
C.3 BIOLOGICAL RESOURCES

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C.3 BIOLOGICAL RESOURCES

C.3.1 ENVIRONMENTAL BASELINE AND REGULATORY SETTING

This section describes the existing biological resources in the proposed project region, specific biological resources within the project study area, and the regulations applicable to biological resources. The project study area for biological resources includes the Applicant's proposed transmission line route (approximately 7.3 miles) and several alternatives. The description of the biological resources baseline is divided here into two sections: a regional overview of general habitat types, and the biological resources in the vicinity of the proposed transmission line route. The environmental settings for each of the alternative routes and substation sites are described in Section C.3.3.

A variety of habitats occur within the study corridor. This corridor lies along the southeast shore of San Francisco Bay in a moderately dry area that receives between 11 and 15 inches of annual precipitation and experiences cool, wet winters and warm, dry summers. Within the undeveloped portions of the study corridor, the availability of seasonal water and the proximity to San Francisco Bay tidal waters are the critical factors that determine the distribution of vegetation types and associated wildlife species.

C.3.1.1 Regional Overview

The project is located within the San Francisco Bay region in northern Santa Clara Valley. The Santa Clara Valley is defined by the convergence of the Diablo Range (east) and the Santa Cruz Mountains (west), and by San Francisco Bay to the north. Most of the project study corridor lies in areas that were formerly San Francisco Bay tidal marsh or adjacent bay shoreline.

C.3.1.1.1 Vegetation

A region's vegetation largely results from environmental variation and disturbance history. Individual plant communities generally separate themselves along environmental gradients (Whittaker, 1967). Gradients such as soil moisture, soil fertility, temperature, slope, and other physical parameters affect the distribution of individual species and, in turn, affect the type of plant community that develops at a given location. Since plants generally act as individuals along environmental gradients (Sawyer and Keeler-Wolf 1995), it is often difficult to separate the continuum into discrete and ecologically meaningful plant communities. Plant community classification, despite its limitations, nonetheless serves an important role in grouping vegetation into relatively homogeneous units, which facilitate study and management of vegetation.

The wealth of environmental variation found throughout the San Francisco Bay region produces plant communities composed of an equally diverse assortment of species. Common species throughout the region include valley and foothill grasslands, with soft chess (*Bromus hordeaceus*), wild oat (*Avena fatua*),

and other non-native annual grasses, curly dock (*Rumex crispus*), bristly ox-tongue (*Picris echioides*), coyote brush (*Baccharis pilularis*), and mustard (*Brassica* spp.). In marsh and wetland environments, rush (*Juncus* spp.), common pickleweed (*Salicornia virginica*), bulrush (*Scirpus* spp.), and cattail (*Typha latifolia*) are common. In riparian areas, willow (*Salix* spp.), western sycamore (*Platanus racemosa*), and Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) are dominant species. Seasonal water and soil moisture availability, proximity to tidal waters, and human disturbance are the prime determinants of regional plant community composition and distribution. Human disturbance in particular has had a dramatic affect on the composition and distribution of plant communities throughout the southeast San Francisco Bay region.

Plant communities in the southeast San Francisco Bay region were classified based on existing descriptions developed by Holland (1986). This allows comparison to other local or regional vegetation communities. In some cases it was necessary to identify subdivisions or variants of larger community types that are not described in the literature.

The dominant plant communities associated with the southeast San Francisco Bay region that occur in the proposed transmission line route include:

- Northern Coastal Salt Marsh
- Northern Coastal Brackish Marsh
- Seasonal Wetland
- Central Coast Cottonwood-Sycamore Riparian Forest
- Non-Native Annual Grassland
- Alkali Grassland
- Agricultural Areas
- Developed Areas.

Wetland Plant Communities

Wetland plant communities occur throughout the San Francisco Bay region wherever surface soils remain saturated for a sufficient period to favor the growth of hydrophytic (wetland-adapted) species. Saturation and resultant lack of oxygen produce soils with mottling and other characteristic hydric features. Wetlands are distinguished based on such factors as tidal influence, salinity variation, and duration of inundation or saturation. Proximity to San Francisco Bay and its saline tidal water is a major factor differentiating wetland types in the San Francisco Bay region.

Northern Coastal Salt Marsh

Northern coastal salt marsh, generally located along sheltered inland margins of bays, lagoons, and estuaries, is a highly productive, mixed herbaceous and suffrutescent (woody) saline tidal community dominated by halophytes (salt tolerant plants). Pronounced vertical gradients exist in response to changes in frequency and duration of tidal flooding. Plant species are differentiated along this gradient, with cord grass (*Spartina foliosa*) in the low marsh zone adjacent to tidal sloughs and open water. Pickleweed (*Salicornia virginica*) is present at higher marsh elevations. Other common species include jaumea (*Jaumea carnosa*), saltgrass (*Distichlis spicata*), alkali-heath (*Frankenia salina*), and marsh gumplant

(*Grindelia stricta* var. *angustifolia*). Soils are hydric and exposed to tidal inundation that ranges from regularly inundated in the low marsh to inundation only during spring tides in the highest marsh zone.

Northern Coastal Brackish Marsh

Northern coastal brackish marsh, usually found at the interior edges of coastal bays, estuaries, or lagoons, is similar to northern coastal salt marsh, but is brackish as a result of freshwater input. Vegetation is often dense, and dominated by perennial, emergent, herbaceous monocots up to two meters tall. Brackish marsh generally intergrades with salt marsh toward the ocean and with freshwater marsh at river mouth locations. Salinity varies as a result of tidal influence and freshwater input. Dominant low marsh species include cattail (*Typha* spp.), coastal bulrush (*Scirpus maritimus*), and California bulrush (*Scirpus californicus*). Middle marsh vegetation is diverse and includes bulrush (*Scirpus* spp.), spike rush (*Eleocharis* spp.) and Baltic rush (*Juncus balticus*). Pickleweed, saltgrass, marsh gumplant, and alkali-heath are characteristic plants of the high marsh both in brackish and salt marshes.

