern. These species build cup- and gourd-shaped nests, respectively, using mud as their primary construction material. Bat colonies may also roost under bridges in the Bay Area, including *Myotis* species, Mexican free-tailed bats (*Tadarida brasiliensis*), and Townsend's big-eared bats. Breeding and non-breeding bat roosts are protected by California Fish and Game Code Section 4150.

The federally threatened California red-legged frog still breeds in the upper reaches of most Bay Area riparian corridors and in the lower reaches within select drainage systems and ponds. The greatest concentrations of this species in the Bay Area occur near Sears Point, several drainages and channels that traverse I-580 in the Livermore-Amador Valley, and in drainages on the San Francisco Peninsula, though potential and occupied habitat occur elsewhere throughout the region.

The federal- and State-listed endangered San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) occurs on the San Francisco Peninsula, where riparian habitats meet open water and freshwater marshlands. Habitats within the Peninsula corridor occur in marshlands near San Francisco International Airport and in tributary streams to the Crystal Springs Reservoir (near Interstate 280). Some riparian habitats in the Bay Area also support small populations of western pond turtle (*Actinemys marmorata*).

Special-status birds that use lacustrine habitat in the Bay Area include the State endangered and fully protected bald eagle (*Haliaeetus leucocephalus*) and osprey (*Pandion halietus*), protected under Section 3503.5 of the California Fish and Game Code (see the Regulatory Setting later in this section for further details). Migratory waterfowl species that forage, overwinter, rear their brood, or otherwise rely on lacustrine habitat in the Bay Area at some time during the year include the wood duck (*Aix sponsa*), gadwall (*Anas strepera*), American wigeon (*A. americana*), northern pintail (*A. acuta*), green-winged teal (*A. carolinensis*), canvasback (*Aythya valisineria*), bufflehead (*Bucephala albeola*), common goldeneye (*B. clangula*), hooded

⁶ USFWS, *California Freshwater Shrimp (Syncaris pacifica) Recovery Plan*. U.S. Fish and Wildlife Service, Portland, Oregon, 94 pp., 1998.

merganser (*Lophodytes cucullatus*), common merganser (*Mergus merganser americanus*), and ruddy duck (*Oxyura jamaicensis*). See **Table H-1** in Appendix H for a complete list of special-status species with potential to occur in the Planning Area.

San Francisco Bay Aquatic Resources

Natural Community Summary

The San Francisco Bay and Delta make up the Pacific Coast's largest estuary, encompassing roughly 1,600 square miles of waterways and draining over 40 percent of California's fresh water. The Sacramento and San Joaquin Rivers flow from Northern California's inland valleys into the Delta's winding system of islands, sloughs, canals, and channels, before emptying into San Francisco Bay and the Pacific Ocean. Major transportation corridors bridge the open waters of San Francisco Bay, and many others are located in close proximity to the Bay.

The marine environment varies widely between the six transportation corridors that cross the open waters of the San Francisco Bay. Most of the transbay corridors consist of open water habitat; that is, habitat below the low-tide line (also known as subtidal habitat).

Eelgrass (*Zostera marina*) may occur near the footings of bridges in the transbay corridors and is considered a sensitive habitat by CDFW. Eelgrass is an important habitat for many organisms and may influence benthic community structure by stabilizing sediments, providing forage and detritus food sources, and creating a refuge and nursery for small organisms. Eelgrass beds also provide an important attachment substrate for Pacific herring eggs and thus support an important Bay Area commercial fishery.⁷

More than 100 species of fish are described from the San Francisco Bay system.⁸ The majority of these are native species that live year-round in San Francisco Bay, though a few, such as striped bass (*Morone saxatilis*), have been introduced. Anadromous fish also use San Francisco Bay seasonally during their migrations to and from spawning grounds throughout the Bay Area and in California's Central Valley. The species composition within the Bay varies by season and regularly changing physical conditions created by the freshwater flow from the San Joaquin and Sacramento Rivers and other tributaries into San Francisco Bay. Native fish commonly found within the Bay include such diverse species as starry flounder (*Platichthys stellatus*), California halibut (*Paralichthys californicus*), leopard shark (*Triakis semifasciata*), tule perch (*Hysterocarpus traski*), Pacific herring (*Clupea harengus pallasii*), northern anchovy (*Engraulis mordax*), and sturgeons (*Acipenser* spp.). Non-native fish species in the Bay include largemouth bass (*Micropterus salmoides*), threadfin shad (*Dorosoma petenense*), and yellowfin goby (*Acanthogobius flavimanus*).

The benthic invertebrate community of the Bay is composed of various annelids, mysid shrimp, copepods, amphipods, shrimp, crabs, and other macroinvertebrates. All of these organisms provide important food sources for estuary fish and bird species.

⁷ USFWS, *The Ecology of Eelgrass Meadows in the Pacific Northwest: A Community Profile*. FWS/OBS-84/24, 85 pp., 1994.

⁸ U.S. Fish and Wildlife Service (USFWS), *The Ecology of San Francisco Bay Tidal Marshes: A Community Profile*. FWS/OBS-83/23. October. 1983.

Riprap occurs along many areas of the bay shore and can provide some, but not all, of the habitat values and functions that naturally occurring rocky shore habitat would provide, including a substrate for marine plant and sessile intertidal organisms such as mussels (*Mytilus* sp.) and barnacles. Rocky shore habitat also provides cover for invertebrates such as rock crabs (*Cancer antennarius* and *C. productus*) and for fish such as plainfin midshipmen (*Porichthys notatus*), which are known to seek cover and to spawn under concrete slabs. The marine plants, clams, mussels, barnacles, annelids, and crustaceans inhabiting rocky shore habitat are food sources for larger marine invertebrates, fishes, birds, and marine mammals.

Special-Status Wildlife

The two marine mammals most commonly found in San Francisco Bay are the California sea lion (*Zalophus californianus*) and the harbor seal (*Phoca vitulina*). Both species forage in the open waters of the Bay and bask on exposed rocks, piers, or wharves throughout the Bay. The Marine Mammal Protection Act protects both species.

The National Marine Fisheries Service (NMFS) recognizes several threatened and endangered species that occur in San Francisco Bay. These include the Steller sea-lion (*Eumetopias jubatus*), loggerhead sea turtle (*Caretta caretta*), leatherback turtle (*Dermochelys coriacea*), olive ridley sea turtle (*Lepidochelys olivacea*), and several fish species, including coho salmon, steelhead, delta smelt, and Sacramento splittail. The goby, smelt, and splittail are resident species; the salmonids, however, are only expected to use open water habitats of the Bay seasonally or infrequently. The brown pelican (*Pelecanus occidentalis*), although recently delisted, is still a fully protected species under the California Fish and Game Code.

Wetlands

Natural Community Summary

Coastal Marsh and Estuaries

Coastal salt marshes around San Francisco Bay (including historically diked tidal marshes) are dominated by perennial pickleweed (*Salicornia pacifica*), alkali heath (*Frankenia salina*), spearscale (*Atriplex triangularis*), marsh gumplant (*Grindelia stricta* var. *angustifolia*), saltgrass (*Distichlis spicata*), and other salt-tolerant plants that are also tolerant of regular inundation or soil saturation. Tidal salt marshes are typically bisected by a network of sloughs and small channels that facilitate tidal reach into the interior of the marsh. These channels are subject to more frequent and deeper flooding and therefore support different plant species, such as smooth cordgrass (*Spartina foliosa*) and alkali bulrush (*Scirpus maritimus*). As tidal effects and salinity decrease coastal salt marsh intergrades with brackish marsh, especially in areas where larger rivers meet the Bay.

In more extensive slough systems, such as those in the North Bay and South Bay, the transition zones between sloughs and creeks are increasingly dominated by brackish and freshwater-adapted species such as California bulrush (*Scirpus californicus*) and cattails (*Typha* sp.). Extensive coastal marsh communities are present in the lower reaches of Sonoma Creek and the Napa River, and in patches along U.S. Highway 101 in Palo Alto and Mountain View.

There are relatively few terrestrial animals in the salt marsh, however, the non-native red fox (*Vulpes vulpes*) and house mouse (*Mus musculus*), as well as the native California vole (*Microtus californicus*) and black-tailed jackrabbit (*Lepus californicus*) can be found in marshes around the Bay. Resident bird species include marsh wren (*Cistothorus palustris*) and raptors typical of Bay Area salt marsh habitats include northern

harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*). Migratory shorebirds that forage in the mudflats during low tide include black-necked stilt (*Himantopus mexicanus*), American avocet (*Recurvirostra americana*), long-billed curlew (*Numenius americanus*), marbled godwit (*Limosa fedoa*), and several sandpipers. During high tide, a few of the ducks that may be found in salt marsh environments include northern shoveler, American wigeon, northern pintail, gadwall (*Anas strepera*), and canvasback.

Freshwater Wetlands

Freshwater emergent wetlands, or marshes, occur along slow moving streams and rivers, along lakeshores, and in stockponds and other artificial waterbodies and are dominated by perennial vegetation such as cattails, bulrush, or spikerush. Freshwater marsh habitat provides nesting and foraging opportunities, as well as cover, for a number of bird species, amphibians, and small mammals. Species commonly associated with freshwater emergent wetlands include great blue heron, great egret, black phoebe (*Sayornis nigricans*), red-winged blackbird (*Agelaius phoeniceus*), raccoon, Sierran treefrog (*Pseudacris sierra*), and California vole. Larger mammals may use these wetlands for water or forage.

Freshwater seeps and wet meadows occur on permanently moist soil and are dominated by perennial grasses, sedges (*Carex* spp.), and rushes (*Juncus* spp.). In the Bay Area, these wetlands typically occur on grazed hillsides or at the base of grassland slopes. Seasonal wetland habitat consists of vernal pools, alkali marshes, alkali sink scrub habitats, and other seasonal wetlands with intermittent hydrologic conditions. Seasonal wetlands are dominated by herbaceous vegetation and pond surface water or maintain saturated soils at the ground surface for enough of the year to support facultative or obligate wetland plant species.

Vernal pools are seasonal freshwater pools that form in depressions over an impermeable soil layer (claypan or hardpan) or parent material. The vegetation in vernal pools consists primarily of annuals with low cover and a short life cycle. Vernal pools support a distinctive flora with a high number of endemic and rare species. Ephemeral seasonal wetlands habitat that supports vernal pool species occurs in the eastern Livermore-Amador Valley, Solano County, the city of Fremont, the Brentwood area, near the Napa County Airport, and the Santa Rosa Plain. In addition, alkali meadows and seeps in Contra Costa County support a similar assemblage of vernal pool endemic species.

Special-Status Plants

Special-status plants found in Bay Area salt marshes include Point Reyes bird's beak (*Chloropyron maritimum* ssp. *palustre*), soft bird's beak (*Chloropyron molle* ssp. *molle*), Humboldt bay owl's clover (*Castiellja ambigua* ssp. *humboldtiensis*), and California seablite (*Suaeda californica*). Rare plants in brackish marshes include Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*), and Suisun marsh aster.

Special-status plants of seasonal wetlands and vernal pools include Solano grass (*Tuctoria mucronata*), vernal pool smallscale (*Atriplex persistens*), San Joaquin saltbush (*Atriplex joaquiniana*), Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), Contra Costa goldfields (*Lasthenia conjugens*), and alkali milk vetch (*Astragalus tener* var. *tener*). Several highly endangered species occur in vernal pools of the Santa Rosa Plain, including Burke's goldfields (*Lasthenia burkei*), Sebastopol meadowfoam (*Limnanthes vicularis*), and Sonoma sunshine (*Blennosperma bakeri*), which are all listed as federal and State endangered species.

Special-Status Wildlife

Rare and endangered wildlife species that occur in tidal marshes of the Bay Area include California clapper rail (*Rallus longirostris obsoletus*), California black rail (*Laterallus jamaicensis coturniculus*), western snowy plover (*Charadrius alexandrinus nivosus*), Alameda song sparrow (*Melospiza melodia pusillula*), San Pablo song sparrow (*Melospiza melodia samuelis*), salt marsh common yellowthroat (*Geothlypis trichas sinuosa*), salt marsh harvest mouse (*Reithrodontomys raviventris*), San Pablo vole (*Microtus californicus sanpabloensis*), Suisun shrew (*Sorex ornatus sinuosus*), and salt marsh wandering shrew (*Sorex vagrans*).

Freshwater emergent wetlands and adjacent grassland habitats in Solano County support populations of the federal and State threatened giant garter snake (*Thamnophis gigas*). Freshwater emergent wetlands throughout the region support California red-legged frog and vernal pools and other seasonal wetlands of sufficient depth and duration of inundation support California tiger salamander in the Santa Rosa Plain, East Bay, and elsewhere. Special-status invertebrates found in seasonal wetlands and vernal pools, primarily in the East Bay and Solano County, include longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp (*Branchinecta lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardii*).

Jurisdictional Waters

As described in detail in the Regulatory Setting below, activities such as discharge of fill or alteration that would affect most streams, rivers, and wetlands in the Bay Area are regulated by the U.S. Army Corps of Engineers (Corps), the San Francisco Regional Water Quality Control Board (SFRWQCB), and CDFW. The Bay Conservation and Development Commission (BCDC) regulates activities in and adjacent to San Francisco Bay and the California Coastal Commission regulates activities along the California coast.

Jurisdictional wetlands in the Bay Area include tidal, brackish, and freshwater marshes, seasonal wetlands, seeps, and vernal pools. Rivers and streams are considered “other waters” and are regulated as such by the wetland permitting agencies. Compliance with regulations concerning wetlands and other waters would be required on a project-level basis under the proposed Plan.

Urban/Agricultural/Ruderal

Natural Community Summary

Urban

Urban development and landscaped areas support few biological resources and provide limited wildlife habitat but do provide foraging or nesting habitat for generalist,⁹ and sometimes non-native, wildlife species that can tolerate human presence and activities. These include birds and small mammals such as western scrub jay, California towhee, house finch (*Carpodacus mexicanus*), English sparrow (*Passer domesticus*) raccoon, opossum (*Didelphis virginica*), and house mouse. Although these areas often do not provide suitable habitat for many specialized species of native wildlife due to higher human activity levels and the resources available, they may support a greater diversity of native wildlife species under appropriate conditions.

⁹ “Generalist” species can occupy and thrive in a variety of natural or developed areas.

Agricultural

The Bay Area supports agricultural lands farmed for feed and grain, produce, orchards, vineyards and other crops, such as commercial nurseries. Agricultural lands do not typically provide habitat for a wide variety of species but when situated in proximity to undeveloped open space, rivers, and marshes may attract many of the wildlife species associated with these habitats to forage in croplands. Common species occurring in agricultural lands include small mammals such as voles and mice, and birds such as mourning doves, European starlings (*Sturnus vulgaris*), and several blackbird species. Croplands are also important foraging habitats for numerous raptors including the red-tailed hawk, northern harrier, and white-tailed kite.

Ruderal

Ruderal (disturbed and weedy) habitats are most prevalent in areas subject to frequent and often severe vegetation and soil disturbances including overgrazed rangeland, disked or fallow fields, construction sites, levees, vehicle parking lots, and railroad or other public utility rights of way. This habitat type occurs throughout the region and is replacing annual grasslands where pressures are particularly high. Where vegetated, these sites are dominated by opportunistic, weedy non-native plant species such as perennial pepperweed, black mustard (*Brassica nigra*), mayweed (*Anthemis cotula*), and bristly ox-tongue (*Picris echioides*), wild radish (*Raphanus sativus*), yellow star thistle, Italian thistle (*Carduus pycnocephalus*), fennel, poison hemlock, pampas grass (*Cordateria jubata*), and bristly ox-tongue (*Helminthotheca echioides*).

Ruderal habitats provide limited foraging or nesting habitat for disturbance tolerant and non-native birds and small mammals such as English sparrow, European starling, house finch, mourning dove, golden-crowned sparrow (*Zonotrichia atricapilla*), Norway rat (*Rattus norvegicus*), house mouse (*Mus musculus*), and California ground squirrel (*Spermophilus beechyi*) and other rodents. Killdeer (*Charadrius vociferous*) commonly forage and nest on gravel or bare ground, including open dirt and fractured pavement. Ruderal habitat can also provide refuge for reptiles such as western fence lizard, alligator lizard (*Elgaria multicarinata*), and gopher snake.

Special-Status Plants

Special-status plants are not expected to occur in urban, agricultural, or ruderal environments due to the degree of disturbance to soils and vegetation, as well as habitat fragmentation, found in these areas.

Special-Status Wildlife

In general, most special-status wildlife species are not expected to occur in urban or other highly disturbed areas. The exception to this would be bats and birds. For example, bats could use underutilized or abandoned buildings in urban areas for roosting and raptors such as Cooper's hawk and red-tailed hawk are known to nest with regularity in urban areas as well. Bats and raptors are also known to forage in agricultural fields.

Special-Status Species

As noted previously, the high diversity of vegetation and wildlife found in the Bay Area is a result of soils, topographic, and micro-climate diversity that combine to promote relatively high levels of endemism.¹⁰ This, in combination with the rapid pace of development in the region, has resulted in a relatively high degree of endangerment for local flora and fauna. Numerous species known to occur in the region are protected pursuant to federal and/or State endangered species laws, or are otherwise protected. These species are collectively referred to as “special-status species.”

Generalized habitat for special-status plant and wildlife species listed above in the *Natural Community Summary* section and their listing status is provided in **Table H-1** in Appendix H. Occurrences of special-status species throughout the Bay Area region as documented in the California Natural Diversity Database (CNDDB) are shown in **Figures 2.9-1** through **2.9-4**.¹¹

Critical Habitat

The U.S. Fish and Wildlife Service (USFWS) and NMFS designate critical habitat for certain species that they have listed as threatened or endangered. “Critical habitat” is defined in Section 3(5)(A) of the Federal Endangered Species Act as those lands (or waters) within a listed species’ current range that contain the physical or biological features that are considered essential to the species’ conservation, as well as areas outside the species’ current range that are determined to be essential to its conservation. Critical habitat has been designated for 24 species in the Bay Area. Of these, critical habitat units for California red-legged frog, California tiger salamander, Central Coast steelhead, Alameda whipsnake, and marbled murrelet are the most widespread throughout the region.

Currently, critical habitat for northern spotted owl does not occur within the planning area. However, a revision of critical habitat was proposed by USFWS in March 2012 and will likely be accepted during the lifetime of the proposed Plan. Proposed revisions include the designation of State, federal, and private lands as critical habitat in Marin, Sonoma, and Napa counties.