Seasonal Wetland

Seasonal wetland habitat is characterized by poorly drained clay soils that pond water during the winter and are dry during summer. Seasonal wetlands commonly occur within grassland or oak woodland plant communities. Species common to this habitat type include non-native plant species such as curly dock (*Rumex crispus*), annual beard grass (*Polypogon monspeliensis*), and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) and some of the more common native vernal pool species such as popcorn flower (*Plagiobothrys* spp.), goldfields (*Lasthenia* spp.), and woolly marbles (*Psilocarphus* spp.).

Central Coast Cottonwood-Sycamore Riparian Forest

Central coast cottonwood-sycamore riparian forest grows adjacent to perennial or intermittent streams. Soils are typically composed of coarse-textured, recently deposited alluvium. The stream banks where riparian forest occurs flood frequently during winter storms, and soils remain saturated or moist well into the spring and summer. In the San Francisco Bay region, riparian forest generally contains a canopy of moderately closed broad-leafed species dominated by western sycamore and Fremont cottonwood. The understory may contain dense thickets of shrubby willows (*Salix* spp.), coyote brush shrubs, and wild grape (*Vitis californica*) vines.

Upland Plant Communities

Non-Native Annual Grassland

Non-native annual grassland is characterized by dense to sparse cover of mostly non-native annual grasses that germinate in fall after the first rains. They grow, flower, and set seed throughout winter and spring,

dying by summer, with the next generation existing in the seed bank to begin the cycle anew upon the next fall rains. Showy native annual forbs are often present, especially in high rainfall years. Common associates include soft chess, wild oats, Italian ryegrass, star thistle (*Centaurea solstitialis*), white stem filaree (*Erodium moschatum*), hare barley (*Hordeum murinum* ssp. *leporinum*), ripgut brome (*Bromus diandrus*), annual bluegrass (*Poa annua*), fescue (*Vulpia* spp.), curly dock, bristly ox-tongue, mustard (*Brassica* spp.), lupine (*Lupinus* spp.), and wild radish (*Raphanus sativus*). Coyote brush is often found in scattered patches of varying density throughout the grassland. Non-native annual grassland is found through most of California in valleys and foothills below 3000 feet. Factors such as grazing, agriculture, and fire have facilitated the replacement of native grasslands with non-native species (Barbour and Major 1977). This plant community often grades into oak woodland communities as moisture and drainage increase.

Alkali Grassland

Alkali grassland is a drier variation of the alkali meadow community characterized by Holland (1986). This grassland community is a species impoverished, dense to open growth of perennial and annual grasses less than one meter high. Growth and flowering take place from early spring to early fall. It occurs on fine-textured, seasonally moist, alkaline soils. Characteristic species include saltgrass, Mediterranean barley, and other non-native grasses.

Other Areas

Agricultural Areas

Cultivated fields are common throughout the San Francisco Bay region. As a result of discing, fertilizer application, and weed control, agricultural areas support few, if any, plants that are not under cultivation.

Developed Areas

Developed Areas include buildings, roadways, parking lots, and landscaped areas. These areas are highly disturbed and most vegetation is either ornamental or ruderal weeds.

C.3.1.1.2 *Wildlife*

It is often difficult to determine what elements in the landscape actually increase the habitat value of a given habitat. The type of vegetation and the structure of the vegetative community are important characteristics of habitat since wildlife species rely upon vegetation for food and cover. Slope, elevation, exposure, and accessibility by predators or humans can also have an impact on habitat suitability.

Habitat requirements vary according to species, season, and climatic conditions. Wildlife species require different habitat types during various seasons or life stages. Amphibian species require water for breeding and early development but are generally less dependent on water upon reaching maturity and during the non-breeding season. Other animals have the ability to migrate in search of suitable habitat or preferable climatic conditions during specific times of the year. In dry climates rainfall is an important variable in habitat suitability. During years of heavy rainfall, foraging habitat may be available over a broader area, or aquatic habitat may be more abundant, offering wildlife increased opportunities.

The varied wildlife habitat types present in the south San Francisco Bay region provide opportunities for wildlife during all or portions of their life history. However, many areas have been developed and, in addition to habitat loss, human disturbance in the area has degraded the opportunity for wildlife species to live and reproduce without disturbance. Wildlife habitat types described in the following section are based on wildlife use and will allow evaluation of project impacts on important wildlife habitat features as well as direct impacts on individuals or populations.

The following habitat types are discussed as they relate to wildlife use:

- Northern Coastal Salt Marsh
- Northern Coastal Brackish Marsh
- Seasonal Wetland
- Central Coast Cottonwood-Sycamore Riparian Forest
- Non-Native Annual Grassland/Alkali Grassland/Coyote Brush Scrub
- Agricultural Areas
- Aquatic Habitats/Salt Ponds
- Developed Areas.

Habitat descriptions are based on vegetation type, physical characteristics, and wildlife use. The vegetation types discussed in this section are described in terms of their value to wildlife. For a more detailed description of the regional vegetation types see Section C.3.1.1.1. Table C.3-1 correlates the vegetation types described in Section C.3.1.1.1 with the wildlife habitat types discussed below.

In the south San Francisco Bay region, predominant wildlife habitat types include non-native annual grassland, salt ponds, and tidal wetlands. Non-native annual grassland is predominant in undeveloped upland areas. Salt ponds dominate the southern portion of San Francisco Bay, while remnants of formerly extensive tidal salt marshes occur along sloughs and salt pond levees.

Table C.3-1 Regional Wildlife Habitats and Associated Vegetation

Wildlife Habitat Type	Vegetation Types (See Section C.3.1.1.1)	Typical Representative Wildlife Species	Typical Habitat Use	Important Features
Coastal salt marsh	Cord grass Pickleweed Salt grass Alkali heath Gumplant Jaumea Dodder	BIRDS California clapper rail saltmarsh common yellowthroat Alameda song sparrow MAMMALS salt marsh harvest mouse salt marsh wandering shrew raccoon California vole	Reproduction Foraging Cover	Emergent vegetation Moisture/water Open water Food sources
Coastal brackish marsh	Cattails California bulrush Alkali bulrush Spike rush Baltic rush Silverweed Saltgrass Common pickleweed Marsh gumplant Alkali-heath	BIRDS marsh wrens red-winged blackbirds Great-blue heron MAMMALS raccoon California vole	Reproduction Foraging Cover	Emergent vegetation Moisture/water Open water Food sources
Seasonal wetlands	Perennial ryegrass Mediterranean barley Alkali heath Curly dock Pigweed Heliotrope	BIRDS tricolored blackbird MAMMALS opossums raccoon black-tailed jackrabbits California vole AMPHIBIANS California tiger salamander INVERTEBRATES vernal pool tadpole shrimp versatile fairy shrimp	Reproduction Foraging Cover	Moisture/water Food sources
Riparian	Black willow Alder Cottonwood	BIRDS great blue heron Cooper's hawk Pacific-slope flycatcher Calif. yellow warbler MAMMALS raccoon opossum	Reproduction Foraging Cover	Ecotone (edge habitat) Moisture/water Dense overstory Dense understory Food sources

Wildlife Habitat Type	Vegetation Types (See Section C.3.1.1.1)	Typical Representative Wildlife Species	Typical Habitat Use	Important Features
Aquatic habitats/ salt ponds	None	<p>BIRDS semipalmated plover American avocet willet black-necked stilt marbled godwit western sandpiper dunlin</p> <p>MAMMALS harbor seal</p> <p>FISH staghorn sculpin threespine stickleback starry flounder northern anchovy yellowfin goby shiner perch Pacific herring topsmelt</p>	Foraging Reproduction	<p>Open water</p> <p>Food sources</p> <p>Moisture/water</p>
Non-native annual grasslands	Introduced annual grasses Ruderal herbs	<p>BIRDS savannah sparrow western meadowlark burrowing owl</p> <p>MAMMALS California ground squirrel black-tailed jackrabbit</p>	Reproduction Foraging Cover	<p>Open, clear views</p> <p>Uniform cover</p> <p>Prey source</p>
Agriculture	Monoculture to ruderal	<p>BIRDS long-billed curlew killdeer mockingbird western meadowlark</p> <p>MAMMALS coyotes feral cats raccoon opossum striped skunk black-tailed deer</p>	Reproduction Foraging	<p>Soft, turned soils</p> <p>Irrigation structures</p> <p>Fence posts</p> <p>Food sources</p> <p>Open, clear views</p>
Developed areas	Sparse, limited to exotic landscaping	<p>BIRDS mockingbird house finch European starling rock dove house sparrow</p> <p>MAMMALS feral cat raccoon opossum striped skunk</p>	Reproduction Foraging Cover	<p>Reliable, abundant food sources</p> <p>Minimal predation risk</p>

Northern Coastal Salt Marsh

Northern coastal salt marsh is characterized by herbaceous, salt-tolerant hydrophytes forming a moderate to dense vegetation cover up to one meter high. The endangered California clapper rail (*Rallus longirostris obsoletus*) and the salt marsh harvest mouse (*Reithrodontomys raviventris*) are both endemic to salt marsh within southern San Francisco Bay. The saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*) and the Alameda song sparrow (*Melospiza melodia pusillula*) also rely on this habitat type. Other species that feed or roost in these wetlands include herons, egrets, ducks, raptors, swallows, raccoon (*Procyon lotor*), and river otter (*Lutra canadensis*).

Northern Coastal Brackish Marsh

Northern coastal brackish marsh occurs in parts of San Francisco Bay where tidal water is diluted by freshwater inflow. As with the brackish aquatic habitat, salinity in these marshes varies from season to season and from year to year, depending largely on rainfall patterns. In contrast to the tidal salt marshes, however, freshwater sources generally keep salinity levels relatively low and within the tolerance limits of plant species unable to survive the levels found in regional salt marshes. Increased urbanization and resulting increased sewage effluent discharge levels have promoted the conversion of south bay salt marshes to brackish marsh.

Brackish marsh provides habitat for numerous birds and mammals, some relying on this habitat type for their entire life cycle. Representative species include the marsh wren (*Cistothorus palustris*), red-winged blackbird (*Agelaius phoeniceus*), and Virginia rail (*Rallus limicola*). This habitat also support species found in salt marshes, including the California clapper rail, saltmarsh common yellowthroat, Alameda song sparrow, and, where pickleweed forms dense stands, the salt marsh harvest mouse.

Seasonal Wetlands

Seasonal wetland habitat is characterized by poorly drained clay soils that pond water during the winter and are dry during the summer. Several wildlife species are adapted to survive in this habitat type throughout the year, while others are present only during periods of inundation. Seasonal wetlands provide winter and spring habitat for numerous waterfowl, shorebirds, and amphibians. Aquatic insects and other invertebrates, including the versatile fairy shrimp (*Branchinecta lindahli*) and the federal endangered vernal pool tadpole shrimp (*Lepidurus packardii*), are dependant on this habitat type.

Central Coast Cottonwood-Sycamore Riparian Forest

Riparian habitats include the vegetation communities that grow along the banks or edges of rivers or creeks. Riparian habitats typically include a dense understory of shrubs and vines sheltered by overstory vegetation provided by tree species such as willow, alder, sycamore, and cottonwood. Many riparian

systems in the San Francisco Bay region are subject to human disturbances. Natural riparian vegetation associated with typical riparian habitats is only present in a few isolated locations in the study corridor.