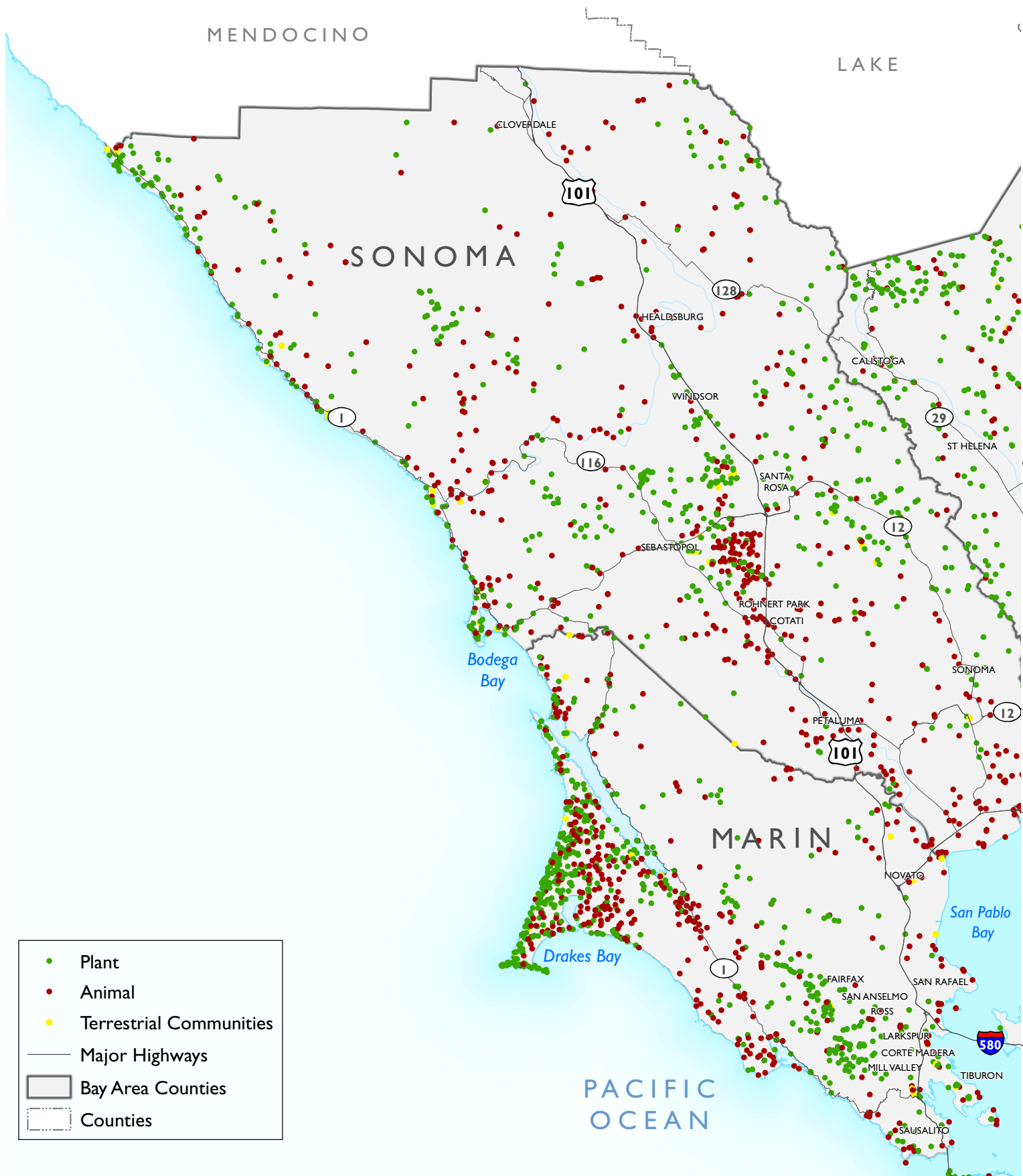
See **Figures 2.9-5** through **2.9-8** for the locations of critical habitat units throughout the Bay Area and **Table 2.9-1** for a summary of critical habitat by county.

¹⁰ Endemism refers to the degree to which organisms or taxa are restricted to a geographical region or locality and are thus individually characterized as endemic to that area.

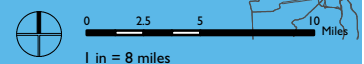
¹¹ CDFW, CNDDB Special Status Species Occurrences [GIS Shapefiles], California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA, 2012.

Figure 2.9-1

CNDDDB Documented Sensitive Biological Resources: North Bay



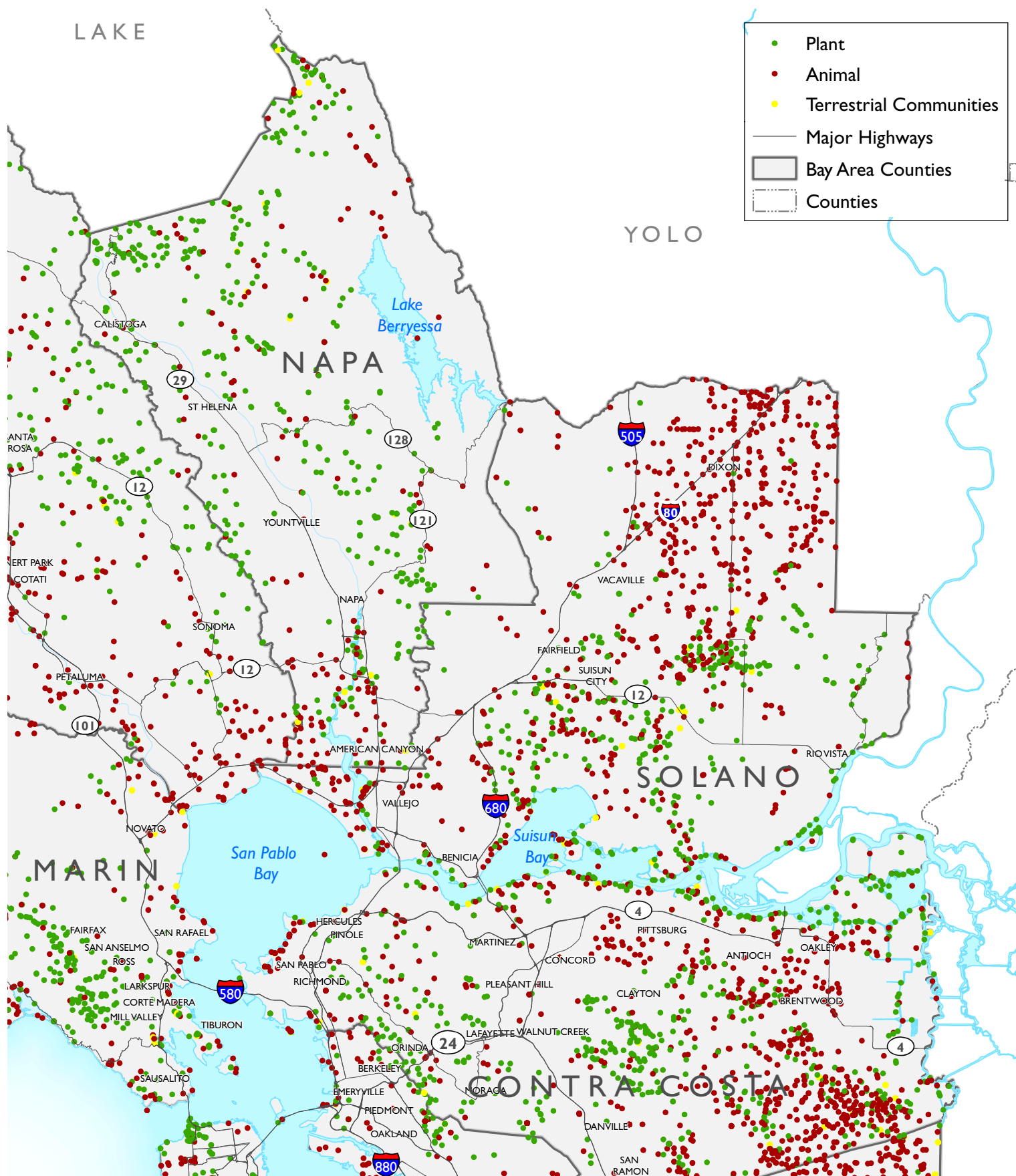
Data Source: California Department of Fish and Wildlife, 2012; ESA, 2012; Cal-Atlas Geospatial Clearinghouse, 2012; Tom Tom North America, 2011; Dyett & Bhatia, 2012.



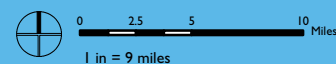
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Figure 2.9-2

CNDDDB Documented Sensitive Biological Resources: East Bay



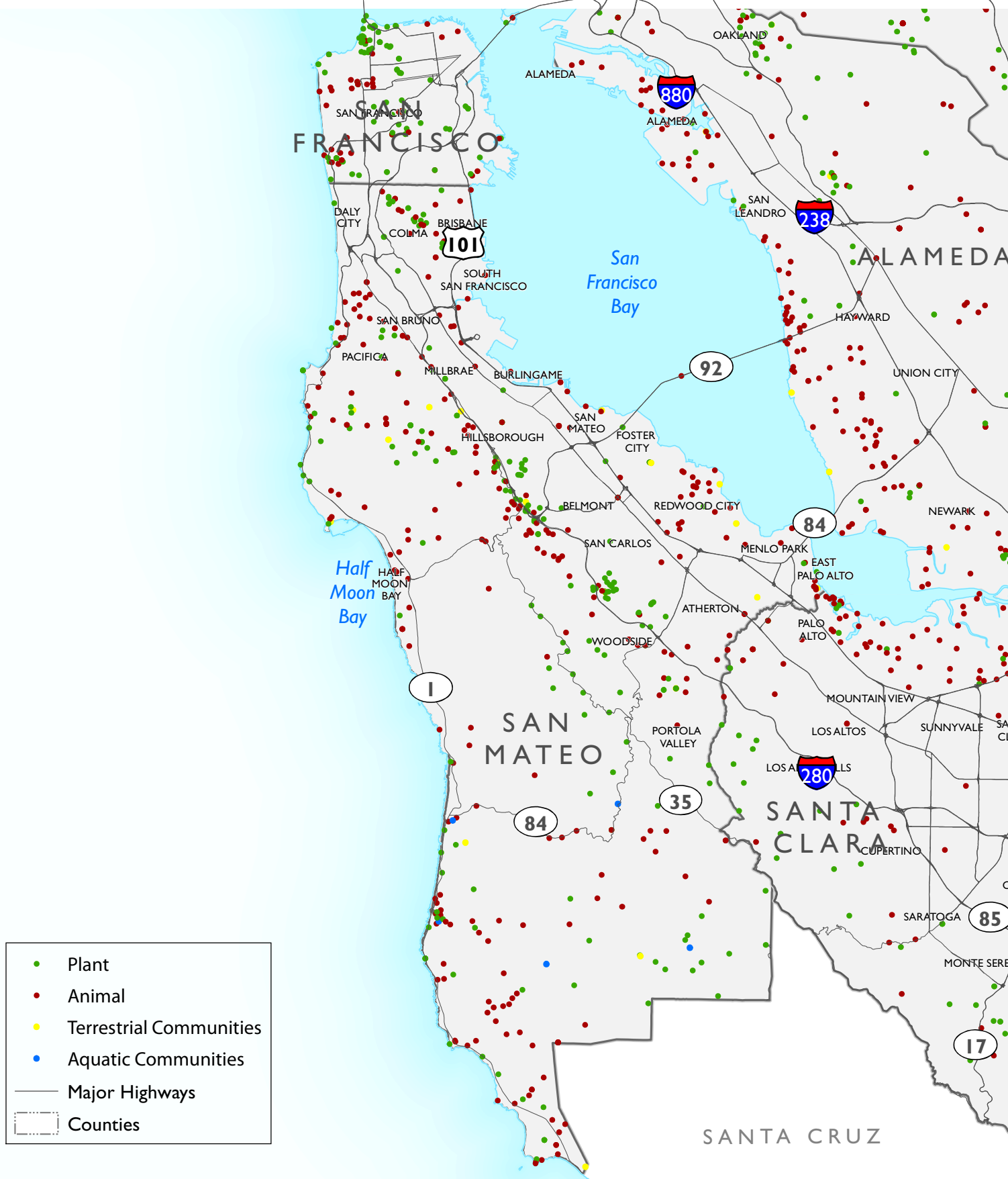
Data Source: California Department of Fish and Wildlife, 2012; ESA, 2012; Cal-Atlas Geospatial Clearinghouse, 2012; Tom Tom North America, 2011; Dyett & Bhatia, 2012.



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Figure 2.9-3

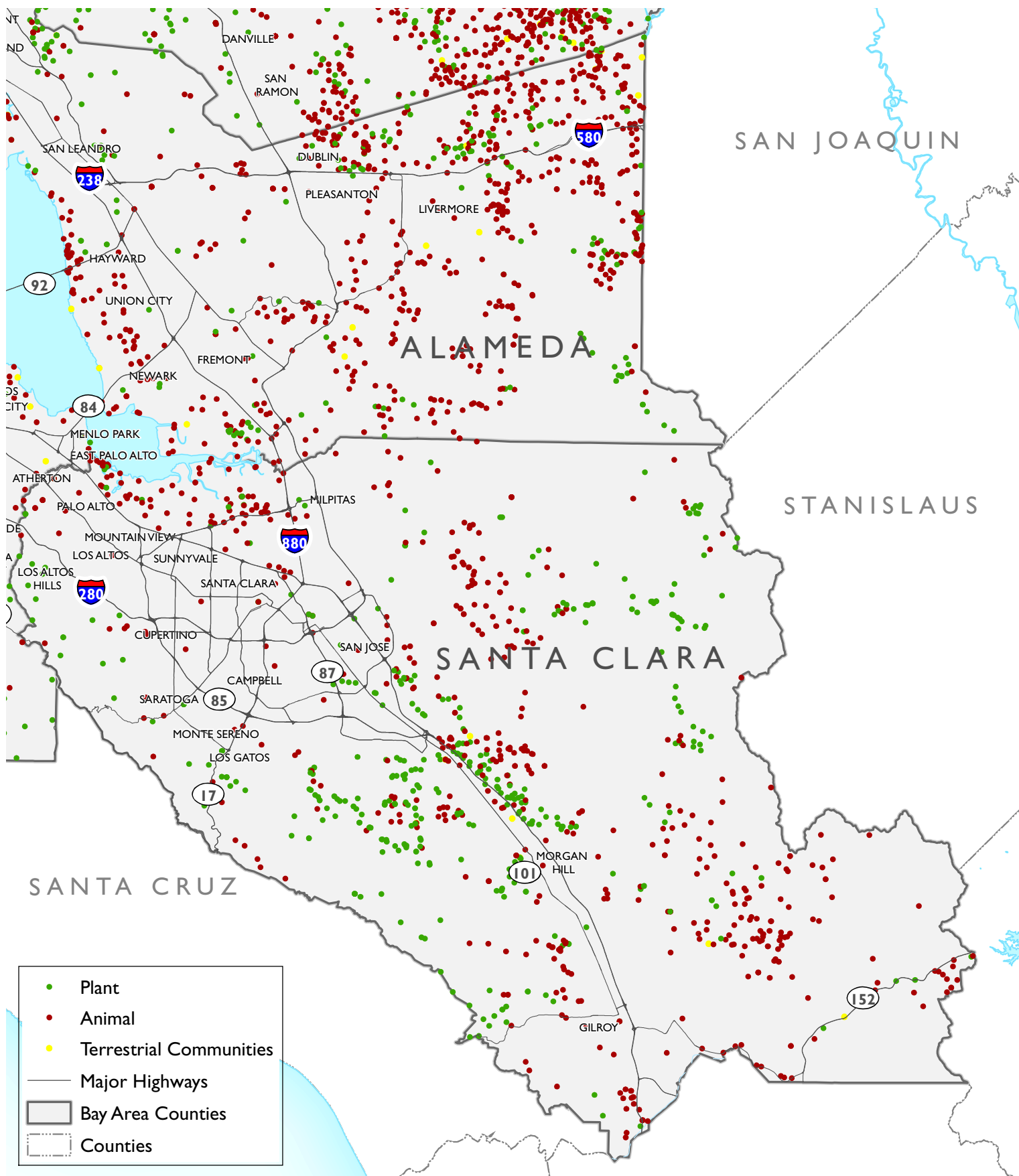
CNDDDB Documented Sensitive Biological Resources: Peninsula



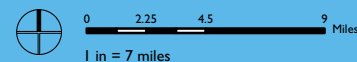
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Figure 2.9-4

CNDDDB Documented Sensitive Biological Resources: South Bay



Data Source: California Department of Fish and Wildlife, 2012; ESA, 2012; Cal-Atlas Geospatial Clearinghouse, 2012; Tom Tom North America, 2011; Dyett & Bhatia, 2012.



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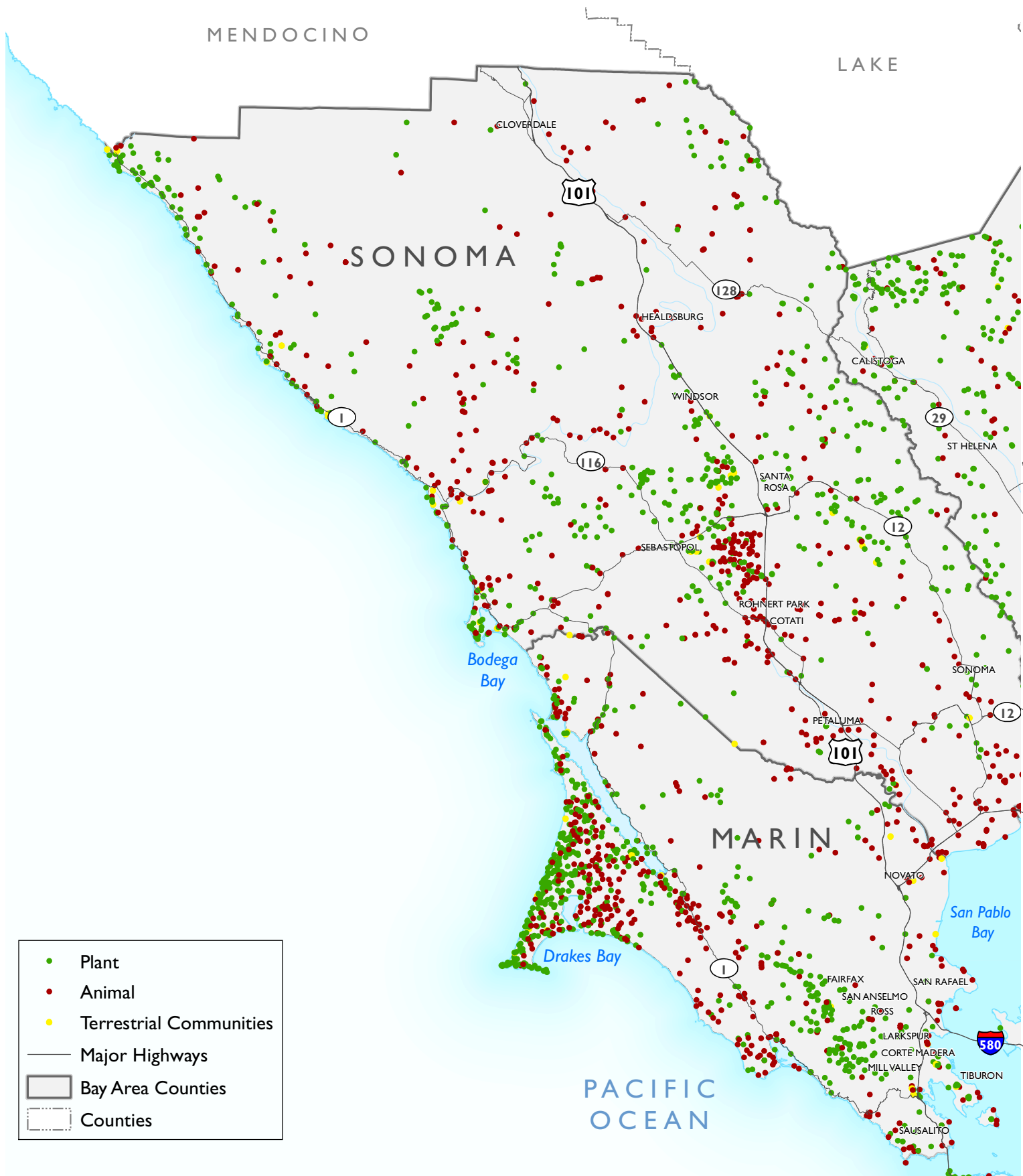
TABLE 2.9-1: CRITICAL HABITAT IN THE BAY AREA

<i>Species</i>	<i>County</i>								
	<i>Contra Costa</i>	<i>Alameda</i>	<i>Santa Clara</i>	<i>San Mateo</i>	<i>San Francisco</i>	<i>Marin</i>	<i>Sonoma</i>	<i>Napa</i>	<i>Solano</i>
Antioch Dunes evening primrose	√								
Baker's larkspur						√	√		
Contra Costa goldfields	√	√						√	√
Contra Costa wallflower	√								
Santa Cruz tarplant	√								
Soft bird's beak	√							√	√
Yellow larkspur						√	√		
Delta smelt	√								√
Chinook salmon - CA Coast ESU							√		
Steelhead - N. CA DPS							√		
Steelhead – South/Central CA Coast DPS			√						
Steelhead – Central CA Coast DPS			√	√		√	√	√	
Steelhead – CA Central Valley DPS	√								√
Tidewater goby						√			
Bay checkerspot butterfly			√	√					
Conservancy fairy shrimp									√
Longhorn fairy shrimp	√	√							
Vernal pool fairy shrimp	√	√						√	√
Vernal pool tadpole shrimp									√
California red-legged frog	√	√	√	√		√	√	√	√
California tiger salamander		√	√				√		√
Alameda whipsnake	√	√							
Marbled murrelet				√		√	√		
Northern spotted owl (proposed 2012)						√	√	√	
Western snowy plover						√			

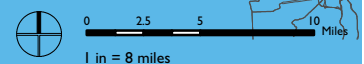
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Figure 2.9-1

CNDDDB Documented Sensitive Biological Resources: North Bay



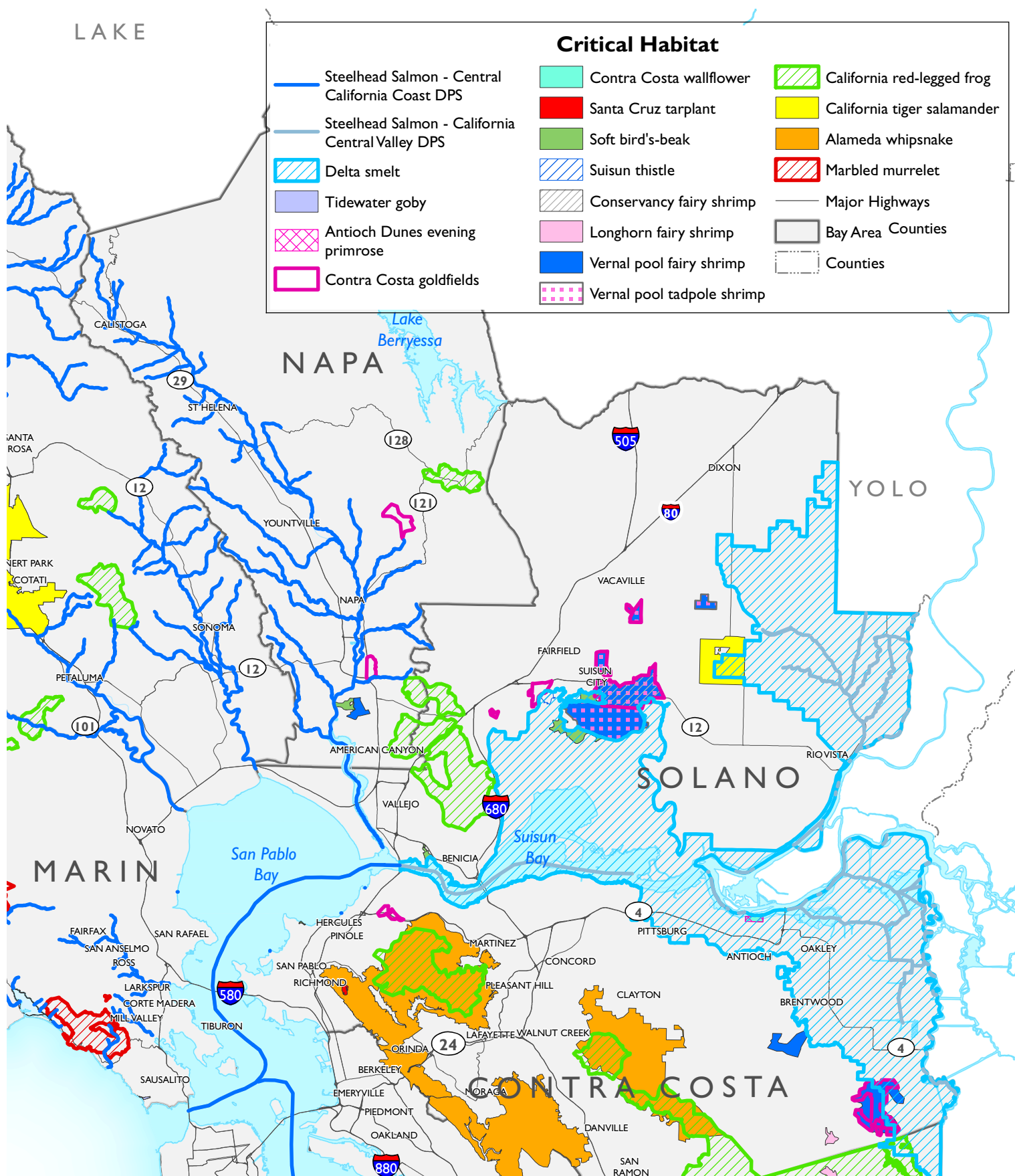
Data Source: California Department of Fish and Wildlife, 2012; ESA, 2012; Cal-Atlas Geospatial Clearinghouse, 2012; Tom Tom North America, 2011; Dyett & Bhatia, 2012.



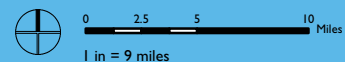
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Figure 2.9-6

Critical Habitat: East Bay



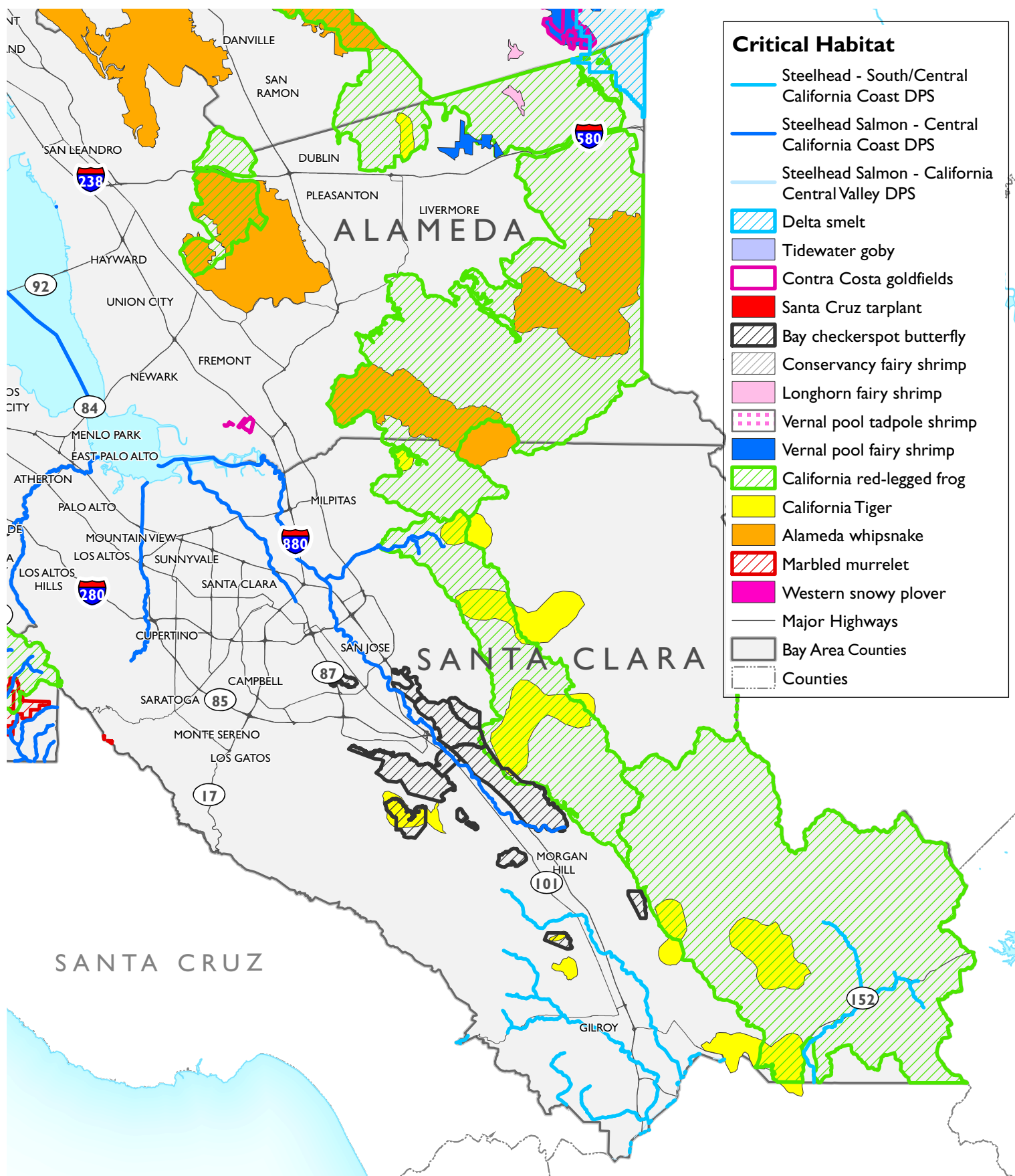
Data Source: U.S. Fish and Wildlife Service, 2012; ESA, 2012; Cal-Atlas Geospatial Clearinghouse, 2012; Tom Tom North America, 2011; Dyett & Bhatia, 2012.



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Figure 2.9-7

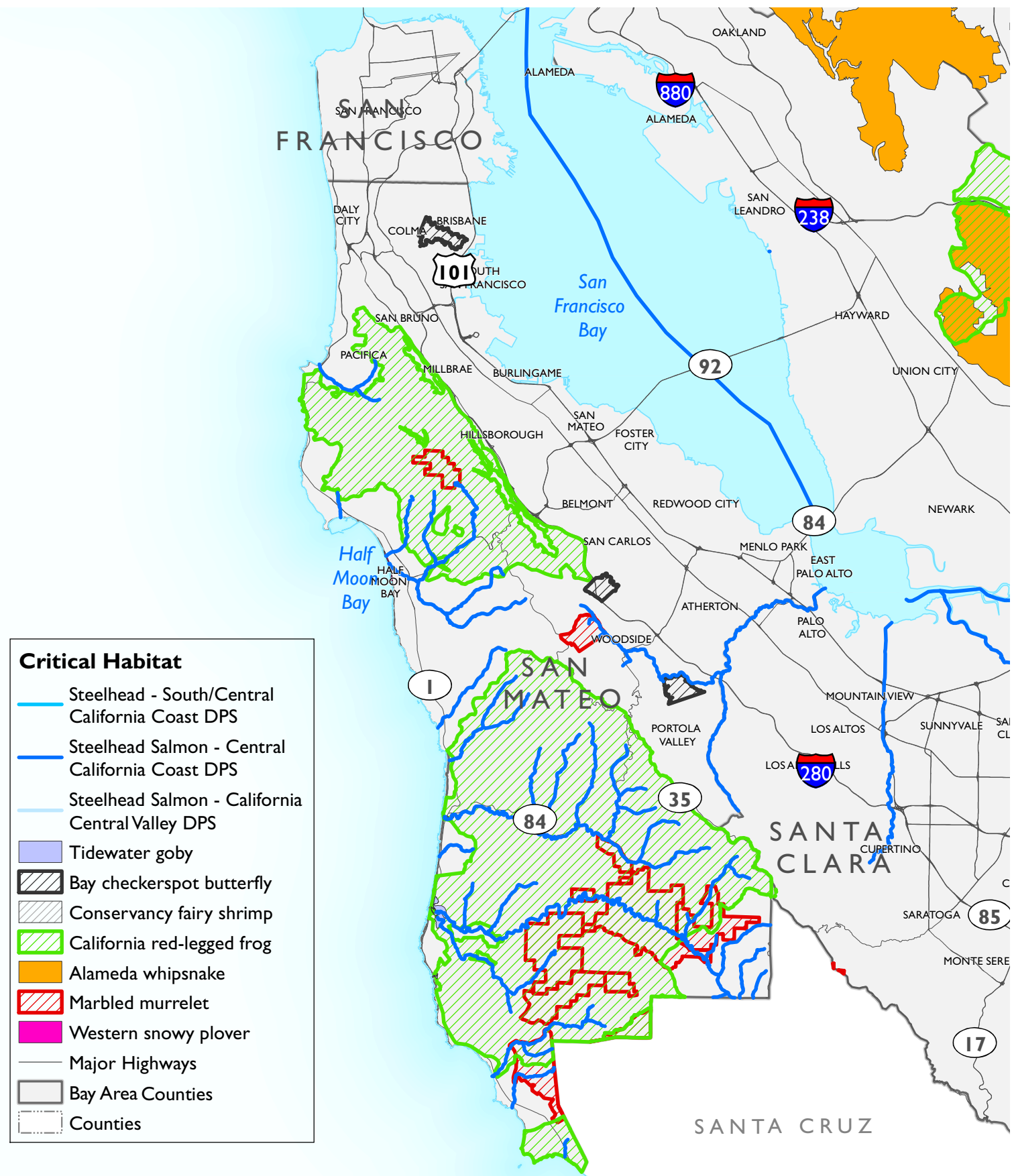
Critical Habitat: South Bay



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Figure 2.9-8

Critical Habitat: Peninsula



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Special-Status Natural Communities

Sensitive natural communities are designated as such by various resource agencies, such as the CDFW, or in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution, and are considered threatened enough to warrant some sort of protection. For example, many local agencies in California consider protection of oak woodlands important, and federal, State, and most local agencies also consider wetlands and riparian habitat as sensitive communities. CDFW tracks communities it believes to be of conservation concern through its *List of California Terrestrial Communities* and the CNDDDB, and these communities are typically considered special-status for the purposes of CEQA analysis.^{12,13} Some of these natural communities have a rich complement of sensitive species and species-oriented programs that will protect them due to the habitat that they afford. Other communities do not support rare species and, therefore, species-oriented protection cannot be invoked. Sensitive communities in the Bay Area include coastal salt marsh; brackish and freshwater wetlands including marshes, seasonal wetlands, and vernal pools; riparian forests and woodlands; and several types of coastal scrub, chaparral, and perennial grasslands.

Migratory Corridors and Linkages

The Bay Area encompasses large areas of wildlands that provide habitat for both common and rare plants and wildlife. Some of these areas were mapped as Essential Connectivity Areas (ECA) for the California Essential Habitat Connectivity Project, which was commissioned by the California Department of Transportation (Caltrans) and CDFW with the purpose of making transportation and land-use planning more efficient and less costly, while helping reduce dangerous wildlife-vehicle collisions.¹⁴ The ECAs were not developed for the purposes of defining areas subject to specific regulations by CDFW or other agencies.

The ECAs are not regulatory delineations but are identified as lands likely important to wildlife movement between large, mostly natural areas at the statewide level. The ECAs form a functional network of wildlands that are considered important to the continued support of California's diverse natural communities. The ECAs were not developed for the needs of particular species but were based primarily on the concept of ecological integrity, which considers the degree of land conversion, residential housing impacts, road impacts, and status of forest structure (for forested areas).¹⁵ In addition, consideration was given to the degree of conservation protection and areas known to support high

¹² CDFW, *List of Terrestrial Natural Communities*, available online:
http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_list.asp, accessed March 2013, 2010.

¹³ CDFW, *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*, available online:
http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/protocols_for_surveying_and_evaluating_impacts.pdf, accessed March 2013, 2009.

¹⁴ Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler, *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California*, Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration, 2010.

¹⁵ Ibid.

biological values, such as mapped critical habitat and hotspots of species endemism.¹⁶ ECAs were mapped on a state-wide level and should be considered coarse-scale polygons that can inform land-planning efforts, but that should eventually be replaced by more detailed linkage designs, developed at finer resolution at the regional and ultimately local scale based on the needs of particular species and ecological processes. There are a total of 13 ECAs mapped within the nine-county Bay Area (see **Figure 2.9-9**). As seen in this figure, ECAs occur within all nine Bay Area counties and are typically centered along the region's mountain ranges. These areas are comprised primarily of wildlands, but may also include some agricultural and developed areas (mostly rural residential) and many are bisected by major roadways.

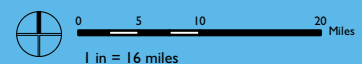
¹⁶ Ibid.

Figure 2.9-9

Essential Connectivity Areas



Data Source: California Department of Fish and Wildlife, 2010; ESA, 2012; Cal-Atlas Geospatial Clearinghouse, 2012; Tom Tom North America, 2011; Dyett & Bhatia, 2012.



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REGULATORY SETTING

The regulations and policies of various federal and State agencies (e.g., the Corps, U.S. Environmental Protection Agency (EPA) and USFWS mandate protection of wetlands, special-status plant and wildlife species, and aquatic and terrestrial communities in the region. The Corps has primary federal responsibility for administering regulations that concern waters and wetlands, while the USFWS, NMFS, and CDFW have lead responsibility for determining potential project effects on federal- and State-listed species and other species of concern.

Federal Regulations

National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA) was one of the first laws to establish a broad national framework for protecting the environment. Its purposes include: “To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; [and] to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man.” NEPA assures that all branches of government give proper consideration to the environment prior to undertaking major federal actions that could significantly affect the environment.

Environmental assessments (EAs) and environmental impact statements (EISs), which assess the likelihood of impacts from alternative courses of action, are required from all federal agencies and are the most visible NEPA requirements. The documents must include discussion of the environmental impacts of the alternatives, including the proposed action; any adverse environmental effects that cannot be avoided should the proposal be implemented; the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity; and any irreversible or irretrievable commitments of resources that would be involved in the proposal should it be implemented.

Federal Endangered Species Act

Under the Federal Endangered Species Act (FESA), the Secretary of the Interior and the Secretary of Commerce have joint authority to list a species as threatened or endangered (16 United States Code [USC] 1533[c]). Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed or proposed species may be present in the project region, and whether the proposed project would result in a “take”¹⁷ of such species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA, or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3][4]). Project-related impacts on these species or their habitats would be considered significant in this EIR. The “take” prohibition of

¹⁷ “Take,” as defined in Section 9 of the FESA, is broadly defined to include intentional or accidental “harassment” or “harm” to wildlife. “Harass” is further defined by the U.S. Fish and Wildlife Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, and sheltering. “Harm” is defined as an act which actually kills or injures wildlife. This may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

FESA applies to any action that would adversely affect a single member of an endangered or threatened species.

Proposed and Candidate Species for Listing as Endangered or Threatened

Proposed species are granted limited protection under FESA and must be addressed in Biological Assessments (under Section 7 of the act); proposed species otherwise have no protection from “take” under federal law, except emergency-listed species.¹⁸ Candidate species are afforded no protection under the act. The USFWS typically reviews project plans and species information to determine the effects of federal actions on a proposed or candidate species. Any recommendations to modify or abandon the project and/or undertake protective measures for proposed or candidate species are not mandatory on the federal agency conferring with the USFWS. The USFWS recommends that candidate species and species proposed for listing also be considered in informal consultation during a project’s environmental review. This is recommended because, in the event that a species were to be listed during the design or construction phases of a project (i.e., before occupancy), new studies and restrictions could be imposed.

Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

The federal Migratory Bird Treaty Act (16 USC, Section 703, Supplement I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

The federal Bald and Golden Eagle Protection Act prohibits persons within the United States (or other places subject to U.S. jurisdiction) from “possessing, selling, purchasing, offering to sell, transporting, exporting or importing any bald eagle or any golden eagle, alive or dead, or any part, nest or egg thereof.” This act also prohibits “taking” of bald and golden eagles, which is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” Disturbance includes direct injury, decrease in productivity, or causing nest abandonment.