Riparian areas are critical to many species of wildlife. The structure of the vegetation communities associated with riparian habitats provide cover and nesting habitat for herons, songbirds and smaller birds of prey. These areas are critical for wildlife migration and dispersal. The linear configuration of riparian areas creates corridors for local animal movement including travel to and from various habitat types. Riparian habitat occurs as linear strips through various upland habitat types. The edges where riparian habitat meets with upland habitat are known as ecotones, or edge habitats. Studies have shown that edge habitats are critical for many animal species. The variety in vegetative structure and species composition associated with riparian areas is critical for breeding birds, small mammals, reptiles, and amphibian species that have a terrestrial stage in their life history.

Non-Native Annual Grassland/Alkali Grassland/Coyote Brush Scrub

This habitat type is characterized by a dense to sparse cover of introduced annual grasses associated with numerous species of ruderal herbs (species that grow on disturbed ground). Within the proposed transmission line route, non-native annual grassland and alkali grassland are used by similar species. Sparse coyote brush scrub is often associated with these grasslands, and provides important cover, forage, and nesting habitat for several grassland wildlife species.

Non-native grasslands are common and widespread throughout California, including the San Francisco Bay region, and the characteristic wildlife species that occupy them are of equally widespread distribution. Typical grassland species include California ground squirrel (*Spermophilus beecheyi*), black-tailed jackrabbit (*Lepus californicus*), western meadowlark (*Sturnella neglecta*), savannah sparrow (*Passerculus sandwichensis*), and burrowing owl (*Athene cunicularia*), a species of special concern.

Agricultural Areas

Generally, agricultural areas are disced in the fall and planted in the spring with harvest occurring in late summer and fall. Wildlife use of agricultural lands in and near urban areas is similar to that of developed sites. The conversion of native plant communities to agriculture eliminates habitats for most native species; however, raptors, long-billed curlews (*Numenius americana*), killdeer (*Charadrius vociferus*), and other species typical of annual grasslands occasionally forage in the fallow fields in winter.

Aquatic Habitats/Salt Ponds

Aquatic habitats in the south San Francisco Bay region include freshwater, brackish water, saltwater, and intertidal mudflats. Large areas of commercial salt ponds also provide aquatic habitat in the region.

Freshwater habitat in the south San Francisco Bay region occurs primarily in the estuary's tributary streams and man-made ponds and lakes. Native fish populations have been drastically reduced as a result of stream channel alteration, urbanization, diversions and dams, and the introduction of exotic species. Aquatic insect communities present in these streams and other freshwater habitats likely reflect reduced water quality caused by urbanization.

Brackish water habitat occurs in parts of San Francisco Bay where freshwater inflow lowers estuarine salinity levels. Salinity varies markedly from season to season and from year to year, depending largely on rainfall patterns. The most abundant fish species include staghorn sculpin (*Leptocottus armatus*), threespine stickleback (*Gasterosteus aculeatus*), starry flounder (*Platichthys stellatus*), northern anchovy (*Engraulis mordax*), yellowfin goby (*Acanthogobius flavimanus*), and shiner perch (*Cymatogaster aggregata*). All of these species are tolerant of the frequent changes in salinity that characterize this area.

Saltwater habitat in the sloughs and lower reaches of streams in south San Francisco Bay is affected by seasonal freshwater outflows. Consequently, a mix of saltwater and euryhaline fish, which show a strong seasonal trend in distribution, are the most common inhabitants. Saltwater and/or euryhaline species include Pacific herring (*Clupea harengus*), topsmelt (*Atherinops affinis*), staghorn sculpin, shiner perch, and starry flounder. The benthic invertebrate community contains few marine species, because such species cannot tolerate long-term exposure to brackish water conditions and cannot move to avoid periods of low salinity water.

Large areas of intertidal mudflats occur in south San Francisco Bay along the bay shoreline and extend into sloughs and the lower reaches of streams. These expanses of fine-grained silts and clays support an extensive community of diatoms, worms, and shellfish, as well as algal flora. During the twice-daily high tides, bay water inundates tidal flats and sloughs, providing foraging habitat for many species of fishes including topsmelt, staghorn sculpin, and bat ray (*Myliobatis californica*). During low tides, intertidal mudflats are the major feeding areas for many species of shorebirds, including semipalmated plover (*Charadrius semipalmatus*), American avocet (*Recurvirostra americana*), willet (*Catoptrophorus semipalmatus*), marbled godwit (*Limosa fedoa*), western sandpiper (*Calidris mauri*), and dunlin (*Calidris alpina*). The harbor seal (*Phoca vitulina*) may use mudflats in sloughs as haul out sites.

Cargill Salt Company operates numerous salt ponds in south San Francisco Bay. Depending on the salinity, the salt ponds provide habitat for a number of marine fish, benthic invertebrates, aquatic insects, and brine shrimp. The low salinity intake ponds (up to 50 mg/L) support the greatest diversity of fish and invertebrates. The remaining ponds with more elevated salinity levels are less suitable for aquatic wildlife. Drained and unvegetated ponds and levees provide important habitat for shorebirds, waterfowl, and several species protected under the federal and state Endangered Species Acts, including the western snowy plover and California least tern. Suitable nesting and post-nesting habitat is available to several species of birds, especially along the salt pond levees and their shores. Herons and gulls use this habitat for roosting and, in the ponds of lowest salinity, for foraging fish.

Developed Areas

The extensive areas of developed land with urban landscaping that characterize the San Francisco Bay region provide limited wildlife habitat value. Generally, only those species able to adapt to regular human disturbance and habitat conversion remain in urbanized areas, including mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus*), raccoon (*Procyon lotor*), and non-native species such as rock dove (*Columba livia*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and feral cat (*Felis catus*). Developed areas generally do not provide the habitat requirements of most native plants and wildlife.