Clean Water Act

The Clean Water Act is a 1977 amendment to the Federal Water Pollution Control Act of 1972, which set the basic structure for regulating discharges of pollutants to waters of the United States. Although the purpose of the act is primarily to maintain water quality for both human and environmental benefits, regulations developed pursuant to this act deal extensively with permitting of actions in wetlands. These regulations provide more specific protection for wetland habitats—most of which are important ecologically—than any other laws. The U.S. Environmental Protection Agency (EPA) has primary authority under the Clean Water Act to set standards for water quality and for effluents, but the U.S. Army Corps of Engineers has responsibility for permitting dredge and fill in wetlands.

Marine Protection, Research, and Sanctuaries Act of 1972

This legislation allowed for establishment of marine sanctuaries, such as the Cordell Bank, Gulf of the Farallones, and Monterey Bay National Marine Sanctuaries off the coast of Marin and Sonoma Counties and the San Francisco Peninsula, respectively. This act provides increased protection from a variety of

¹⁸ Note, however, that protection from “take” begins at this stage under state law.

human influences on the marine resources within the sanctuaries. Among their important uses, the National Marine Sanctuaries provide an essential fishery, recreational opportunities, and habitat for a myriad of rare and common shorebirds, marine mammals, and other wildlife. Section 103 of this act regulates the transportation of dredged materials in ocean waters. This act is implemented through a permit granted by the Corps, which uses the EPA's ocean disposal criteria to regulate the disposal of dredged materials.

Rivers and Harbors Act of 1899

Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of any navigable water of the United States. Under this act, the Corps must authorize any excavation or deposition of materials into such waters, or for any work that could affect the course, location, condition, or capacity of such waters.

Coastal Zone Management Act of 1972

This act established the authority for creating coastal zone management areas and the California Coastal Commission. Coastal zone management criteria are established by the Commission and must be followed by federal, other government, or private entities performing any activities within the coastal zone.

Federal Agencies Responsible For Managing Biological Resources

U.S. Fish and Wildlife Service

The mission of USFWS is to conserve, protect, and enhance the nation's fish and wildlife and their habitats for the continuing benefit of people. USFWS programs include management of wildlife sanctuaries, regulation of international and intrastate commerce related to wildlife, management of migratory species that move between states, wildlife management research, and identification and protection of endangered species.

National Marine Fisheries Service

NOAA's National Marine Fisheries Service is the federal agency, a division of the Department of Commerce, responsible for the stewardship of the nation's living marine resources and their habitat. NMFS is responsible for the management, conservation and protection of living marine resources within the United States' Exclusive Economic Zone (water three to 200 miles offshore). Using the tools provided by the Magnuson-Stevens Act, NMFS assesses and predicts the status of fish stocks, ensures compliance with fisheries regulations and works to reduce wasteful fishing practices. Under the Marine Mammal Protection Act and the Endangered Species Act, NMFS recovers protected marine species (i.e. whales, turtles) without unnecessarily impeding economic and recreational opportunities. NMFS works to promote sustainable fisheries and to prevent lost economic potential associated with overfishing, declining species and degraded habitats.

State Regulations

California Environmental Quality Act

The intent of the California Environmental Quality Act (CEQA) is to maintain "high-quality ecological systems and the general welfare of the people of the state." It is the policy of the State to "prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do

not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities and examples of the major periods of California history.” CEQA forbids agencies from approving projects with significant adverse impacts when feasible alternatives or feasible mitigation measures can substantially lessen such impacts.¹⁹

CEQA directs each State agency to consult with the California Department of Fish and Wildlife on any project an agency initiates that is not statutorily or categorically exempt from CEQA. CEQA *Guidelines* (Section 15065a) indicate that impacts to rare, threatened, or endangered plants or animals are significant. This finding of significance can be applied directly to State- and federally listed species. Impacts to other species that may generally meet these criteria but are not officially listed may be considered significant by the lead agency (for an EIR), depending on the applicability of other laws (e.g., Migratory Bird Treaty Act) and the discretion of the agency. The CDFW interprets Lists 1A, 1B, and 2 of the California Native Plant Society’s *Inventory of Rare and Endangered Vascular Plants of California* to consist of plants that, in a majority of cases, would qualify for listing as rare, threatened, or endangered. However, the determination of whether an impact is significant is a function of the lead agency, absent the protection of other laws. Projects subject to CEQA review must specifically address the potential impact of the listed species and provide mitigation measures, if the impact is significant.

California Endangered Species Act

Under the California Endangered Species Act (CESA), the CDFW has the responsibility for maintaining a list of threatened and endangered species (California Fish and Game Code 2070). The CDFW also maintains a list of “candidate species,” which are species formally noticed as being under review for addition to either the list of endangered species or the list of threatened species. In addition, CDFW maintains lists of “species of special concern,” which serve as “watch lists.” Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species could be present on the project site and determine whether the proposed project could have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species. Project-related impacts on species on the CESA endangered or threatened lists would be considered significant in this EIR. Impacts on “species of concern” would be considered significant under certain circumstances, discussed below.

California Native Plant Protection Act

State listing of plant species began in 1977 with the passage of the California Native Plant Protection Act (NPPA), which directed the CDFW to carry out the legislature’s intent to “preserve, protect, and enhance endangered plants in this state.” The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. The California Endangered Species Act expanded upon the original NPPA and enhanced legal protection for plants. CESA established threatened and endangered species categories,

¹⁹ CEQA also provides that a project might be approved in spite of residual, unmitigated significant impacts, by adoption of a statement of overriding social and economic considerations in situations where mitigations or alternatives are deemed infeasible.

and grandfathered all rare animals—but not rare plants—into the act as threatened species. Thus, there are three listing categories for plants in California: rare, threatened, and endangered.

California Coastal Act

The California Legislature enacted the California Coastal Act in 1976 in order to regulate coastal development throughout the state. The Act created a “coastal management zone” that generally extends three miles seaward and up to five miles inland from the mean high tide line. In particularly important and generally undeveloped areas where there can be considerable impact on the coastline from inland development, the coastal zone may extend to a maximum allowable limit. In developed urban areas, the coastal zone generally extends inland for a much shorter distance. Each city or county government whose jurisdiction includes land in the coastal zone must develop a Local Coastal Program (LCP) for the area, which guides planning, conservation, and use of coastal resources, must be consistent with the Coastal Act, and must be certified by the California Coastal Commission (CCC). Any person wishing to develop land within the coastal zone must obtain a permit from the relevant city or county, and the development plan must be consistent with the policies of the Act.

California Senate Bill 375

SB 375 (Chapter 728, Statutes of 2008) directs the California Air Resources Board to set regional targets for reducing greenhouse gas emissions. The new law establishes a “bottom up” approach to ensure that cities and counties are involved in the development of regional plans to achieve those targets. SB 375 builds on the existing framework of regional planning to tie together the regional allocation of housing needs and regional transportation planning in an effort to reduce greenhouse gas (GHG) emissions from motor vehicle trips.

While SB 375 amended the California Public Resources Code to allow exemption from the CEQA process for Transit Priority Projects (TPP), if a TPP site contains wetlands or riparian areas, has significant value as wildlife habitat, or harms protected species, the TPP does not qualify for CEQA exemption.

Local/Regional Regulations and Plans

Habitat Conservation Plans

East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) (2006)

The East Contra Costa County HCP/NCCP, overseen by the East Contra Costa County Habitat Conservancy, covers the eastern one-third of Contra Costa County (174,018 acres). It allows Contra Costa County, the Contra Costa County Flood Control and Water District, the East Bay Regional Park District, and the cities of Brentwood, Clayton, Oakley, and Pittsburg to streamline environmental permitting for activities and projects in the region that are covered by the HCP. The HCP also provides for comprehensive species, wetlands, and ecosystem conservation, and contributes to the recovery of endangered species in California, while allowing for limited take²⁰ of 28 listed and non-listed (“covered”)

²⁰ See definition of “take” under the Federal Endangered Species Act.

species. By implementing the HCP, the above-mentioned signatories will have a 30-year permit from USFWS and CDFW that authorizes take of covered species, and will avoid project-by-project permitting that is generally costly and time consuming.

Santa Clara Valley Habitat Conservation Plan/Natural Communities Conservation Plan – Administrative Draft (2008)

The City of San José, Santa Clara County, Santa Clara Valley Transportation Authority, Santa Clara Valley Water District, City of Gilroy, and City of Morgan Hill have initiated a collaborative process to prepare and implement an HCP/NCCP for the Santa Clara Valley. The final HCP/NCCP and associated EIR were released in 2012 and are undergoing review by the partner agencies. The HCP/NCCP targets specific areas of the county where land development activities and the continued survival of endangered, threatened, or other species of concern are in conflict. The goal of this HCP/NCCP is to provide the means for conservation of these species, thereby contributing to their recovery while allowing for compatible and appropriate development to occur.

Conservation Strategies

Draft East Alameda County Conservation Strategy

The East Alameda County Conservation Strategy (EACCS) is a collaborative effort to preserve endangered species by developing and adopting a guide to long-term protection of endangered species. The inventory area for this conservation strategy includes the cities of Dublin, Pleasanton, and Livermore, as well as unincorporated areas of eastern Alameda County. Annual grassland, seasonal and permanent wetlands, riparian woodland, oak woodland, and scrub communities within the inventory area are known to support several listed or sensitive wildlife species, including California tiger salamander (*Ambystoma californiense*), San Joaquin kit fox (*Vulpes macrotis mutica*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), and California red-legged frog (*Rana draytonii*).

The EACCS describes current biological conditions in the region, which present a baseline for species habitat with which to compare future development. The EACCS also provides a long-term regional conservation strategy to protect species by prioritizing habitats that should be protected or restored.

From a regulatory perspective, the EACSS is intended to streamline and simplify the issuance of Section 404 permits for future projects. The EACCS aims to standardize avoidance, minimization, mitigation, and compensation requirements to comply with federal, State, and local laws and regulations relating to biological and natural resources in the study area. The core of the EACCS for the covered species is the application of standardized mitigation ratios for each species in order to offset project impacts. In May 2012 the USFWS issued a Programmatic Biological Opinion (Programmatic BO) for U.S. Army Corps of Engineers permitted projects utilizing the EACCS for projects that may affect one or more of the species covered in the EACCS and Programmatic BO. The Programmatic BO is issued to the Corps for permits, enforcement actions, or mitigation banks that are under their jurisdiction. Eligible projects may be appended to the Programmatic BO in order to obtain individual incidental take authorization. In order to be eligible, individual projects must be consistent with the EACCS and fall under the list of activities covered by the Programmatic BO. Covered activities include residential, commercial and industrial development and associated infrastructure (roads and utilities); infrastructure projects such as transmission lines, road construction and maintenance, trail construction and maintenance, bridge construction and maintenance, solar projects, wind energy projects, and culvert installation and

maintenance; and restoration projects, including pond and stream restoration and enhancement, fish barrier removal and modification, and wetland construction and maintenance.

Santa Rosa Plain Conservation Strategy (2005)

The Santa Rosa Plain Conservation Strategy seeks to create a long-term program to mitigate potential adverse effects on listed species due to future development on the Santa Rosa Plain, which is located in central Sonoma County, bordered on the south and west by the Laguna de Santa Rosa, on the east by the foothills, and on the north by the Russian River. The Plain and adjacent areas are characterized by vernal pools, seasonal wetlands, and associated grassland habitat, which supports several species of flora and fauna that are listed by the FESA as threatened or endangered, including the federally threatened California tiger salamander (CTS) and four federally endangered plant species—Burke’s goldfields (*Lasthenia burkei*), Sonoma sunshine (*Blennosperma bakeri*), Sebastapol meadowfoam (*Limnanthes vinculans*), and many-flowered navarretia (*Navarretia leucocephala* ssp. *plieantha*).

The Conservation Strategy was created to (1) provide a plan for local agencies, developers, and community groups that would preserve and enhance populations and habitat of the listed species; (2) support the issuance of a USFWS authorization for incidental take of CTS and listed plants that may occur in the course of carrying out a broad range of activities on the Plain; and (3) protect stakeholder’s (public and private) interests. It is based in part on the Santa Rosa Plain Vernal Pool Ecosystem Preservation Plan (1995).

The Conservation Strategy addresses various aspects of urban and rural growth and its effects on the above-listed species, mitigation for impacts to these listed species and wetlands, and the conservation and recovery of the listed species and their habitat. The Conservation Strategy identified the Southwest Santa Rosa Preserve System and nine “Conservation Areas” throughout the Plain, where mitigation for project-related impacts to listed species and vernal pools should be directed. The designation of Conservation Areas is based on the following factors: (1) known distribution of CTS; (2) presence of suitable CTS habitat; (3) presence of large blocks of natural or restorable land; (4) adjacency to existing preserves; and (5) known location of the listed plants. A critical component of the Conservation Strategy is that 350-900 acres of actual preserve land ultimately will be established within each Conservation Area.

While local jurisdictions participating in the conservation strategy have adopted the Santa Rosa Plain Conservation Strategy Planning Agreement, numerous important implementation issues still must be resolved before the Conservation Strategy can be put into full effect. However, the USFWS Programmatic Biological Opinion (2007) can still be invoked for projects that have suitable habitat for CTS, Burke’s goldfields, Sonoma sunshine, Sebastapol meadowfoam, and many-flowered navarretia, and that impact wetlands in the Santa Rosa Plain.

Bay Conservation and Development Commission Acts and Plans

Suisun Marsh Preservation Act of 1977 and Suisun Marsh Protection Plan

The *Nejedly-Bagley-Z'berg Suisun Marsh Act* was enacted in 1974 to require the San Francisco BCDC and the CDFW to prepare a plan (later called the *Suisun Marsh Protection Plan*) to preserve the integrity and assure continued wildlife use of the Suisun Marsh, approximately 85,000 acres of tidal marsh, managed wetlands, and waterways in southern Solano County, which is the largest remaining brackish wetland complex in San Francisco Bay, more than ten percent of California's remaining wetland area, and a wildlife habitat of international importance. The Suisun Marsh Preservation Act (Cal. Pub. Res. Code Sections 29000–

29612) was enacted in 1977 to incorporate the findings and policies contained in the *Suisun Marsh Protection Plan* of 1976 into State law, and to empower BCDC to implement the plan through its regulatory authority.

The Suisun Marsh Protection Plan, in brief, proposes (1) a primary management area encompassing the 89,000 acres of tidal marsh, managed wetlands, adjacent grasslands, and waterways over most of which BCDC now has jurisdiction, and (2) a secondary management area of approximately 22,500 acres of significant buffer lands. Under specific guidelines in each area, Solano County would be responsible for preparing and administering a local protection program. BCDC would represent the State's interest, serving as the land use permitting agency for major projects in the primary management area, and as an appellate body with limited functions in the secondary management area.

The San Francisco Bay Plan

The San Francisco Bay Plan (Bay Plan) was developed by the BCDC in 1968, and its provisions are currently maintained and carried out by the BCDC. Since the adoption of the Bay Plan, implementing legislation has been amended several times, but the general character, scope of authority, and area of jurisdiction are largely unchanged. The Bay Plan provides the findings and policies to guide future uses of the Bay and shoreline, certain waterways, salt ponds and managed wetlands, and the maps that apply these policies to the BCDC's jurisdiction.

State Agencies Responsible For Managing Biological Resources

California Department of Fish and Wildlife

The mandate of CDFW (formerly CDFG) is to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. In particular, CDFW is required under CESA, NEPA, CEQA, and the Natural Community Conservation Planning Act to conserve species through listing, habitat acquisition and protection, review of local land use planning, multi-species conservation planning, stewardship, recovery, research, and education.

California Coastal Commission

The mission of the California Coastal Commission (CCC), as the lead agency responsible for carrying out California's coastal management program, is to plan for and regulate development in the coastal zone consistent with the policies of the California Coastal Act. The CCC is also one of two designated State coastal management agencies established for the purpose of administering the federal Coastal Zone Management Act in California. The San Francisco Bay Conservation and Development Commission (discussed below) has authority over federal activities and federally licensed or assisted activities within San Francisco Bay, many of which are not otherwise subject to State control. The California Coastal Commission has the same authority over federal activities and federally licensed or assisted activities elsewhere in the California coastal zone. The basic goals of the State for the coastal zone are to:

- Protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources;
- Assure orderly, balanced use and conservation of coastal zone resources, taking into account the social and economic needs of the people of the State;

- Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resource conservation principles and constitutionally protected rights of private property owners;
- Assure priority for coastal-dependent and coastal-related development over other development on the coast; and
- Encourage State and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.

Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (BCDC) was created by the California Legislature in 1965 by the McAteer-Petris Act, in response to public concern over the future of the San Francisco Bay. BCDC regulates filling and dredging in the San Francisco Bay including San Pablo Bay, Suisun Bay and sloughs, and certain creeks and tributaries that are part of the Bay system, as well as a 100-foot-wide coastline immediately bordering the Bay. Specifically, BCDC's responsibilities include: (1) regulating filling and dredging in the San Francisco Bay; (2) regulating new development within the first 100 feet inland from the Bay shoreline to ensure that maximum feasible public access to the Bay is provided; (3) protecting the Suisun Marsh; (4) ensuring that the limited amount of shoreline area suitable for high priority water-oriented uses is reserved for ports, water-related industries, water-oriented recreation, airports and wildlife refuges; (5) pursuing an active planning program to study Bay issues so that Commission plans and policies are based upon the best available current information; (5) administering the federal Coastal Zone Management Act within the San Francisco Bay segment of the California coastal zone to ensure that federal activities reflect Commission policies; (6) participating in the regionwide State and federal Long-Term Management Strategy for dredging and dredge material disposal in the San Francisco Bay; and (7) participating in California's oil spill prevention and response program.

California Department of Parks and Recreation

The California Department of Parks and Recreation provides sites for a variety of recreational and outdoor activities. Natural resource management and protection is also a part of the mission of Department. Park designations such as *natural preserve*, *state park*, *state reserve*, and *state wilderness* indicate that the area has outstanding natural features. By contrast, a designated *state historic preserve*, *state recreation area*, *state beach*, and *state vehicular recreation area* indicates the State has placed a higher priority on historic or recreational activities, although they may contain areas designated and protected for their natural features. State parks adjacent to transportation corridors include Olompali State Park in Marin County, Candlestick Point SRA in San Francisco County, and the Eastshore State Park between the Bay Bridge in Oakland and Marina Bay in Richmond in Alameda and Contra Costa Counties.

Biological Resources Protected By Statute and Policy

Special-Status Natural Communities

Special-status natural communities are identified as such by CDFW's Natural Heritage Division. These communities include those that are both naturally rare and those that have been greatly diminished through changes in land use. The CDFW tracks 135 such natural communities in the same way that it tracks occurrences of special-status species: information is maintained on each site in terms of its location, extent, habitat quality, level of disturbance, and current protection measures. The CDFW is

mandated to seek the long-term perpetuation of the areas in which these communities occur. In some cases, these areas have been established as protected reserves. There is no statewide law that requires protection of all special-status natural communities, but CEQA requires consideration of the potential impacts of a project to biological resources of statewide or regional significance.

Special-Status Plant and Wildlife Species

A number of species known to occur in the Bay Area are accorded “special-status” because of their recognized rarity or vulnerability to habitat loss or population decline. Some of these species are listed and receive specific protection defined in federal or State endangered species legislation. Other species have not been formally listed as threatened or endangered, but have been designated as “rare” or “sensitive” on the basis of adopted policies and expertise of State resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives. These species are referred to collectively as “special-status species” following a convention that has developed in practice but has no official sanction. Special-status species in the Bay Area are subject to the following:

- The California Native Plant Protection Act (California Fish and Game Code 1900 et seq.) protects endangered and “rare” species, subspecies, and varieties of plants.
- The California Endangered Species Act lists plants and wildlife as threatened or endangered (California Fish and Game Code 2070).
- The Federal Endangered Species Act (FESA), the Secretary of Commerce, and the Secretary of the Interior list plants and wildlife as threatened or endangered (16 USC 1533[a]; 16 USC 1533[a] [2]; 16 USC 1533 [c] [1]).
- The California Environmental Quality Act (CEQA), *Guidelines* Section 15380 includes plants and wildlife that may be considered rare or endangered if the species meets certain specified criteria.
- The California Native Plant Society designates rare, threatened, or endangered plants as List 1 and List 2, and plants about which more information is needed and plants with limited distributions as List 3 and List 4.
- The California Department of Fish and Wildlife (CDFW) designates plants and wildlife as “species of special concern” and protects the destruction of nests and eggs of any bird (Section 3503).
- The federal Bald Eagle Protection Act prohibits persons within the United States (or places subject to U.S. jurisdiction) from “possessing, selling, purchasing, offering to sell, transporting, exporting or importing any bald eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof.”
- The Migratory Bird Treaty Act (16 USC, Section 703, Supplement I, 1989) prohibits killing, possessing, or trading of migratory non-game birds.
- The California Fish and Game Code (Section 3503.5, 1992) protects birds of prey from unlawful take, possession, or destruction of any birds in the order Falconiformes or Strigiformes (birds of prey) and prohibits the possession or destruction of the nests or eggs of any such bird.

- The California Fish and Game Code (Section 3511 [birds], Section 5050 [reptiles and amphibians], and Section 4700 [mammals]) designates certain wildlife species as fully protected in California.

Protected Plant and Wildlife Areas

CDFW protects rare, threatened, and endangered species by managing habitat in legally designated ecological reserves or wildlife areas. Several of these reserves are located in the Bay Area. Likewise, the USFWS maintains the National Wildlife Refuge system that includes units in the Bay Area. Additional tracts of open space in the Bay Area, supporting valuable wildlife resources, are administered by other federal and State agencies, including the National Park Service and California Department of Parks and Recreation.

The counties and many cities in the Bay Area have established major parklands that sustain important wildlife resources. There are other quasi- and non-governmental organizations that oversee the management and protection of critical plant and wildlife communities, including the East Bay Regional Park District, San Francisco Public Utilities Commission, National Audubon Society, and The Nature Conservancy.

Wetlands

Wetlands are ecologically productive habitats that support a rich variety of both plant and animal life. The importance and sensitivity of wetlands has increased with the recognition of their value as recharge areas and filters for water supplies. In a jurisdictional sense, there are two definitions of a wetland, one definition adopted by federal agencies and a separate definition adopted by the State of California. Both definitions are presented below.

Within California, approximately 95 percent of the state's historic wetlands have been converted to other land uses. An estimated 5 million acres of wetlands were present in California in the 1780s; by the 1980s, the acreage of wetlands in California had been reduced to only 450,000 acres. The loss of wetlands has been pronounced in the Bay Area because of urban development, the intense diking of shoreline wetlands in the Delta for agriculture as well as for salt production throughout San Francisco Bay, and as a result of hydraulic mining operations in the mid-1800s that lasted until at least the late 1800s.

Federal Wetland Definition

Wetlands are a subset of waters of the United States and receive protection under Section 404 of the Clean Water Act. The term "waters of the United States" as defined in the Code of Federal Regulations (33 CFR 328.3[a]; 40 CFR 230.3[s]) includes:

1. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.
2. All interstate waters including interstate wetlands. (Wetlands are defined by the federal government [CFR, Section 328.3(b), 1991] as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.)

3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce, including any such waters that are or could be used by interstate or foreign travelers for recreational or other purposes; or from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or which are used or could be used for industrial purposes by industries in interstate commerce.
4. All impoundments of waters otherwise defined as waters of the United States under the definition.
5. Tributaries of waters identified in paragraphs (1) through (4).
6. Territorial seas.
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6).

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA [328.3(a)(8) added 58 CFR 45035, August 25, 1993].

The regulations and policies of various federal agencies (e.g., the Corps, U.S. Department of Agriculture [USDA], NRCS (Natural Resources Conservation Service), EPA, USFWS, National Marine Fisheries Service) mandate that the filling of wetlands be avoided to the extent possible. The Corps has primary federal responsibility for administering regulations that concern wetlands within the area. The Corps acts under the authority of the Clean Water Act (Section 404), which governs specified activities in "waters of the United States," including wetlands.

California Wetland Definition

The CDFW and the CCC have adopted the USFWS Cowardin (1979) definition of wetlands. While the federal definition of wetlands requires three wetland identification parameters to be met, the Cowardin definition can be satisfied under some circumstances with the presence of only one parameter. Thus, identification of wetlands by State agencies may include areas that are permanently or periodically inundated or saturated and without wetland vegetation or soils, such as rocky shores, or areas that presume wetland hydrology based on the presence of at least one of the following: a) a seasonal or perennial dominance by hydrophytes²¹ or b) the presence of hydric soils.²² CDFW does not normally assert jurisdiction over wetlands unless they are subject to Streambed Alteration Agreements (CDFW Code Sections 1600–1616) or they support State-listed endangered species.

²¹ A *hydrophyte* is, literally, a water-loving plant, i.e., one that is adapted to growing in conditions where the soil lacks oxygen, at least periodically during the year, due to saturation with water.

²² A *hydric* soil is one that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile.

Regulation of Activities in Wetlands

The Corps and the USEPA regulate the discharge of dredged or fill material into waters of the United States, including wetlands, under Section 404 of the CWA. Projects that would result in the placement of dredged or fill material into waters of the United States require a Section 404 permit from the Corps. Some classes of fill activities may be authorized under General or Nationwide permits if specific conditions are met. Nationwide permits do not authorize activities that are likely to jeopardize the existence of a threatened or endangered species (listed or proposed for listing under the FESA). In addition to conditions outlined under each Nationwide Permit, project-specific conditions may be required by the Corps as part of the Section 404 permitting process. When a project's activities do not meet the conditions for a Nationwide Permit, an Individual Permit may be issued.

Section 401 of the CWA requires an applicant for a Corps permit to obtain State certification that the activity associated with the permit will comply with applicable State effluent limitations and water quality standards. In California, water quality certification, or a waiver, must be obtained from the Regional Water Quality Control Board (RWQCB) for both Individual and Nationwide Permits.

The Corps also regulates activities in navigable waters under Section 10 of the Rivers and Harbors Act. The construction of structures, such as tidegates, bridges, or piers, or work that could interfere with navigation, including dredging or stream channelization, may require a Section 10 permit, in addition to a Section 404 permit if the activity involves the discharge of fill.

Finally, the federal government also supports a policy of minimizing “the destruction, loss, or degradation of wetlands.” Executive Order 11990 (May 24, 1977) requires that each federal agency take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. In recent years several Supreme Court cases have challenged the scope and extent of USACE jurisdiction over waters of the United States and have led to several reinterpretations of that authority. The most recent of these decisions are the cases of *Solid Waste Agency of Northern Cook County (SWANCC) v. the Army Corps of Engineers* (January 9, 2001) and *Rapanos v. United States* (June, 2006). The SWANCC decision found that jurisdiction over non-navigable, isolated, intrastate waters could not be based solely on the use of such waters by migratory birds. The reasoning behind the SWANCC decision could be extended to suggest that waters need a demonstrable connection with a ‘navigable water’ to be protected under the CWA. The introduction of the term ‘isolated’ has led to the consideration of the relative connectivity between waters and wetlands as a jurisdictionally relevant factor. The more recent *Rapanos* case further questioned the definition of “waters of the United States” and the scope of federal regulatory jurisdiction over such waters but resulted in a split decision which did not provide definitive answers but expanded on the concept that a ‘significant nexus’ with traditional navigable waters was needed for certain waters to be considered jurisdictional.

On June 5, 2007, the USEPA and the Corps released guidance on CWA jurisdiction in response to the *Rapanos* Supreme Court decisions, which can be used to support a finding of CWA coverage for a particular water body when either a) there is a significant nexus between the stream or wetland in question and navigable waters in the traditional sense; or b) a relatively permanent water body is hydrologically connected to traditional navigable waters and/or a wetland has a surface connection with that water.

State Policies and Regulations

State regulation of activities in waters and wetlands resides primarily with CDFW and the State Water Resources Control Board (SWRCB). In addition, the CCC has review authority for wetland permits within its planning jurisdiction. CDFW provides comment on Corps permit actions under the Fish and Wildlife Coordination Act. CDFW is also authorized under the California Fish and Game Code, Sections 1600-1616, to enter into a Streambed Alteration Agreement with applicants and to develop mitigation measures when a proposed project would obstruct the flow or alter the bed, channel, or bank of a river or stream in which there is a fish or wildlife resource, including intermittent and ephemeral streams. The SWRCB, acting through the nine RWQCBs, must certify that a Corps permit action meets State water quality objectives (Section 401, Clean Water Act).

Impact Analysis

SIGNIFICANCE CRITERIA

Implementation of the proposed Plan would have a potentially significant impact on biological resources if it would:

- Criterion 1:** Have a substantial adverse effect: either directly or through habitat modifications, on a) any species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS); b) designated critical habitat for federally listed plant and wildlife species; or c) non-listed nesting raptor species considered special-status by CDFW under CDFW Code 3503.5 and non-listed nesting bird species considered special-status by the USFWS under the federal Migratory Bird Treaty Act, and by CDFW under CDFW Code 3503 and 3513.
- Criterion 2:** Have a substantial adverse effect on riparian habitat, federally protected wetlands as defined by section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.), 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, through direct removal, filling, hydrological interruption, or other means.
- Criterion 3:** Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridor, or impede the use of native wildlife nursery sites.
- Criterion 4:** Conflict with adopted local conservation policies, such as a tree protection ordinance, or resource protection and conservation plans, such as a Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other adopted local, regional, or state habitat conservation plan.

METHOD OF ANALYSIS

This program-level analysis presents a general analysis of potential regional and local impacts on biological resources based on the location of proposed land use changes and transportation projects

relative to the known and potential distribution of sensitive biological resources throughout the Bay Area. For this impact assessment, the locations of proposed land use changes and transportation projects were compared with documented locations of sensitive species and their general habitats, critical habitat for federal listed species, and wetlands and other waters. Potential impacts were determined by evaluating whether proposed development and transportation improvements would occur within the potential range of a special-status species, whether projects would potentially directly encroach upon an area of ecological significance (e.g. sensitive natural community, designated critical habitat, etc.), or whether the projects could involve the filling of wetlands. Resources used to identify potentially affected biological resources included the California Natural Diversity Database, National Wetland Inventory Maps, published environmental impact reports and plans, and standard biological literature.

In the case of residential, commercial, and other development that could occur both in PDAs and, to a lesser extent, outside of PDAs, the details of future individual and site-specific projects in local jurisdictions throughout the Bay Area are not known at this time. Therefore, this impact analysis relies largely on the potential for biological resource impacts based on proximity to sensitive resources, an analysis method that inherently tends to inflate the potential for adverse effects. A GIS-based analysis was performed by overlaying resource layers (documented special-status species locations, designated critical habitat, wetlands, and streams and rivers) with PDA boundaries to obtain general information, such as how many PDAs have the potential to impact special-status species or wetlands and whether those impacts might be greater in one part of the Bay Area when compared to another (See Appendix H for tables presenting the results of the GIS-based analysis). A quantitative analysis of the potential for impacts (e.g., acres of critical habitat or linear feet of streams impacted) was performed when feasible to help answer some of these questions.

Acreages were obtained where PDA polygons overlapped sensitive resource polygons (e.g., wetlands, special-status species) and road and stream mileage was obtained when linear features traversed polygon features (e.g., mileage for a transportation improvement project within a special-status species polygon). Quantitative measures could not be obtained from the intersection of two linear features or when point features were used; however, these analyses provided information on the number of projects potentially affecting a given resource. Potential development outside PDAs was not quantified because it would simply not be practical to evaluate possible future development locations throughout the entire Bay Area, given that development is not reasonably foreseeable on the vast majority of land outside of PDAs. However, GIS layers depicting such potential development locations were examined in association with the resources layers in order to inform this analysis and evaluate the general order of magnitude of possible impacts.

The GIS-based analysis greatly overestimates actual impact acreages due to the coarse level of the analysis. For example, many special-status species polygons from the CNDDDB are non-specific polygons and simply indicate that a species was documented somewhere within the general area depicted. In addition, many CNDDDB species locations are historical and habitat no longer occurs for the species due to urbanization. Therefore, a PDA polygon intersection with a special-status species polygon simply indicates that the species does, or did once, occur in that area and that projects within that PDA may have impacts on that species if habitat for the species still occurs within or adjacent to the specific project site. Even if the species is currently present, impacts would not necessarily ensue since, while PDAs are proposed to absorb the great majority of future development under the proposed Plan, designation of a PDA does not imply that the entirety of that area will undergo development during the timeframe of the proposed Plan.

Impacts would be most likely to occur where development and transportation projects could have an effect upon ecologically sensitive or significant areas. Most likely to affect sensitive biological resources are projects involving major ground-disturbing activity, including within PDAs that contain open space or otherwise undeveloped lands inside their boundaries, or adjacent to such lands, and projects outside PDAs occurring in non- or lightly urbanized areas. Road widenings, highway extensions, interchange projects, bridges, and rail extensions in rural areas or over waterbodies or wetlands also have a higher likelihood of affecting sensitive biological resources. Laws and regulations protecting special-status species, areas of ecological significance, and wetland resources are effective incentives for project proponents to design alternatives that either avoid or substantially reduce impacts on these resources. Therefore, upon subsequent project-level review it is anticipated that actual impacts of specific future projects will generally be far less substantial than would be suggested by any quantitative analysis at this stage.

The actual footprints and other design details of most proposed transportation projects are not known because the projects are in the early stages of planning. Similar to the PDA analysis, a GIS-based analysis was performed by overlaying resource layers with transportation project alignments to ascertain which projects would likely have impacts, how many projects would have impacts, and where the majority of those impacts might occur. As noted above, where linear transportation features crossed polygon features, it was possible to obtain a coarse level quantification of road miles within, for example, a special-status species or wetland polygon. Transportation projects under the proposed Plan that would not directly expand transportation-dedicated lands were assumed to have minimal potential biological impacts. Such projects include signal and traffic operational improvements, rail extensions along existing rights-of-way, and road widening in urban areas or within existing rights of way. However, CEQA may require more detailed evaluations on a project-by-project basis at the time of project approval by local agencies to determine the exact resources found within proposed road or rail alignments. Since the specific details of many projects are not yet known, this assessment identifies general locations of potential adverse effects.

This impact analysis assumes that biological resources could be indirectly or directly affected by activities associated with proposed land use changes and transportation projects under Plan Bay Area. Potential impacts on biological resources include, but are not limited to the following:

- Direct and indirect effects on special-status species, including mortality, loss of reproductive potential due to disturbance, population decline and/or extirpation, and displacement due to habitat loss.
- Direct and indirect impacts on special-status species and their habitat, including federally designated critical habitat, through conversion of wildlands or rural/agricultural areas as a result of proposed changes in land use, including intensification of land use resulting from population or employment growth.
- Direct and indirect impacts on special-status species and federally designated critical habitat through direct loss of habitat associated with roadway widening, new transportation facilities, or interchange, rail, pedestrian, and bicycle improvements.
- Direct and indirect impacts on riparian and other sensitive natural communities, including degradation of vegetation due to invasive species introduction, habitat fragmentation, and herbicide application and removal of vegetation as part of landscaping and road maintenance.

Direct and indirect impacts on federal and state waters through fill of wetlands and waters, long-term changes in hydrology and runoff due to increased impervious surfaces and degradation of water quality in wetlands and waterways resulting from road runoff containing petroleum products (*Chapter 2.8: Water Resources*, discusses runoff and water quality degradation and associated mitigation measures). The sections below analyze impacts on biological resources associated with land use change and transportation network improvements (when impacts are different on the regional and local levels they are discussed separately), and then the combined potential effect of both the land use changes and transportation projects for each significance criterion.

SUMMARY OF IMPACTS

The proposed Plan would primarily encourage and consolidate regional growth and land use changes, as well as transportation improvements, along existing transportation corridors and in already urbanized areas rather than the more rural areas of the Bay Area. This overall strategy would generally serve to minimize impacts on biological resources resulting from proposed Plan implementation region-wide.

However, future growth under the proposed Plan, in addition to the various transportation improvements necessary to accommodate that growth, would result in conversion of, or indirect impacts on, some undeveloped land that currently contains biological resources. Impacts on resources located in and around proposed projects in rural areas would likely tend to be more severe than impacts to resources in already urban areas.

The implementation of development and transportation improvements under the proposed Plan would increase building and roadway footprints in the Bay Area and could incrementally impact adjacent wetlands, forested areas, grasslands, and other areas and the associated plant and wildlife species. Because the proposed PDA-focused development and transportation improvements are mainly concentrated along existing transportation corridors and in previously developed areas, the overall habitat loss and fragmentation is considered lower than if projects were located in undeveloped areas.

Direct Impacts

Short Term Impacts

Short-term impacts resulting from implementation of proposed Plan projects include the temporary loss and/or degradation of wetlands and sensitive natural communities, and disturbance of special-status plant and wildlife species. Such impacts could result from construction noise, light, and increased human activity, or from erosion or other indirect project effects. Temporary impacts may include noise associated with temporary pile driving equipment in streams or other sensitive areas during bridge construction, temporary loss of breeding or foraging habitat for wildlife, short-term fill of wetlands, or the inadvertent release of soils or other materials into a jurisdictional wetland during construction activities.

Long Term Impacts

Direct long-term impacts on natural communities, such as conversion of habitat to developed areas, include effects on both common and special-status plant and wildlife species. This is due, in part, to the difficulty in constructing successful habitat replacement for natural areas such as wetlands, riparian forests, and native grasslands. Development and transportation improvements in the proposed Plan that occur within or adjacent to grassland, oak woodland, shrublands, or coastal marsh and/or estuarine

habitats have the potential to decrease and degrade habitat and result in significant long-term impacts on special-status plant and wildlife species. Other proposed development and transportation projects could also contribute incrementally to habitat loss or degradation for special-status plant or wildlife species.

Long-term increases in the volume of vehicular traffic and expansion of existing roads or development of new roads in rural areas are expected to result in increased road casualties to common and special-status wildlife species. This effect would be most pronounced in rural areas, where roads traverse natural habitats. Such changes may also affect the volume of grease, oil, gasoline, and other contaminants entering Bay Area streams and San Francisco Bay and have deleterious effects on fisheries.

Indirect Impacts

Implementation of proposed Plan development and transportation projects could result in indirect biological resource impacts by accommodating new urban development that could have the potential to degrade wetlands and other sensitive natural communities and affect special-status plant and wildlife species. Potential indirect and cumulative effects on special-status species could occur as a result of habitat fragmentation, increased human intrusion into wildland areas, introduction of invasive species, disruption of migratory corridors, and a resulting regional reduction in biological diversity. In addition, by improving regional mobility, transportation improvements implemented under the proposed Plan would serve not only PDA areas, but also non-PDA development of rural environs – eastern Contra Costa County, southern Santa Clara County, the US 101 corridor in Marin and Sonoma counties, etc. Other transportation improvements in the proposed Plan not identified as having a direct impact on biological resources in the regional context may result in individually minor impacts locally. Collectively, these individually minor impacts on biological resources may aggregate to become regionally significant over time.

IMPACTS AND MITIGATION MEASURES

Impact

The first Impact Criterion is separated into three impact statements, each of which is directly related to impacts on special-status species. Impact Statement 2.9-1a addresses impacts on special-status species, with the exception of nesting birds. Impact Statement 2.9-1b discusses impacts to critical habitat designated for federally-listed species, and Impact Statement 2.9-1c addresses impacts and mitigation measures specific to nesting raptors and other birds that are protected through mechanisms other than federal or state listing.