C.3.1.1.3 *Rare, Threatened, or Endangered Species*

Special Status Plants

Special status plants are defined as species that are listed under the state or federal endangered species laws, candidates for such listing, or species that would meet the criteria for listing but have not yet been formally listed, such as plants included in Lists 1A, 1B, and 2 of the California Native Plant Society's (CNPS) Inventory (Skinner and Pavlik, 1994). Plant species on CNPS Lists 3 and 4 generally do not qualify for protection under the California Environmental Quality Act (CEQA).

Many special status plant species are known to occur within the south San Francisco Bay region. Twenty-seven species have been identified based on previous surveys, database records, preliminary reports, and professional botanists familiar with the area (Table C.3-2). Four species listed in Table C.3-2 are not

Table C.3-2 Special Status Plant Species Known to Occur in the Region of the Proposed Project Right-of-Way

Scientific Name Common Name	Status	Habitat Type	Potential for Species Occurrence within Project Area	Flowering Phenology
<i>Astragalus tener</i> var. <i>tener</i> alkali milk-vetch	List 1B	Playas, valley and foothill grassland, vernal pools, 1-60 m elevation	Potential habitat exists in area. Individuals observed west of corridor.	March-June
<i>Atriplex joaquiniana</i> San Joaquin sparscale	FSC, List 1B	Chenopod scrub, meadows, playas, valley and foothill grassland, 1-320 m elevation	Potential habitat exists in area. Individuals observed adjacent to corridor.	April-October
<i>Ceanothus confusus</i> Rincon Ridge ceanothus	FSC, List 1B	Closed-cone coniferous forest, chaparral, cismontane woodland/ volcanic or serpentinite, 75-1065 m elevation	No suitable habitat exists on site	February-April
<i>Chorizanthe robusta</i> var. <i>robusta</i> robust spineflower	FE, List 1B	Cismontane woodland (openings), coastal dunes, coastal scrub/sandy or gravelly, 3-300 m elevation	No suitable habitat exists on site	April-September
<i>Clarkia concinna</i> ssp. <i>automixa</i> Santa Clara red ribbons	FSC, List 1B	Chaparral, cismontane woodland, 90-1500 m elevation	No suitable habitat exists on site	April-July
<i>Cordylanthus maritimus</i> spp. <i>palustris</i> Point Reyes bird's-beak	FSC, List 1B	Marshes and swamps (coastal salt), 0-10 m elevation	Unlikely. Low quality potential habitat exists in area, but species not found in south San Francisco Bay region for many years.	June-October
<i>Fritillaria liliacea</i> fragrant fritillary	FSC, List 1B	Coastal prairie, coastal scrub, valley and foothill grassland/ often serpentinite, 3-410 m elevation	Unlikely. No suitable habitat exists on the proposed route.	February-April
<i>Grindelia stricta</i> var. <i>angustifolia</i> marsh gumplant	List 4	Tidal flats and salt marshes below 10 m elevation	Potential habitat exists in area. Three individuals were observed several hundred feet from corridor.	August-October
<i>Hemizonia parryi</i> ssp. <i>congdonii</i> Congdon's tarplant	FSC, List 1B	Valley and foothill grassland (alkaline), 1-215 m elevation	Potential habitat exists on site. Individuals observed immediately west of site.	June-November
<i>Hesperolinon bicarpellatum</i> two-carpellate western flax	FSC, List 1B	Chaparral (serpentinite), 60-1005 m elevation	No suitable habitat exists on site	May-July
<i>Hesperolinon serpentinum</i> Napa dwarf flax	List 1B	Chaparral (serpentinite), 50-800 m elevation	No suitable habitat exists on site	May-July
<i>Lasthenia conjugens</i> Contra Costa goldfields	FE, List 1B	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools, 0-470 m elevation	Potential habitat exists in area. Individuals observed west and east of corridor.	March-June
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i> Delta tule pea	FSC, List 1B	Marshes and swamps (freshwater and brackish), 0-4 m elevation	No suitable habitat exists on site	May-September
<i>Layia septentrionalis</i> Colusa layia	List 1B	Chaparral, cismontane woodland, valley and foothill grassland/sandy, serpentinite, 100-1095 m elevation	No suitable habitat exists on site	April-May
<i>Lessingia hololeuca</i> wooly-headed lessingia	List 3	Broadleaved upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland /clay, serpentine, 15-305 m elevation	No suitable habitat exists on site	June-October

Scientific Name Common Name ^a	Status	Habitat Type	Potential for Species Occurrence within Project Area	Flowering Phenology
<i>Lupinus sericatus</i> Cobb Mountain lupine	List 1B	Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, 490-1525 m elevation	No suitable habitat exists on site	March-June
<i>Madia hallii</i> Hall's madia	FSC, List 1B	Chaparral (serpentinite), 500-670 m elevation	No suitable habitat exists on site	April-June
<i>Monardella antonia</i> ssp. <i>antonia</i>	List 3	Chaparral, cismontane woodland, 500-1000 m elevation	No suitable habitat exists on site	June-August
<i>Monardella villosa</i> ssp. <i>globosa</i> robust monardella	List 1B	Chaparral (openings), cismontane woodland, 185-600 m elevation	No suitable habitat exists on site	June-July
<i>Penstemon newberryi</i> var. <i>sonomensis</i> Sonoma beardtongue	List 1B	Chaparral (rocky), 700-1370 m elevation	No suitable habitat exists on site	April-August
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i> Choris's popcorn-flower	List 3	Chaparral, coastal prairie, coastal scrub (mesic), 15-100 m elevation	No suitable habitat exists on site	March-June
<i>Plagiobothrys glaber</i> hairless popcorn flower	List 1A	Wet alkaline soils in valleys and coastal marshes at elevations below 100 m	Unlikely. Potential habitat may exist in area, but species believed to be extinct.	April-May
<i>Sidalcea malachroides</i> maple-leaved checkerbloom	List 1B	Broadleaved upland forest, coastal prairie, coastal scrub, north coast coniferous forest, often in disturbed areas, 2-700 m elevation	No suitable habitat exists on site	May-August
<i>Streptanthus albidus</i> ssp. <i>peramoenus</i> most beautiful jewel-flower	FSC, List 1B	Chaparral, cismontane woodland, valley and foothill grassland/ serpentinite, 120-730 m elevation	No suitable habitat exists on site	April-June
<i>Streptanthus morrisonii</i> jewel-flower	FSC, List 1B	Chaparral (serpentinite), 90-815 m elevation	No suitable habitat exists on site	June-September
<i>Suaeda californica</i> California sea blite	FE, List 1B	Margins of coastal salt marshes, below 5 m elevation	No suitable habitat exists on site	July-October
<i>Tropidocarpum capparideum</i> caper-fruited tropidocarpum	List 1A	Alkaline soils in low hills and valleys at elevations below 200 m	Unlikely. Potential habitat may exist in area, but species believed to be extinct.	March-April