2.9-1a Implementation of the proposed Plan could have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Special-status species with the greatest potential to be affected by proposed Plan projects are listed in **Table H-1** in Appendix H. **Tables H-1a** through **H-1d** in Appendix H list approximately 171 PDAs and 350 transportation projects that have the potential to impact special-status plant or wildlife species. These

project lists were generated from a GIS-based analysis of project proximity to documented special-status species occurrences and the presence of potentially suitable habitat for special-status species, as well as proximity to USFWS and NMFS designated critical habitat.²³ Additional development, as described in *Chapter 1.2: Overview of the Proposed Plan Bay Area*, would occur outside the PDAs in all parts of the Bay Area and would also have impacts on special-status species, but to a substantially lesser degree, given the focus of the proposed Plan on development within PDAs. Additional, non-listed species (i.e., not listed under the FESA or CESA) that are not consistently tracked by CDFW in the CNDDDB but are afforded protections under the California Fish and Game Code and/or the Migratory Bird Treaty Act were also considered. For example, it is assumed that nearly all proposed projects have the potential to affect nesting birds (see Impact 2.9-1c for further discussion of impacts on nesting birds). As noted under Method of Analysis, above, the GIS-based analysis overestimates the acreage likely to be affected, because it simply represents the intersection of areas where species are, or have been, present and areas where development is likely to occur. Because the analysis at this regional level is necessarily very coarse-grained, the actual acreage anticipated to be affected by future development projects would likely be far less than indicated in the tables, due to the potential absence of species and/or habitat from specific development sites.

Focused surveys to determine the locations and extent of special-status species populations have not been conducted in support of this programmatic EIR; detailed and site-specific surveys are more appropriately conducted when project level detail is available. Analysis in this EIR therefore conservatively assumes that special-status species would be present within the impact footprint of regional growth/land use changes or a transportation project if the project is mapped as occurring within or transecting a known species occurrence. Known occurrences are those mapped in reliable data sources (e.g., CNDDDB). However, CNDDDB includes historical occurrences for species that may no longer be extant at a given location and this likely leads to an overestimation of development impacts on special-status species in this EIR. **Tables H-1a through H-1d** in Appendix H list the PDAs, as well as proposed transportation projects, that could affect special-status plant and/or wildlife species based on the GIS analysis. As noted above, additional development would occur outside the PDAs in all parts of the Bay Area, and would also have impacts on special-status species. While less development is expected to occur outside PDAs it would have the same general types of impacts and, when situated in more rural areas where habitat is less degraded than in heavily urbanized areas, could have a greater relative effect than development in PDAs.

Impacts of Land Use Projects

Regional Effects

As noted in *Chapter 1.2: Overview of the Proposed Plan Bay Area*, growth forecasts for the Bay Area project that by 2040 the region will support an additional two million residents and 1.1 million jobs, resulting in 700,000 new households. The proposed Plan calls for focused housing and job growth concentrated primarily in already urbanized areas and along existing transit corridors. The proposed Plan would focus 80 percent of new housing and 66 percent of new jobs in PDAs and the majority of Plan growth would be focused in San Francisco, Oakland, San José, and other, medium-size cities throughout the region. As a result, the North Bay counties would support only a small portion of growth under the proposed Plan

²³ California Natural Diversity Database, 2012; United States Fish and Wildlife Service, 2012; NMFS, 2005.

and about 99 percent of the region's growth would be focused in already urbanized areas. In addition, the proposed Plan identifies Priority Conservation Areas (PCAs), which are regionally significant open space areas for which there exists broad consensus for long-term protection but which face development pressures in the near-term. Protection of PCAs, if implemented in the future, could expand the regional greenbelt, protecting agricultural interests and wildlands that support special-status plants and wildlife. Nonetheless, implementation of the land use development pattern under the proposed Plan could result in regional impacts on special-status species. One 171 PDAs (see **Table H-1a** in Appendix H) were identified as occurring in proximity to known special-status species occurrences. Approximately 60 percent of these PDAs are located in Contra Costa, Alameda, and San Mateo counties. Substantially less development would be expected to occur outside PDAs, but in some cases such development would occur in or near sensitive habitat. Potential regional effects on special-status species could occur as a result of habitat fragmentation, increased human intrusion into wildland areas, introduction of invasive species, disruption of migratory corridors, and a resulting regional reduction in biological diversity.

Because land use changes under the proposed Plan may result in adverse effects on special-status plants and wildlife at the regional level, these impacts are considered potentially significant (PS). Mitigation Measure 2.9(a) is described below.

Localized Effects

Impacts on special-status species could occur within each of the proposed Plan project areas but would be most severe in areas that would experience the most extensive land use change and development. Potential localized effects on special-status species include the temporary and permanent removal or conversion of vegetation and habitat necessary for species breeding, feeding, dispersal or sheltering. Construction and/or ongoing operations could result in direct mortality of special-status plants and wildlife, entrapment in open trenches, and general disturbance due to noise or vibration during pile-driving, earthmoving, and other construction activities. Construction-generated fugitive dust accumulation on surrounding vegetation and construction-related erosion, runoff, and sedimentation could degrade the quality of adjacent vegetation communities, affecting their ability to support special-status plants and wildlife. Regional impacts as noted above, such as habitat fragmentation and disruption of migratory corridors, would also occur on a local level, potentially affecting local populations by making them more vulnerable to extirpation.

Because land use changes under the proposed Plan may result in adverse effects on special-status plants and wildlife at the local level, these impacts are considered potentially significant (PS). Mitigation Measure 2.9(a) is described below and Mitigation Measure is described under Impact 2.9-1a..

Impacts of Transportation Projects

Regional and Localized Effects

The implementation of proposed transportation improvements would increase roadway footprints throughout the Bay Area and would incrementally impact adjacent wetlands, woodlands, shrublands, and grasslands, as well as associated plant and wildlife species. Because the proposed transportation improvements are mainly concentrated along existing transportation corridors, where existing conditions in adjacent habitat areas typically represent the result of past and ongoing disturbance, regional habitat loss and fragmentation is expected to be lower than if projects were entirely new construction or sited in previously undeveloped areas. Nonetheless, approximately 350 proposed transportation improvements (see **Tables H-1b** through **H-1d** in Appendix H) could contribute to regional and local habitat loss and

fragmentation. Nearly 70 percent of these transportation improvements are located in Santa Clara, San Mateo, Contra Costa, and Alameda Counties.

Long-term regional increases in the volume of vehicular traffic and major expansions of existing roads or development of new roads in rural areas are expected to result in increased vehicle-related casualties of common and special-status wildlife species. This effect would be most pronounced in rural areas, where roads traverse larger expanses of natural habitats. Increases in traffic may also affect the volume of grease, oil, gasoline, and other contaminants entering Bay Area streams and San Francisco Bay and have adverse effects on fisheries.

Because the proposed Plan transportation investments may result in adverse impacts on special-status plants and wildlife at the regional and local levels, these impacts are considered potentially significant (PS). Mitigation Measure 2.9(a) is described below.

Combined Effects

The combined effects of land development and transportation improvements under the proposed Plan would be generally similar to those described above. Localized impacts of development and transportation projects, particularly with respect to habitat loss and degradation, would aggregate to produce impacts on special-status species on a regional scale. Because the proposed Plan projects may result in impacts on special-status plants and wildlife at both regional and the local levels, these impacts are considered potentially significant (PS). Mitigation Measure 2.9(a) is described below.

Mitigation Measures

Implementing agencies and/or project sponsors shall consider implementation of mitigations measures including but not limited to those identified below.

2.9(a) Implementing agencies shall require project sponsors to prepare biological resources assessments for specific projects proposed in areas containing, or likely to contain, habitat for special-status plants and wildlife. The assessment shall be conducted by qualified professionals pursuant to adopted protocols and agency guidelines. Where the biological resources assessment establishes that mitigation is required to avoid direct and indirect adverse effects on special-status plant and wildlife species, mitigation shall be developed consistent with the requirements of CEQA, USFWS, and CDFW regulations and guidelines, in addition to requirements of any applicable and adopted HCP/NCCP or other applicable plans developed to protect species or habitat. Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to:

- In support of CEQA, NEPA, CDFW and USFWS permitting processes for individual Plan Bay Area projects, biological surveys shall be conducted as part of the environmental review process to determine the presence and extent of sensitive habitats and/or species in the project vicinity. Surveys shall follow established methods and shall be undertaken at times when the subject species is most likely to be identified. In cases where impacts to State- or federal-listed plant or wildlife species are possible, formal protocol-level surveys may be required on a species-by-species basis to determine the local distribution of these species. Consultation with the USFWS and/or CDFW shall be conducted early in the planning process at an informal level for projects that could adversely affect federal or State candidate, threatened, or endangered species to

determine the need for further consultation or permitting actions. Projects shall obtain incidental take authorization from the permitting agencies as required prior to project implementation.

- Project designs shall be reconfigured, whenever practicable, to avoid special-status species and sensitive habitats. Projects shall minimize ground disturbances and construction footprints near sensitive areas to the extent practicable.
- Where habitat avoidance is infeasible, compensatory mitigation shall be implemented through preservation, restoration, or creation of special-status wildlife habitat. Loss of habitat shall be mitigated at an agency approved mitigation bank or through individual mitigation sites as approved by USFWS and/or CDFW. Compensatory mitigation ratios shall be negotiated with the permitting agencies. Mitigation sites shall be monitored for a minimum of five consecutive years after mitigation implementation or until the mitigation is considered to be successful. All mitigation areas shall be preserved in perpetuity through either fee ownership or a conservation easement held by a qualified conservation organization or agency, establishment of a preserve management plan, and guaranteed long-term funding for site preservation through the establishment of a management endowment.
- Project activities in the vicinity of sensitive resources shall be completed during the period that best avoids disturbance to plant and wildlife species present (e.g., May 15 to October 15 near salmonid habitat and vernal pools) to the extent feasible.
- Individual projects shall minimize the use of in-water construction methods in areas that support sensitive aquatic species, especially when listed species could be present.
- In the event that equipment needs to operate in any watercourse with flowing or standing water, a qualified biological resource monitor shall be present at all times to alert construction crews to the possible presence of California red-legged frog, nesting birds, salmonids, or other aquatic species at risk during construction operations.
- If project activities involve pile driving or vibratory hammering in or near water, interim hydroacoustic threshold criteria for fish shall be adopted as set forth by the Interagency Fisheries Hydroacoustic Working Group, as well as other avoidance methods to reduce the adverse effects of construction to sensitive fish, piscivorous birds, and marine mammal species.
- Construction shall not occur during the breeding season near riparian habitat, freshwater marshlands, and salt marsh habitats that support nesting bird species protected under the Endangered Species Act, Migratory Bird Treaty Act, or California Fish and Game Code (e.g., yellow warbler, tricolored blackbird, California clapper rail, etc.).
- A qualified biologist shall locate and fence off sensitive resources before construction activities begin and, where required, shall inspect areas to ensure that barrier fencing, stakes, and setback buffers are maintained during construction.
- For work sites located adjacent to special-status plant or wildlife populations, a biological resource education program shall be provided for construction crews and contractors (primarily crew and construction foremen) before construction activities begin.
- Biological monitoring shall be particularly targeted for areas near identified habitat for federal- and state-listed species, and a “no take” approach shall be taken whenever feasible during construction near special-status plant and wildlife species.

- Efforts shall be made to minimize the negative effects of light and noise on listed and sensitive wildlife.
- Compliance with existing local regulations and policies, including applicable HCP/NCCPs, that exceed or reasonably replace any of the above measures protective of special-status species.

Significance after Mitigation

Projects taking advantage of CEQA Streamlining provisions of SB 375 (Public Resources Code sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above, as feasible, to address site-specific conditions. To the extent that an individual project adopts and implements all feasible mitigation measures described above, the impact would normally be less than significant with mitigation (LS-M). However, there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels. For purposes of a conservative analysis, therefore, this impact remains significant and unavoidable (SU).

MTC/ABAG cannot require local implementing agencies to adopt the above mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore it cannot be ensured that this mitigation measure would be implemented in all cases. Further, there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less-than-significant levels. For purposes of a conservative analysis, therefore, this impact remains significant and unavoidable (SU).

Impact

2.9-1b Implementation of the proposed Plan could have substantial adverse impacts on designated critical habitat for federally listed plant and wildlife species.

Impacts of Land Use Projects

Regional and Localized Effects

As shown in **Table H-2a** in Appendix H, 21 PDAs lie within, or are adjacent to, areas that are designated by the USFWS as critical habitat for federally listed species. Critical habitat for most species occurs within local units distributed throughout the region. Thus, were local impacts to occur they could potentially aggregate to produce region-wide effects on the amount and quality of critical habitat. The majority of potential impacts are related to critical habitat for California tiger salamander on the Santa Rosa Plain in Sonoma County and Delta smelt in Contra Costa and Solano Counties. Development within PDAs could also potentially impact smaller amounts of critical habitat for several other species, including California red-legged frog, bay checkerspot butterfly, Contra Costa goldfields, vernal pool tadpole shrimp, and vernal pool fairy shrimp in Alameda, Santa Clara, and Solano counties. In addition, **Table H-3a** in Appendix H shows that development in 17 PDAs located primarily in Santa Clara and San Mateo counties could potentially impact critical habitat designated by NMFS for Central Coast steelhead. Throughout the region, substantially less development would be expected to occur outside PDAs, but in some cases such development would also occur in or near designated critical habitat and may have disproportionately greater effects than PDA development when it occurs in rural areas. The USFWS reviews projects that may adversely modify federally designated Critical Habitat, just as it reviews projects that may affect federally listed species. While both federal and non-federal actions that may affect listed species require consultation with the USFWS, only federal actions that may adversely modify federally designated Critical Habitat require consultation with the USFWS. However, any federal nexus

(federal involvement) is sufficient to federalize a proposed action. Some examples of actions with a federal nexus are as follows: actions on federal land; actions that require a federal permit (such as a wetland permit); actions that require a federal license; and actions using federal funds. Projects without a federal nexus may impact critical habitat and these effects could aggregate to significant levels under CEQA when considered on a regional basis.

As noted under the Method of Analysis, above, the GIS-based analysis overestimates the acreage likely to be affected, because it simply represents the intersection of areas where species are, or have been, present and areas where development is likely to occur. Because the analysis is at a regional level and necessarily very coarse-grained, the actual acreage anticipated to be affected by future development projects would likely be far less than indicated in the tables, due to the potential absence of species and/or habitat from specific development sites.

Impacts on critical habitat could include temporary or permanent habitat loss. Degradation of areas that have high conservation value for these species could also occur in association with proposed Plan development, where such development occurs within or adjacent to critical habitat, through the introduction of night lighting, increases in ambient noise levels, and the introduction of invasive species and predators. Plan development could also result in the introduction of, or increases in, additional vehicular or recreational pressures in areas designated as critical habitat where they do not currently exist. Potential impacts on salmonid critical habitat could include stream degradation in association with increased impervious surfaces and surface runoff, decreases in water quality due to increased point source pollution, and erosion and sedimentation during construction.

Because the land use changes and development under the proposed Plan may result in impacts on designated critical habitat for federal listed plant and wildlife species at the regional and local levels, these impacts are considered potentially significant (PS). Mitigation Measure 2.9(b) is described below and Mitigation Measure 2.9 (a) is described under Impact 2.9-1a.

Impacts of Transportation Projects

Regional and Localized Effects

Approximately 50 transportation projects included in the proposed Plan lie within or adjacent to areas that are designated by the USFWS as critical habitat for federally listed species (see Tables H-2b-c). As noted in the land use discussion above, critical habitat for some species occurs within local units distributed throughout the region and therefore local impacts could potentially combine to produce regional effects. The majority of potential impacts are related to critical habitat for California red-legged frog, California tiger salamander and Delta smelt. Impacts would occur primarily in Contra Costa County. Transportation projects could also potentially impact smaller amounts of critical habitat for several other species, including Alameda whipsnake, Contra Costa goldfields, vernal pool tadpole shrimp, and vernal pool fairy shrimp in Alameda, Santa Clara, San Mateo, Napa, Sonoma, and Solano Counties. In addition, **Table H-3b** in Appendix H shows that implementation of nearly 60 transportation projects region-wide could potentially impact critical habitat designated by NMFS for Central Coast steelhead. Approximately 50 percent of these projects are located in Santa Clara County.

Potential effects of transportation projects on designated critical habitat are generally similar to those described above for development under the proposed Plan. In this case, most impacts to critical habitat for terrestrial species would occur in association with widening (or otherwise expanding) roads that are

currently on the boundary of, or that traverse, critical habitat into the critical habitat unit. Potential impacts on salmonid habitat include numerous creek and stream crossings that are not expected to impede fish passage or reduce the critical habitat acreage, but which may have temporary, indirect adverse impacts to aquatic habitat if projects result in increased sedimentation or other fill into these waters during construction activities.

Because the proposed Plan transportation projects may result in permanent and/or temporary impacts on designated critical habitat for federal listed plant and wildlife species at the regional and local levels, these impacts are considered potentially significant (PS). Mitigation Measure 2.9(b) is described below and Mitigation Measure 2.9 (a) is described under Impact 2.9-1a.

Combined Effects

The combined effects of land development and transportation projects on critical habitat would be generally similar to those described above. Localized impacts of development and transportation projects, particularly with respect to habitat loss and degradation, could aggregate to produce impacts to critical habitat for one or more species on a regional scale. Because the proposed Plan projects may result in impacts on critical habitat at both regional and local levels, these impacts are considered potentially significant (PS). Mitigation Measure 2.9(b) is described below and Mitigation Measure 2.9 (a) is described under Impact 2.9-1a.

Mitigation Measures

Implementing agencies and/or project sponsors shall consider implementation of mitigation measures including but not limited to those identified below.

2.9(b) Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to:

- Informal consultation with the USFWS and/or NMFS shall be conducted early in the environmental review process to determine the need for further mitigation, consultation, or permitting actions. Formal consultation is required for any project with a federal nexus.
- Project designs shall be reconfigured to avoid or minimize adverse effects on the primary constituent elements of designated critical habitats when they are present in a project vicinity.
- Compliance with existing local regulations and policies, including applicable HCP/NCCPs. that exceed or reasonably replace any of the above measures protective of critical habitat.

Additionally, implementation of Mitigation Measure 2.9(a), above, which includes an initial biological resource assessment and, if necessary, compensatory mitigation for loss of habitat, is expected to reduce impacts on critical habitat.

Significance after Mitigation

Projects taking advantage of CEQA Streamlining provisions of SB 375 (Public Resources Code sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above, as feasible, to address site-specific conditions. To the extent that an individual project adopts and implements all feasible mitigation measures described above, the impact would normally be less than significant with mitigation (LS-M). However, there may be instances in which site-specific or project-specific conditions

preclude the reduction of all project impacts to less than significant levels. For purposes of a conservative analysis, therefore, this impact remains significant and unavoidable (SU).

MTC/ABAG cannot require local implementing agencies to adopt the above mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore it cannot be ensured that this mitigation measure would be implemented in all cases. Further, there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less-than-significant levels. For purposes of a conservative analysis, therefore, this impact remains significant and unavoidable (SU).

Impact

2.9-1c Implementation of the proposed Plan could result in construction activities that could adversely affect non-listed nesting raptor species considered special-status by CDFW under CDFW Code 3503.5 and non-listed nesting bird species considered special-status by the USFWS under the federal Migratory Bird Treaty Act, and by CDFW under CDFW Code 3503 and 3513.

Impacts of Land Use Projects

Regional Effects

While the proposed Plan calls for region-wide construction of housing, office, retail, and industrial development primarily focused within PDAs, the projects are distributed throughout the Bay Area and expected to occur through the year 2040. Since the impacts are directly related to construction and construction would be spread throughout the region spatially and temporally, neither residential nor non-residential development would be expected to have a substantial adverse effect on regional avian reproductive success. Therefore this would be a less than significant (LS) impact on the regional level and no mitigation is required.

Localized Effects

Nesting habitat for raptors (birds of prey), which are protected under Section 3503.5 of the California Fish and Game Code, could occur in the vicinity of most, if not all, proposed Plan Bay Area development projects. While some species, such as golden eagles, northern harriers or short-eared owls require relatively undisturbed wildland habitats for nesting, other species, such as red-tailed hawks, Cooper's hawks, and great horned owl, are more adaptable and are increasingly found inhabiting and reproducing in urban areas. Construction disturbance during the breeding season could result in the direct loss of fertile eggs or nestlings, or otherwise lead to nest abandonment through indirect disturbance. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a "take" by the CDFW and would be considered a significant impact.

Nesting habitat for birds protected under the federal Migratory Bird Treaty Act and Sections 3503 and 3513 of the California Fish and Game Code occurs in both undisturbed and urban habitats of all kinds. Construction disturbance during the breeding season could result in the direct loss of nests, fertile eggs, or nestlings, or otherwise lead to nest abandonment, and would be considered a significant impact.

Because most, if not all, individual projects under the proposed land development pattern would have the potential to adversely affect nesting birds at a project-specific level, and because some development

would also occur outside PDAs and in some cases would occur in or near sensitive habitat, these impacts are considered potentially significant (PS). Mitigation measure 2.9(c) is described below.

Impacts of Transportation Projects

Regional Effects

While the proposed Plan calls for region-wide construction of transportation improvements, the projects are distributed throughout the Bay Area and expected to occur through the year 2040. Since the impacts are directly related to construction and construction would be spread throughout the region spatially and temporally, construction of transportation improvements would not be expected to have a substantial adverse effect on regional avian reproductive success. Therefore this would be a less than significant (LS) impact on the regional level and no mitigation is required.

Localized Effects

Similar to the construction impacts noted above for land development, construction of most, if not all, proposed transportation projects has the potential for adverse effects on the reproductive success of raptors and other birds protected under the Migratory Bird Treaty Act and the California Fish and Game Code. These impacts are considered potentially significant (PS) on a project and localized level. Mitigation Measure 2.9(c) is described below.

Combined Effects

As described above, the combined effects of development and transportation project construction on avian reproductive success is less than significant on a regional level. On the other hand, localized effects are potentially significant for land development and transportation projects under the proposed Plan. However, these effects can be mitigated to less than significant levels on a project-by-project basis as described below in Mitigation Measure 2.9(c).

Mitigation Measure

Implementing agencies and/or project sponsors shall consider implementation of mitigations measures including but not limited to those identified below.

2.9(c) Implementing agencies shall require project sponsors to conduct a pre-construction breeding bird surveys for specific projects proposed in areas containing, or likely to contain, habitat for nesting birds. The survey shall be conducted by appropriately trained professionals pursuant to adopted protocols agency guidelines. Where a breeding bird survey establishes that mitigation is required to avoid direct and indirect adverse effects on nesting raptors and other protected birds, mitigation will be developed consistent with the requirements of CEQA, USFWS, and CDFW regulations and guidelines, in addition to requirements of any applicable and adopted HCP/NCCP or other applicable plans developed to protect species or habitat. Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to:

- Perform preconstruction surveys not more than two weeks prior to initiating vegetation removal and/or construction activities during the breeding season (i.e., February 1 through August 31).
- Establish a no-disturbance buffer zone around active nests during the breeding season until the young have fledged and are self-sufficient, when no further mitigation would be required.

Typically, the size of individual buffers ranges from a minimum of 250 feet for raptors to a minimum of 50 feet for other birds but can be adjusted based on an evaluation of the site by a qualified biologist in cooperation with the USFWS and/or CDFW.

- Provide buffers around nests that are established by birds after construction starts. These birds are assumed to be habituated to and tolerant of construction disturbance. However, direct take of nests, eggs, and nestlings is still prohibited and a buffer must be established to avoid nest destruction. If construction ceases for a period of more than two weeks, or vegetation removal is required after a period of more than two weeks has elapsed from the preconstruction surveys, then new nesting bird surveys must be conducted.
- Comply with existing local regulations and policies, including applicable HCP/NCCPs, that exceed or reasonably replace any of the above measures protective of nesting birds.

Significance after Mitigation

Projects taking advantage of CEQA Streamlining provisions of SB 375 (Public Resources sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above, as feasible, to address site-specific conditions. To the extent that an individual project adopts and implements all feasible mitigation measures described above, the impact would be less than significant with mitigation (LS-M).

MTC/ABAG cannot require local implementing agencies to adopt the above mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore it cannot be ensured that this mitigation measure would be implemented in all cases, and this impact remains significant and unavoidable (SU).

Impact

- 2.9-2 Implementation of the proposed Plan could have a substantial adverse effect on riparian habitat, federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.), or other sensitive natural communities 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, through direct removal, filling, hydrological interruption, or other means.**

Impacts of Land Use Projects

Regional Effects

Jurisdictional Waters

Tables H-4a and H-5a in Appendix H summarize the potential impacts PDA development could have on jurisdictional waters, including wetlands, “other waters” (streams, rivers, lakes, San Francisco Bay, etc.), and riparian habitat. Based on the comprehensive project list, 88 PDAs, located primarily in Alameda, Contra Costa, Santa Clara, and San Mateo Counties, were identified where individual projects could have the potential to directly or indirectly impact wetlands (see **Table H-4a** in Appendix H). The majority of potentially affected wetlands were associated with estuarine and marine deepwater habitats around San Francisco Bay and the Carquinez Strait, or freshwater emergent wetlands and freshwater ponds in a variety of locations. In addition, 127 PDAs were identified that could potentially affect other waters (see **Table H-5a** in Appendix H). It is likely that there is some overlap between these two

analyses as wetlands are often associated with streams and rivers and therefore impacts on jurisdictional waters may be overstated and thus conservative. The jurisdictional waters impact assessment in these tables was developed using a GIS-based analysis that compared PDA proximity to blue-line streams and wetlands, where the PDA either intersects, bridges, or could otherwise impact jurisdictional waters. Because the analysis examined only mapped streams and wetlands, numerous smaller features that could be affected are not reflected. Conversely, proximity of a PDA to jurisdictional waters provides only a coarse indicator of actual impacts. However, although substantially less development would be expected to occur outside PDAs, in some cases such development would occur in or near jurisdictional waters as well. As noted under Method of Analysis, above, the GIS-based analysis overestimates the acreage likely to be affected, because it simply represents the intersection of areas where jurisdictional waters are present and areas where development is likely to occur. Because the analysis at this regional level is necessarily very coarse-grained, the actual acreage anticipated to be affected by future development projects would likely be far less than indicated in the tables, due to the potential absence of jurisdictional waters from specific development sites.

Potential impacts include the temporary disturbance, or permanent loss, of jurisdictional waters, including wetlands; loss or degradation of stream or wetland function; incremental degradation of wetland habitats; and fragmentation of streams and wetlands. Jurisdictional waters in the region vary from relatively small, isolated roadside areas, wet meadows, and vernal pools to major streams and rivers, bays and estuaries, to tidal, brackish, and freshwater marshes. Any fill of jurisdictional waters associated with proposed land development would be considered a significant impact.

In addition to direct habitat loss, implementation of development under the proposed Plan could increase the potential for stormwater runoff to carry a variety of pollutants into wetlands, rivers, streams, and San Francisco Bay through increases in impervious surfaces. Construction runoff often carries grease, oil, and heavy metals (due to ground disturbance) into natural drainages. Furthermore, particulate materials generated by construction could be carried by runoff into natural waterways and could increase sedimentation impacts. In accordance with Corps, EPA, USFWS, RWQCB, and CDFW guidelines, a goal of “no net loss” of wetland acreage and value is required, wherever possible, through avoidance of the resource. Where avoidance is not possible, mitigation for wetland impacts would be based on project-specific wetland mitigation plans, subject to approval by the Corps, RWQCB, CDFW, and the BCDC and CCC where applicable. Regional impacts on jurisdictional waters could be potentially significant (PS). Mitigation measure 2.9(d) provides measures for the protection of jurisdictional waters.

Special-Status Natural Communities

As noted in the *Environmental Setting* section above, there are a number of sensitive natural communities considered special-status by CDFW due to their rarity or unique biological functions and values, or otherwise considered sensitive and protected under State or local plans and ordinances. Protected natural communities in the region include, but are not limited to, oak woodlands, serpentine chaparral, northern maritime chaparral, coastal terrace prairie, serpentine bunchgrass, California bay forest, and eelgrass beds.²⁴

²⁴ CDFW, *List of Terrestrial Natural Communities*, available online:
http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_list.asp, accessed March 2013, 2010.

Development under the proposed Plan located near or adjacent to protected plant communities could cause an incremental direct loss of these community types through conversion or removal of natural vegetation, which would constitute a significant impact. In general, the proposed projects are not located in areas that support protected sensitive communities that would not otherwise be regulated as special-status species habitat (e.g., vernal pools and associated uplands) or wetlands (including riparian habitat regulated by CDFW) with the exception of oak woodlands. Impacts on such communities would be addressed in coordination with CDFW, through an HCP/NCCP permitting process, or through compliance with local ordinances or plans.

The regional magnitude of development impacts on special-status communities is not known, but is expected to be relatively minor since the majority of regional development under the proposed Plan would occur in already urbanized areas and most special-status communities are relatively rare and occur primarily in wildland areas. Therefore, the regional impacts of land development on special-status communities are considered less than significant (LS).

Localized Effects

Jurisdictional Waters

As noted in the regional impacts discussion, **Tables H-4a** and **H-5a** in Appendix H summarize the potential impacts PDA development could have on jurisdictional waters, including wetlands, “other waters” (streams, rivers, lakes, San Francisco Bay, etc.), and riparian habitat. As noted in the regional discussion, impacts to jurisdictional water are likely inflated due to the coarse level of analysis. However, localized effects are expected to occur in each of the PDAs identified.

Potential localized effects on jurisdictional waters are similar to those described in the regional discussion. In accordance with Corps, EPA, USFWS, RWQCB, and CDFW guidelines, a goal of “no net loss” of wetland acreage and value is required, wherever possible, through avoidance of the resource. Where avoidance is not possible, mitigation for wetland impacts would be based on project-specific wetland mitigation plans, subject to approval by the Corps, RWQCB, CDFW, and the BCDC and CCC where applicable. Localized impacts on jurisdictional waters could be potentially significant (PS). Mitigation Measure 2.9(d) provides supplemental measures for the protection of jurisdictional waters.

Special-Status Natural Communities

As noted in the regional discussion there are a number of sensitive natural communities considered of special-status by CDFW due to their rarity or unique biological functions and values, or otherwise considered sensitive and protected under State or local plans and ordinances.

Potential localized effects of land use development under the proposed Plan located near or adjacent to protected plant communities would be similar to those described above under regional effects and are potentially significant (PS) on a project by project basis. Localized impacts on special-status plant communities are generally expected to occur only when projects are developed in previously undeveloped areas in the more rural or wildland portions of the Bay Area. However, since many special-status communities occur on unique soil types (e.g., serpentinite derived soils), which are known to occur in urban as well as non-urban areas throughout the region, the potential for impacts in more urbanized areas cannot be ruled out. As noted above, impacts on such communities would be addressed in coordination with CDFW, through an HCP/NCCP permitting process, or through compliance with local

ordinances or plans. Therefore, the localized impacts of land development on special-status communities are considered potentially significant (PS). Mitigation Measure 2.9(d) is discussed below.

Impacts of Transportation Projects

Regional and Localized Effects

Jurisdictional Waters

Tables H-4b, H-4c, H-4d, and H-5b in Appendix H summarize the potential impacts proposed transportation investments could have on jurisdictional waters, including wetlands, “other waters” (streams, rivers, lakes, San Francisco Bay, etc.), and riparian habitat. Based on the comprehensive project list, nearly 90 transportation projects were identified that could have the potential to directly or indirectly impact wetlands (see **Tables H-4b through H-4d**). Approximately 85 percent of these projects are in Alameda and Santa Clara counties or span multiple counties. Approximately 190 transportation projects could have direct or indirect impacts on other waters within the region (see **Table H-5b** in Appendix H). While direct impacts are local in nature, if unmitigated such impacts could rise to the level of regional significance. Indirect impacts, such as degradation of water quality, are most likely to become regionally significant if unaddressed. As noted above, it is likely that there is some overlap between these two analyses as wetlands are often associated with streams and rivers and therefore impacts on jurisdictional waters may be overstated. As described above, the jurisdictional waters impact assessment in the tables cited was developed using a GIS-based analysis that compared transportation project proximity to blueline streams and other wetlands, where the project either intersects, bridges, or could otherwise impact jurisdictional waters. Because the analysis examined only mapped streams and wetlands, numerous smaller features that could be affected are not reflected. Conversely, proximity of a transportation project to jurisdictional waters provides only a coarse indicator of actual impacts.

Potential regional and local transportation project construction and operations are similar to those discussed above for land use changes and development. In accordance with Corps, EPA, USFWS, RWQCB, CDFW guidelines, a goal of “no net loss” of wetland acreage and value is required, wherever possible, through avoidance of the resource. Where avoidance is not possible, mitigation for wetland impacts would be based on project-specific wetland mitigation plans, subject to approval by the Corps, RWQCB, CDFW, and potentially CCC, and BCDC. Regional and local impacts on jurisdictional waters resulting from implementation of transportation projects could be potentially significant (PS). Mitigation Measure 2.9(d) provides measures for the protection of jurisdictional waters.

Special-Status Natural Communities

As noted in the *Environmental Setting* section above, there are numerous sensitive natural communities considered to be special-status by CDFW due to their rarity or unique biological functions and values, or otherwise considered sensitive and protected under State or local plans and ordinances. Protected natural communities in the region include, but are not limited to, oak woodlands, serpentine chaparral, northern maritime chaparral, coastal terrace prairie, serpentine bunchgrass, California bay forest, and eelgrass beds.

Transportation projects under the proposed Plan located near or adjacent to protected plant communities could cause an incremental direct loss of these community types through conversion or removal of natural vegetation, which would constitute a significant impact. In general, the proposed projects are not located in areas that support protected sensitive communities that would not otherwise be regulated as special-status species habitat (e.g., vernal pools and associated uplands) or wetlands (including riparian

habitat regulated by CDFW) with the exception of oak woodlands. Impacts on such communities would be addressed in coordination with CDFW, through an HCP/NCCP permitting process, or through compliance with local ordinances or plans.

The regional magnitude of transportation impacts on special-status communities is not known. Many proposed projects include expansion of existing roadways, where adjacent habitat has already been degraded through past and ongoing disturbance. Although most special-status communities are relatively rare and occur primarily in wildland areas they can also occur in relatively undeveloped pockets in more urban areas. New roads or significant transportation expansions in these areas could have substantial impacts on special-status communities. Therefore, the regional impacts of the transportation projects in the proposed Plan on special-status communities are considered potentially significant (PS). Mitigation Measure 2.9(d) is discussed below.

Localized Effects

Special-Status Natural Communities

Potential localized effects of transportation projects under the proposed Plan that are located near or adjacent to protected plant communities would be similar to those described above under regional effects and are potentially significant (PS) on a project-level basis. Localized impacts on special-status plant communities are generally expected to occur only when projects are developed in previously undeveloped areas in the more rural or wildland portions of the Bay Area. However, since many special-status communities occur on unique soil types (e.g., serpentinite derived soils), which are known to occur in urban as well as non-urban areas throughout the region, the potential for impacts in more urbanized areas cannot be ruled out. Therefore, the localized impacts of transportation projects on special-status communities may be potentially significant (PS). Mitigation Measure 2.9(d) provides measures for the protection of special-status communities.

Combined Effects

Jurisdictional Waters

As noted above, land development and implementation of transportation projects have the potential to impact jurisdictional waters on a localized basis as well as region-wide. The combined effects of land development and transportation projects increase the potential for impacts to jurisdictional waters throughout the region. Mitigation Measure 2.9(d) is discussed below.

Special-status Natural Communities

Regional impacts on special-status plant communities resulting from land use development under the proposed Plan are considered to be less than significant based on the location of PDAs and other development relative to the overall general distribution of special-status plant communities outside of areas designated for development. However, regional impacts of transportation projects and localized effects of land and transportation development are considered potentially significant and, therefore, the aggregate potential effects would be incrementally greater and are thus also potentially significant (PS) on both the regional and local level. Mitigation Measure 2.9(d) provides measures for the protection of special-status communities.

Mitigation Measures

Implementing agencies and/or project sponsors shall consider implementation of mitigations measures including but not limited to those identified below.

2.9(d) Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to:

- Implementing agencies shall require project sponsors to prepare biological resource assessments for specific projects proposed in areas containing, or likely to contain, jurisdictional waters and/or other sensitive or special-status communities. The assessment shall be conducted by qualified professionals in accordance with agency guidelines and standards. The assessment shall identify specific mitigation measures for any impact that exceeds significant impact thresholds and said measures shall be implemented. Mitigation measures shall be consistent with the requirements of CEQA and wetland permitting agencies, and/or follow an adopted HCP/NCCP or other applicable plans promulgated to protect jurisdictional waters or other sensitive habitats.
- In keeping with the “no net loss” policy for wetlands and other waters, project designs shall be configured, whenever possible, to avoid wetlands and other waters and avoid disturbances to wetlands and riparian corridors in order to preserve both the habitat and the overall ecological functions of these areas. Projects shall minimize ground disturbances and construction footprints near such areas to the extent practicable.
- Where avoidance of jurisdictional waters is not feasible, project sponsors shall minimize fill and the use of in-water construction methods, and only place fill with express permit approval from the appropriate resources agencies (e.g., Corps, RWQCB, CDFW, BCDC, and CCC) and in accordance with applicable existing regulations, such as the Clean Water Act or local stream protection ordinances.
- Project sponsors shall arrange for compensatory mitigation in the form of mitigation bank credits, on-site or off-site enhancement of existing waters or wetland creation in accordance with applicable existing regulations and subject to approval by the Corps, RWQCB, CDFW, BCDC, and CCC. If compensatory mitigation is required by the implementing agency, the project sponsor shall develop a restoration and monitoring plan that describes how compensatory mitigation will be achieved, implemented, maintained, and monitored. At a minimum, the restoration and monitoring plan shall include clear goals and objectives, success criteria, specifics on restoration/creation/enhancement (plant palette, soils, irrigation, etc.), specific monitoring periods and reporting guidelines, and a maintenance plan. The following minimum performance standards (or other standards as required by the permitting agencies) shall apply to any wetland compensatory mitigation:
 - Compensation shall be provided at a *minimum* 1:1 ratio for restoration and preservation, but shall in all cases be consistent with mitigation ratios set forth in locally applicable plans (e.g., general plans, HCP/NCCPs, etc.), or in project-specific permitting documentation. Compensatory mitigation may be a combination of onsite restoration/creation/enhancement, offsite restoration, preservation and/or enhancement, or purchase of mitigation credits. Compensatory mitigation may also be achieved through Regional Advance Mitigation Planning (RAMP) banking, as deemed appropriate by the permitting agencies.