Notes:

^a Botanical nomenclature corresponds to Hickman (1993).

Key to Status Codes:

FE = Listed as Endangered by the U.S. Fish and Wildlife Service

FSC = Candidate for listing by the U.S. Fish and Wildlife Service (Existing information indicate taxa may warrant listing, but substantial biological information necessary to support a proposed rule is lacking)

California Native Plant Society Listings:

List 1A = Plants presumed extinct in California

List 1B = Plants rare, threatened, or endangered in California and elsewhere

List 3 = Plants about which we need more information -- a review list

List 4 = Plants of limited distribution -- a watch list

considered rare, threatened, or endangered but have limited distributions; however, sufficient biological information to warrant listing is lacking (CNPS List 3 or 4).

The principal reasons for the decline in available habitat for the plant species listed in Table C.3-2 are residential and commercial development, agriculture, and salt pond construction.

Special Status Wildlife

The term "special status species" as it applies to wildlife is defined as those species that have been listed or proposed for listing, or are candidates for listing by the U.S. Fish and Wildlife Service (USFWS), California Fish and Game Commission, or California Fish and Game Code. A total of 50 special status species have the potential to occur in the region (see Table C.3-3). Their legal status and habitat use within the region are discussed in Section C.3.1.2.3 below.

C.3.1.1.4 *Special Habitat Management Areas*

Two areas have been designated for special habitat management in the vicinity of the proposed project. These areas include Don Edwards San Francisco Bay National Wildlife Refuge and the Pacific Commons Preserve. A third area within the Bayside Business Park parcel as part of a business park development mitigation measure is proposed for future restoration as a tidal marsh preserve.

The National Wildlife Refuge includes large areas of open water, tidal salt marsh, mudflats, and salt ponds along the margins of south San Francisco Bay. Most refuge lands are posted, and public access is limited to various trails, especially along levees. The Refuge provides protection for migrating and breeding waterfowl, shorebirds, and songbirds including the state and federal-listed California clapper rail and several other sensitive species, such as the salt marsh harvest mouse, western snowy plover, saltmarsh common yellowthroat, and Alameda song sparrow.

The Pacific Commons Preserve in Fremont is in an ongoing wetland restoration and creation project that will become part of the Refuge when the restoration is complete; in the interim it will be subject to a conservation easement under the supervision of the U.S. Fish and Wildlife Service. As one of the largest remaining undeveloped areas in south San Francisco Bay, the Pacific Commons Preserve supports several special status wildlife and plant species, including California tiger salamander, the vernal pool tadpole shrimp (a federal endangered species), burrowing owl, and Contra Costa goldfields (a federal endangered plant).

The existing Bayside Business Park is a mix of abandoned airport infrastructure, alkali grassland, and brackish marsh. The infrastructure includes an old runway. Brackish marsh habitat is found throughout the site in various states of disturbance. At the northern end of the site, near Milepost 4.3, is a high

quality brackish marsh. Most of the rest of the site supports a moderately disturbed brackish marsh community.

Table C.3-3 Special Status Wildlife Species That May Occur Within the Proposed Project Right-of-Way

Common name Scientific name	Status	Habitat	Potential for species occurrence within project area
MAMMALS			
Salt-marsh wandering shrew <i>Sorex vagrans halicoetes</i>	FSC, CSC	Marsh with abundant driftwood and pickleweed.	Moderate potential. Suitable habitat present in several areas between unnamed tidal creek near west end of Warren Avenue and the San Jose/Santa Clara Water Pollution Control Plant. Presumed to be present in suitable habitat.
Pallid bat <i>Antrozous pallidus</i>	CSC	Forages in many habitats. Roosts in buildings, rocky outcrops, caves, and mines.	Low potential. No suitable roost habitat on site.
Townsend's western big-eared bat <i>Corynorhinus townsendii townsendii</i>	CSC	Roosts in caves or buildings in a variety of habitats.	Low potential. No suitable roost habitat on site.
Long-eared myotis <i>Myotis evotis</i>	FSC	Roosts in trees, under bark, caves, buildings and rocky outcrops.	Low potential. No suitable roost habitat on site.
Fringed myotis <i>Myotis thysanodes</i>	FSC	Roosts in mines, caves, trees, and buildings.	Low potential. No suitable roost habitat on site.
Long-legged myotis <i>Myotis volans</i>	FSC	Roosts in trees, crevices, mines, and buildings.	Low potential. No suitable roost habitat on site.
Yuma myotis <i>Myotis yumanensis</i>	FSC, CSC	Roosts in buildings, trees, caves, bridges, and crevices.	Low potential. No suitable roost habitat on site.
California Mastiff bat <i>Eumops perotis californicus</i>	CSC	Forages over many habitats. Requires tall cliffs or buildings for roosting sites.	Low potential. No suitable roost habitat on site.
Salt-marsh harvest mouse <i>Reithrodontomys raviventris</i>	FE, SE	Salt marsh dominated by pickleweed.	Moderate potential. Suitable habitat present in several areas between unnamed tidal creek near west end of Warren Avenue and the north end of the San Jose/Santa Clara Water Pollution Control Plant. Presumed to be present in suitable habitat.
BIRDS			
American white pelican <i>Pelecanus erythrorhynchos</i>	CSC	Forages in freshwater lakes and rivers, nests on islands in lakes.	Low potential. May forage on site, but no suitable breeding habitat is present.
California brown pelican <i>Pelecanus occidentalis californicus</i>	FE, SE	Usually breeds on islands in coastal areas.	Low potential. No suitable foraging or breeding habitat on site.
Double-crested cormorant <i>Phalacrocorax auritus</i>	CSC	Colonial nester on cliffs, electrical transmission towers, offshore islands and lake margins.	High potential. Suitable foraging habitat is present, but low potential for nest sites along project route.