- In general, any compensatory mitigation shall be monitored for a minimum of five years and will be considered successful when at least 75 percent cover (or other percent cover considered appropriate for the vegetation type) of installed vegetation has become successfully established.
- In accordance with CDFW guidelines and other instruments protective of sensitive or special-status natural communities, project sponsors shall avoid and minimize impacts on sensitive natural communities when designing and permitting projects. Where applicable, projects shall conform to the provisions of special area management or restoration plans, such as the Suisun Marsh Protection Plan or the East Contra Costa County HCP, which outline specific measures to protect sensitive vegetation communities.
- If any portion of a special-status natural community is permanently removed or temporarily disturbed, the project sponsor shall compensate for the loss. If such mitigation is required by the implementing agency, the project sponsor shall develop a restoration and monitoring plan that describes how compensatory mitigation will be achieved, implemented, maintained, and monitored. At a minimum, the restoration and monitoring plan shall include clear goals and objectives, success criteria, specifics on restoration/creation/enhancement (plant palette, soils, irrigation, etc.), specific monitoring periods and reporting guidelines, and a maintenance plan. The following minimum performance standards (or other standards as required by the permitting agencies) shall apply to any compensatory mitigation for special-status natural communities:
 - Compensation shall be provided at a *minimum* 1:1 ratio for restoration and preservation, but shall in all cases be consistent with mitigation ratios set forth in locally applicable plans (e.g., general plans, HCP/NCCPs, etc.) or in project-specific permitting documentation. Compensatory mitigation may be a combination of onsite restoration/creation/enhancement, offsite restoration, preservation and/or enhancement, or purchase of mitigation credits. Compensatory mitigation may also be achieved through Regional Advance Mitigation Planning (RAMP) banking, as deemed appropriate by the permitting agencies.
 - In general, any compensatory mitigation shall be monitored for a minimum of five years and will be considered successful when at least 75 percent cover (or other percent cover considered appropriate for the vegetation type) of installed vegetation has become successfully established.
- Compliance with existing local regulations and policies, including applicable HCP/NCCPs, that exceed or reasonably replace any of the above measures protective of jurisdictional wetlands or special-status natural communities.

Significance after Mitigation

Projects taking advantage of CEQA Streamlining provisions of SB 375 (Public Resources Code sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above, as feasible, to address site-specific conditions. To the extent that an individual project adopts and implements all feasible mitigation measures described above, the impact would normally be less than significant with mitigation (LS-M). However, there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels. For purposes of a conservative analysis, therefore, this impact remains significant and unavoidable (SU).

MTC/ABAG cannot require local implementing agencies to adopt the above mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore it cannot be ensured that this mitigation measure would be implemented in all cases. Further, there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less-than-significant levels. For purposes of a conservative analysis, therefore, this impact remains significant and unavoidable (SU).

Impact

- 2.9-3 Implementation of the proposed Plan could interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridor, or impede the use of native wildlife nursery sites.**

Impacts of Land Use Projects

Regional Effects

As noted in the *Environmental Setting* section above, the Bay Area encompasses large areas of wildlands that provide habitat for both common and rare plants and wildlife and some of these areas were mapped as Essential Connectivity Areas (ECA). The ECAs are not regulatory delineations but are identified as lands likely important to wildlife movement between large, mostly natural areas at the statewide level. ECAs were mapped on a state-wide level and should be considered coarse-scale polygons that can inform land-planning efforts, but that should eventually be replaced by more detailed linkage designs, developed at finer resolution at the regional and ultimately local scale based on the needs of particular species and ecological processes. As seen in **Figure 2.9-9**, a total of 13 ECAs occur within the nine Bay Area counties and are typically centered along the region's mountain ranges. These areas are comprised primarily of wildlands, but may also include some agricultural and developed areas (mostly rural residential) and many are bisected by major roadways.

Regional impacts of land development on ECAs would be minimal. Six PDAs in Napa (1), Solano (1), Contra Costa (3), and Santa Clara (2) counties are located within ECAs as mapped. However, these PDAs are primarily located in already urbanized corridors along major highways or other existing transportation routes where migratory corridors have already been fragmented and degraded to the point that their function as linkages is either limited or lost altogether. Substantially less development would be expected to occur outside PDAs, but in some cases such development would occur in or near ECAs. Therefore, the regional impact on ECAs from land development is considered potentially significant (PS). Mitigation Measure 2.9(e) is discussed below.

Localized Effects

As noted above, ECA's were mapped at the statewide level and further analysis is required on a regional and local level to identify landscape linkages at a finer scale more relevant to planning and identifying potential localized impacts. As noted above, most PDAs are located in already urbanized corridors along major highways or other existing transportation routes where many migratory corridors have already been fragmented and degraded to the point that their function as linkages is either limited or lost altogether. However, on a local level, areas including waterways, riparian corridors, and contiguous or semi-contiguous expanses of habitat, are likely to facilitate wildlife movement, even through urbanized areas throughout the region. In some cases, local development projects may directly encroach on wildlife corridors, particularly when direct habitat removal occurs or when sites are located adjacent to open

space or streams. Substantial encroachment on local wildlife corridors would be considered a potentially significant (PS) impact. Mitigation Measure 2.9(e) is discussed below.

Impacts of Transportation Projects

Regional Effects

Regional impacts of transportation projects on ECAs could occur with roadway and rail expansions in Napa, Sonoma, Solano, Contra Costa, Alameda, San Mateo, and Santa Clara counties. The majority of potential impacts would occur in Solano, Alameda, and Santa Clara counties. However, many of these transportation projects are expansions or enhancements of existing highways or other transportation routes with existing urban corridors established along them. In these areas migratory corridors have already been fragmented and degraded to the point that their function as linkages is either limited or has been lost altogether. Therefore, the regional impact on ECAs from implementation of transportation improvements is considered less than significant (LS).

Localized Effects

As noted above, ECAs were mapped at the statewide level and further analysis is required on a regional and local level to identify landscape linkages at a finer scale more relevant to planning and identifying potential localized impacts. As also noted above, many transportation projects under the proposed Plan are expansions or enhancements of existing highways or other transportation routes with existing urban corridors established along them and, in these areas migratory corridor function is either limited or has been lost altogether. However, on a local level, areas including waterways, riparian corridors, and contiguous or semi-contiguous expanses of habitat, are likely to facilitate wildlife movement, even through urbanized areas throughout the region. As noted for land development, proposed transportation projects may directly encroach on local wildlife corridors, particularly when direct habitat removal occurs or when sites are located adjacent to open space or streams. Substantial encroachment on local wildlife corridors would be considered a potentially significant (PS) impact. Mitigation Measure 2.9(e) is discussed below.

Combined Effects

Regional impacts on ECAs resulting from implementation of transportation projects in the proposed Plan are considered to be less than significant, based on the location of ECAs relative to the distribution of proposed projects primarily along urbanized corridors. However, regional effects of land use changes and localized effects of both land and transportation development are considered potentially significant when considered separately and, therefore, the aggregate potential regional and localized effects on migratory corridors would be incrementally greater and are thus considered potentially significant (PS) on the regional and local level. Mitigation Measure 2.9(e) provides measures for the protection of special-status communities.

Mitigation Measures

Implementing agencies and/or project sponsors shall consider implementation of mitigations measures including but not limited to those identified below.

2.9(e) Mitigation measures to reduce impacts on wildlife corridors that shall be required by implementing agencies where feasible based on project- and site- specific considerations include, but are not limited to the following. Implementing agencies shall require project sponsors to prepare detailed analyses for

specific projects affecting ECA lands within their sphere of influence to determine what wildlife species may use these areas and what habitats those species require. Projects that would not affect ECA lands but that are located within or adjacent to open lands, including wildlands and agricultural lands, shall also assess whether or not significant wildlife corridors are present, what wildlife species may use them, and what habitat those species require. The assessment shall be conducted by qualified professionals and according to any applicable agency standards. Mitigation shall be consistent with the requirements of CEQA and/or follow an adopted HCP/NCCP or other relevant plans developed to protect species and their habitat, including migratory linkages.

Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to:

- Constructing wildlife friendly overpasses and culverts;
- Fencing major transportation corridors in the vicinity of identified wildlife corridors;
- Using wildlife friendly fences that allow larger wildlife such as deer to get over, and smaller wildlife to go under;
- Limiting wildland conversions in identified wildlife corridors; and
- Retaining wildlife friendly vegetation in and around developments.
- Compliance with existing local regulations and policies, including applicable HCP/NCCPs. that exceed or reasonably replace any of the above measures protective of jurisdictional wetlands or special-status natural communities.

Significance after Mitigation

Projects taking advantage of CEQA Streamlining provisions of SB 375 (Public Resources Code sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above, as feasible, to address site-specific conditions. To the extent that an individual project adopts and implements all feasible mitigation measures described above, the impact would normally be less than significant with mitigation (LS-M). However, there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels. For purposes of a conservative analysis, therefore, this impact remains significant and unavoidable (SU).

MTC/ABAG cannot require local implementing agencies to adopt the above mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore it cannot be ensured that this mitigation measure would be implemented in all cases. Further, there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less-than-significant levels. For purposes of a conservative analysis, therefore, this impact remains significant and unavoidable (SU).

Impact

2.9-4 Implementation of the proposed Plan could conflict with adopted local conservation policies, such as a tree protection ordinance, or resource protection and conservation plans, such as a Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other adopted local, regional, or state habitat conservation plan.

Impacts of Land Use Projects

Local Ordinances

Most counties and cities in the region have local ordinances and policies in place that protect native trees as well as non-native trees in urban landscapes, as well as unincorporated County lands. These ordinances and policies vary in their definitions of protected trees (e.g., certain species, minimum diameter at breast height (dbh), trees that form riparian corridors) and in the requirements for ordinance or policy compliance. Land use changes and development could result in removal of trees that are protected by local policies or ordinances. Implementation of the proposed Plan Bay Area development and transportation projects may also conflict with other local policies or ordinances that protect locally significant biological resources, such as creek or wetland protection ordinances. Impacts to biological resources protected by local policies or ordinances are site specific and the potential to impact these resources varies on a local level. Therefore, these impacts are primarily localized but also have the potential to aggregate to regional significance.

Therefore, land development impacts related to conflicts with local policies or ordinances protecting biological resources are considered potentially significant (PS) at the regional and local levels. Mitigation Measure 2.9(f) is discussed below.

HCPs and Other Approved Plans

The San Bruno Mountain Area Habitat Conservation Plan²⁵ was adopted by the County of San Mateo and the Cities of Brisbane, Daly City, and South San Francisco in 1982— however, there are no projects under the proposed Plan on lands covered under this HCP. Projects under the proposed Plan would occur on lands covered by several other adopted plans, as well as plans pending formal adoption, within the region. The East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (ECCC HCP/NCCP)²⁶ was adopted by Contra Costa County and the Cities of Brentwood, Clayton, Oakley, and Pittsburg and went into effect in 2008. Development within ECCC HCP urban development areas, generally defined as the County urban limit line is a “covered activity.” The Santa Clara Valley Habitat Conservation Plan (SCVHCP)²⁷ is nearing adoption by the County of Santa Clara, the Santa Clara Valley Transportation Authority, the Santa Clara Valley Water District, and the Cities of San Jose, Gilroy, and Morgan Hill. Development within PDAs under the proposed Plan in Santa Clara County is generally covered under the SCV HCP. The Santa Rosa Plain Conservation Strategy²⁸ and the East Alameda County Conservation Strategy²⁹ have not yet been adopted by their local agency partners, but nonetheless influence projects requiring Section 7 or 10 consultation under the FESA within their boundaries. Programmatic Biological Opinions have been issued in each case that guide the development of avoidance and minimization measures for projects within areas covered by

²⁵ TRA Environmental Sciences, *San Bruno Mountain Area Habitat Conservation Plan*, 1982.

²⁶ ICF International, *East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan*, 2007.

²⁷ ICF International, *Santa Clara Valley Habitat Conservation Plan*, 2012.

²⁸ USFWS, et al., *Santa Rosa Plain Conservation Strategy*, 2005.

²⁹ ICF International, *East Alameda County Conservation Strategy*, 2010.

each Conservation Strategy, as well as compensatory mitigation measures. Finally, several projects occur within the California Coastal Zone and are subject to the requirements of Local Coastal Plans.

Projects in the proposed Plan that fall within the ECCC HCP boundaries must demonstrate consistency with the HCP. For example, sponsors of covered projects are required to comply with the ECCC HCP mitigation measures.³⁰ For the ECCC HCP, covered projects must submit a complete HCP/NCCP application package, submit required fees, fulfill the appropriate HCP survey requirements for wildlife, plants, wetland, and sensitive habitats, and comply with all applicable Conservation Measures, outlined in Chapter 6 of the HCP. Activities that are not covered under that plan, as well as other projects elsewhere in the region where plans are underway or have not yet formally been adopted must pursue individual project permitting for impacts to biological resources until such time as the specific activity/project is identified as a covered activity in an applicable plan. Typically, once a plan or conservation strategy has been developed for an area, wetland and wildlife agency permitting conditions and requirements for projects within that area will be consistent with that plan or strategy whether or not it has been adopted, as is the case for projects in the Santa Rosa Plain, for example. This, in effect, ensures consistency with the unadopted plan. However, this standard may not always be applied. For example, there may be some cases in which the local agency responsible for ensuring consistency may determine there are overriding considerations more important than consistency. HCPs, NCCPs and Conservation Strategies are typically regional in nature, covering multiple cities and/or counties. In addition, biological resources protected by Plans and Strategies are specific to the covered area and the potential to impact these resources thus varies on a local level. Therefore, the proposed land use impacts related to conflicts with the provisions of adopted HCPs, NCCPs, or other approved local, regional, or state habitat conservation plans may be potentially significant (PS) at the regional and local levels. Mitigation Measure 2.9(g) is discussed below.

In the Bay Area, Sonoma County, Marin County, the City and County of San Francisco, San Mateo County, and the cities of Daly City, Pacifica, and Half Moon Bay, all have certified local coastal programs (LCPs). According to GIS-based analysis, there could be land development projects under the proposed Plan that would occur throughout the region in the Coastal Zone. Compliance or non-compliance, however, would be local in nature and based on specific LCPs. Therefore, there could be potentially significant (PS) impacts related to LCP compatibility resulting from land use changes and development under the proposed Plan regionwide, as well as locally. Mitigation Measure 2.9(h) is discussed below.

Impacts of Transportation Projects

Local Ordinances

The regional and local land use change and development effects section describes the conditions that may result in a potentially significant impact related to conflicts with local policies or ordinances protecting biological resources. These impacts are generally similar to those that could result from implementation of transportation projects region-wide (e.g., tree removal). Therefore, the land use change regional and local analyses also apply to transportation projects and impacts related to conflicts with local policies or ordinances protecting biological resources are considered potentially significant (PS) at the regional and local levels. Mitigation Measure 2.9(f) is discussed below.

³⁰ ICF International, *East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan*, 2007.

HCPs and Other Approved Plans

The regional and local land use change and development effects discussion describes the conditions that may result in a potentially significant impact related to conflicts with Bay Area approved and pending HCPs and Conservation Strategies. These impacts are generally similar to those that could result from transportation projects at a regional or local level. Therefore, the analysis also applies to development of transportation projects at the regional and local levels and impacts related to conflicts with HCPs and Conservation Strategies are considered potentially significant (PS) both regionally and locally. Mitigation Measure 2.9(g) is discussed below.

In the Bay Area, Sonoma County, Marin County, San Francisco County and City, San Mateo County, and the cities of Daly City, Pacifica, and Half Moon Bay, all have certified local coastal programs (LCPs). According to GIS-based analysis, there are two transportation projects that would occur in the Coastal Zone. These include implementation of operational and safety improvements along Highway 1 between Half Moon Bay and Pacifica in San Mateo County and a bridge replacement at Muir Beach in Marin County. Projects that are located within the Coastal Zone must be compatible with the Coastal Act and applicable county or city certified LCPs, which include guidance for appropriate wetland fill mitigation (usually more demanding than wetland mitigation in other parts of the State), as well as restrictions on agricultural land conversion, open space and public access protection, habitat conservation, and coastal safety concerns. Were these two projects to conflict with the LCPs it is expected to be less than significant (LS) on a regional level given the limited area of impact. However, since LCPs guide development on a local level, it follows that projects that are not compatible with uses under LCPs would be in conflict those programs, a potentially significant (PS) impact. Mitigation Measure 2.9(h) is discussed below.

Combined Effects

As noted above, the potential for land use development and implementation of transportation projects under the proposed Plan could each result in potentially significant conflicts with local ordinances or policies protective of biological resources and approved or as yet unadopted HCP/NCCPs, Conservation Strategies, and LCPs on a localized basis as well as region-wide. Therefore, the combined effects of land development and transportation project implementation increase the potential for such conflicts. Mitigation Measures 2.9(f) through 2.9(g) are discussed below.

The above analysis concludes that proposed Plan projects are not likely to conflict with certified LCPs on a regional basis but that there could be potentially significant conflicts on a local basis due to these projects. There would also be a combined effect because, although there are no PDAs located within the Coastal Zone, development outside PDAs would occur within the Coastal Zone. Mitigation Measure 2.9(h) is discussed below.

Mitigation Measures

Implementing agencies and/or project sponsors shall consider implementation of mitigations measures including but not limited to those identified below.

2.9(f) Implementing agencies shall require project sponsors to prepare biological resources assessments for specific projects proposed in areas containing, or likely to contain, protected trees or other locally protected biological resources. The assessment shall be conducted by qualified professionals in accordance with adopted protocols, and standards in the industry. Mitigation shall be consistent with the

requirements of CEQA and/or follow applicable ordinances or plans developed to protect trees or other locally significant biological resources. Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to:

- Mitigation shall be implemented when significance thresholds are exceeded. Mitigation shall be consistent with the requirements of CEQA and/or follow applicable ordinances or plans developed to protect trees or other locally significant biological resources.
- Implementing agencies shall design projects such that they avoid and minimize direct and indirect impacts to protected trees and other locally protected resources where feasible.
- At a minimum, qualifying protected trees (or other resources) shall be replaced at 1:1, or as otherwise required by the local ordinance or plan, in locally approved mitigation sites.
- As part of project-level environmental review, implementing agencies shall ensure that projects comply with the most recent general plans, policies, and ordinances, and conservation plans. Review of these documents and compliance with their requirements shall be demonstrated in project-level environmental documentation.

2.9(g) During the design and CEQA review of individual projects under Plan Bay Area, implementing agencies and project sponsors shall modify project designs to ensure the maximum feasible level of consistency with the policies in adopted HCPs, NCCPs, or other approved local, regional, or state conservation plans, in areas where such plans are applicable. These measures apply to projects covered by the plans in question (i.e., projects assessed during plan environmental review), as well as non-covered projects within the Plan area. Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to:

- If the project results in impacts on covered species habitat, or other habitat protected under the plan, the project sponsor shall coordinate with USFWS, CDFW, and the appropriate local agency to provide full compensation of acreage and preserve function. Projects shall follow adopted procedures to process an amendment to the conservation plan(s) if necessary. In addition, all habitat based mitigation required by the conservation plans shall be provided at ratios or quantities specified in the plans.
- Project design and implementation shall minimize impacts on covered species through implementation of Mitigation Measures 2.9(a), 2.9(b), 2.9(c), 2.9(d), and 2.9(e).
- Avoidance, minimization, and mitigation measures for covered species, consistent with adopted HCP and/or NCCPs, shall also be implemented as specified during project-specific environmental review and permitting. Avoidance and minimization measures to covered species and their habitats shall include adherence to land use adjacency guidelines as outlined in adopted HCP and/or NCCPs.

2.9(h) Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to the following. Implementing agencies and project sponsors whose projects are located within the Coastal Zone or within BCDC jurisdiction shall carefully review the applicable local coastal program or San

Francisco Bay Plan for potential conflicts, and involve the California Coastal Commission or BCDC as early as possible in the project-level EIR process.

Significance after Mitigation

To the extent that an individual project adopts all feasible mitigation measures described above, the impact would be less than significant (LS). Projects taking advantage of CEQA Streamlining provisions of SB 375 (Public Resources Code sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure(s) described above to address site-specific conditions. Further, because the measure is tied to existing regulations that are law and binding on responsible agencies and project sponsors, it is reasonable to determine that they would be implemented. Therefore, with the incorporation of mitigation measures 2.9(f), 2.9(g), and 2.9(h), the impact is found to be less than significant with mitigation (LS-M).