Common name Scientific name	Status	Habitat	Potential for species occurrence within project area
Great blue heron (rookery) <i>Ardea herodias</i>	None	Found in shallow estuaries and fresh and saline emergent wetlands. Nests in colonies in the tops of trees or snags usually near shallow water feeding areas.	Present. Rookery present along Coyote Creek near San Jose/Santa Clara water pollution control plant.
American bittern <i>Botaurus lentiginosus</i>	FSC	Found in freshwater and saline emergent wetlands. Nests in dense emergent vegetation.	Low potential. Observed in seasonal wetlands at Pacific Commons, suitable habitat not present within transmission line route.
Sharp-shinned hawk <i>Accipiter striatus</i>	CSC	Nests in woodlands, forages in many habitats.	Moderate potential. No suitable breeding habitat on site, but likely to occur as a winter visitor or during migration.
Golden eagle <i>Aquila chrysaetos</i>	CSC	Breeds on cliffs or in large trees or electrical towers, forages in open areas.	Low potential. No breeding habitat on site. Rare winter visitor.
Ferruginous hawk <i>Buteo regalis</i>	CSC	Forages in grasslands and in other open habitats.	Low potential. Only found as winter visitor in grassland areas.
Northern harrier <i>Circus cyaneus</i>	CSC	Forages in marshes and grasslands. Nests in marshes and wet fields.	Present. Suitable breeding and foraging habitat on site.
White-tailed kite <i>Elanus leucurus</i>	FP, FSC	Forages in marshes and grasslands. Nests in tall shrubs and trees.	Present. Suitable breeding and foraging habitat on site.
Cooper's hawk <i>Accipiter cooperii</i>	CSC	Nests in woodlands, forages in many habitats.	Moderate potential. No suitable breeding habitat on site, but likely to occur as a winter visitor or during migration.
Merlin <i>Falco columbarius</i>	CSC	Uses many habitats in migration and winter.	Low potential. Only found as rare winter visitor on site.
Prairie falcon <i>Falco mexicanus</i>	CSC	Forages in open areas. Nests on cliffs.	Low potential. No breeding habitat on site. Only found as rare winter visitor.
American peregrine falcon <i>Falco peregrinus anatum</i>	SE	Forages in many habitats. Frequently forages over salt ponds. Nests on cliffs.	Low potential. No suitable breeding habitat on site. Found as a rare winter visitor.
California black rail <i>Laterallus jamaicensis coturniculus</i>	FSC, ST	Breeds in a variety of wetland types. Nests in pickleweed marshes.	Low potential. Rarely found in the south San Francisco Bay area.
California clapper rail <i>Rallus longirostris obsoletus</i>	FE, SE	Salt marsh habitat dominated by pickleweed and cordgrass.	Low potential. Limited suitable habitat available.
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT, CSC	Nests on sandy beaches on marine and estuarine shores.	Present. Nesting documented in area of salt ponds.
Long-billed curlew <i>Numenius americanus</i>	CSC	Nests on prairies and short-grass fields. Forages on mud flats, marshes, pastures and agricultural fields.	High potential. Does not breed in San Francisco Bay region, but common winter visitor.
California gull <i>Larus californicus</i>	CSC	Found in a variety of habitats, including saline and freshwater emergent wetlands, mudflats, and sandy beaches.	Moderate potential. May be common winter resident, and local breeding species.
California least tern <i>Sterna antillarum brownii</i>	FE, SE	Coastal nester on bare or sparsely vegetated substrates.	Low potential. No suitable breeding or foraging habitat on site.

Common name Scientific name	Status	Habitat	Potential for species occurrence within project area
Short-eared owl <i>Asio flammeus</i>	CSC	Nests in tall, emergent vegetation on the ground. Forages in many habitats.	Moderate potential. Suitable breeding and foraging habitat at Pacific Commons.
Burrowing owl <i>Athene cunicularia</i>	CSC	Flat grasslands and marshes with low growing vegetation. Dependent on mammal burrows.	Present. Breeds within project right-of-way at Pacific Commons.
Vaux's swift <i>Chaetura vauxi</i>	FSC, CSC	Common migrant throughout the state. Nests in redwood, and other coniferous forests.	Low potential. May occur as a migrant, but no suitable nesting habitat along proposed route.
Allen's hummingbird <i>Selasphorus sasin</i>	FSC	Occurs in a variety of habitats as a migrant, and breeds in the San Francisco Bay region. Common in riparian areas.	Moderate potential. Common summer resident in San Francisco Bay region.
Pacific-slope flycatcher <i>Empidonax difficilis</i>	FSC	Common in warm, moist woodlands. Usually breeds in riparian habitats.	Moderate potential. Suitable breeding habitat present in riparian vegetation associated with Coyote Creek.
California horned lark <i>Eremophila alpestris actia</i>	CSC	Found in coastal plains, short-grass prairie, grasslands, and open fields.	Low potential. Suitable nesting habitat is present.
Bank swallow <i>Riparia riparia</i>	ST, FSC	Found primarily in riparian and lowland habitats. Breeds in sandy banks or cliffs, usually near water.	Low potential. May occur as migrant, no suitable breeding habitat within the proposed route.
Bewick's wren <i>Thryomanes bewickii</i>	FSC	Commonly found in chaparral habitats, but also associated with riparian areas. Cavity nester in ground, snags, or rock crevices.	Moderate potential. Suitable breeding habitat along Coyote Creek.
Loggerhead shrike <i>Lanius ludovicianus</i>	CSC	Forages in marshes and grasslands. Nests in tall shrubs or dense trees.	Present. Suitable breeding habitat in several areas along project route.
California yellow warbler <i>Dendroica petechia brewsteri</i>	CSC	Breeds in riparian habitats.	Low potential. No suitable breeding habitat on site.
Saltmarsh common yellowthroat <i>Geothlypis trichas sinuosa</i>	CSC	Breeds in brackish and fresh water marshes in tall grass, willows, and tules.	Present. Suitable breeding habitat in several areas along project route.
Yellow-breasted chat <i>Icteria virens</i>	CSC	Primarily associated with riparian habitats. Requires riparian thickets of willow for cover.	Low potential. Sparse riparian vegetation along Coyote Creek is not typical of preferred habitat.
Grasshopper sparrow <i>Ammodramus savannarum</i>	FSC	Occurs in dense, dry grasslands with scattered shrubs. Nests on ground in dense vegetation.	Low potential. May occur in the non-native grassland habitat at Pacific Commons.
Alameda song sparrow <i>Melospiza melodia pusillula</i>	FSC, CSC	Breeds in salt marsh primarily along channels. Also commonly nest in the area of levees and dikes associated with marsh areas.	Present. Suitable breeding habitat on site. Possibly breeds along unnamed creek at west end of Warren Avenue. May also breed in marsh at south end of Bayside Business Park and around waterbird pond.
Tricolored blackbird <i>Agelaius tricolor</i>	FSC, CSC	Breeds near freshwater in dense emergent vegetation.	Low potential. No suitable riparian breeding habitat on site.
REPTILES			

Common name Scientific name	Status	Habitat	Potential for species occurrence within project area
Western pond turtle <i>Clemmys marmorata</i>	CSC	Found in permanent to semi-permanent water in a variety of habitats.	Low potential. No suitable aquatic habitat on site.
AMPHIBIANS			
California tiger salamander <i>Ambystoma californiense</i>	FC	Generally found in grasslands with ground squirrel burrows and seasonal breeding pools.	Present. Suitable estivation habitat present on project right-of-way.
California red-legged frog <i>Rana aurora draytonii</i>	FT, CSC	Found in streams, freshwater ponds, and wetlands.	Low potential. No suitable fresh water habitat on site.
Foothill yellow-legged frog <i>Rana boylei</i>	CSC	Found in rocky streams with a sparse riparian canopy.	Low potential. No suitable streams on site.

Common name Scientific name	Status	Habitat	Potential for species occurrence within project area
FISHES			
Steelhead-central California coast <i>Oncorhynchus mykiss irideus</i>	FT	Adults spawn in cool streams with clean gravel substrates. Juveniles spend approximately 2-5 years in freshwater.	Low potential. Any migrant steelhead in Coyote Creek will move across the preferred route.
CRUSTACEANS			
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE	Occurs in vernal pools with unvegetated bottoms.	Low potential. Suitable vernal pools not present along proposed project route.

Note 1:

U.S. Fish and Wildlife Service		California Department of Fish and Game	
FE	Federal-listed, endangered	SE	State-listed, endangered
FT	Federal-listed, threatened	ST	State-listed, threatened
FC	Federal candidate for listing	FP	Fully Protected Species
FSC	Federal non-official species of concern	CSC	California Species of Special Concern

C.3.1.2 Environmental Setting

C.3.1.2.1 Vegetation

Jones and Stokes Associates, Inc., in a survey completed in support of PG&E Co.'s Proponent's Environmental Assessment, described ten plant communities along the proposed transmission line route while conducting surveys for wetlands and special status plants (1998). They did not use classification methodologies and nomenclature developed by Holland (1986). To facilitate comparison with other local and regional plant communities, each community described by Jones and Stokes has been related to one developed by Holland (1986) (Table C.3-4). The proposed transmission line route would pass through six plant communities.

- Upland Plant Communities:
- Non-Native Annual Grassland
 - Alkali Grassland
- Wetland Plant Communities:
- Northern Coastal Salt Marsh
 - Northern Coastal Brackish Marsh
 - Seasonal Wetland
 - Central Coast Cottonwood-Sycamore Riparian Forest

Table C.3-4 Comparison of Plant Community Classifications

Jones and Stokes, Inc. (1998) (for PG&E Co.)	Holland (1986)	Wetlands Research Associates, Inc. (2000)
Salt Marsh	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh
Ruderal Salt Marsh	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh
Brackish Marsh	Northern Coastal Brackish Marsh	Northern Coastal Brackish Marsh
Saltgrass Marsh	not treated	Seasonal Wetland
Seasonal Wetland	not treated	Seasonal Wetland

Jones and Stokes, Inc. (1998) (for PG&E Co.)	Holland (1986)	Wetlands Research Associates, Inc. (2000)
not treated	Central Coast Cottonwood-Sycamore Riparian Forest	Central Coast Cottonwood-Sycamore Riparian Forest
Annual Grassland	Non-Native Annual Grassland	Non-Native Annual Grassland
Ruderal upland	not treated	Non-Native Annual Grassland
Baccharis Scrub	not treated	Non-Native Annual Grassland
Alkali Grassland	Alkali Meadow	Alkali Grassland
not treated	not treated	Agricultural Areas
Ornamental Plantings	not treated	Developed Areas

Wetland Plant Communities

Wetland plant communities are found along the proposed transmission line route and differ based on such factors as freshwater input, tidal influence, and disturbance history (Figure C.3-1). A formal jurisdictional wetlands delineation has not been completed for the entire proposed transmission line route.

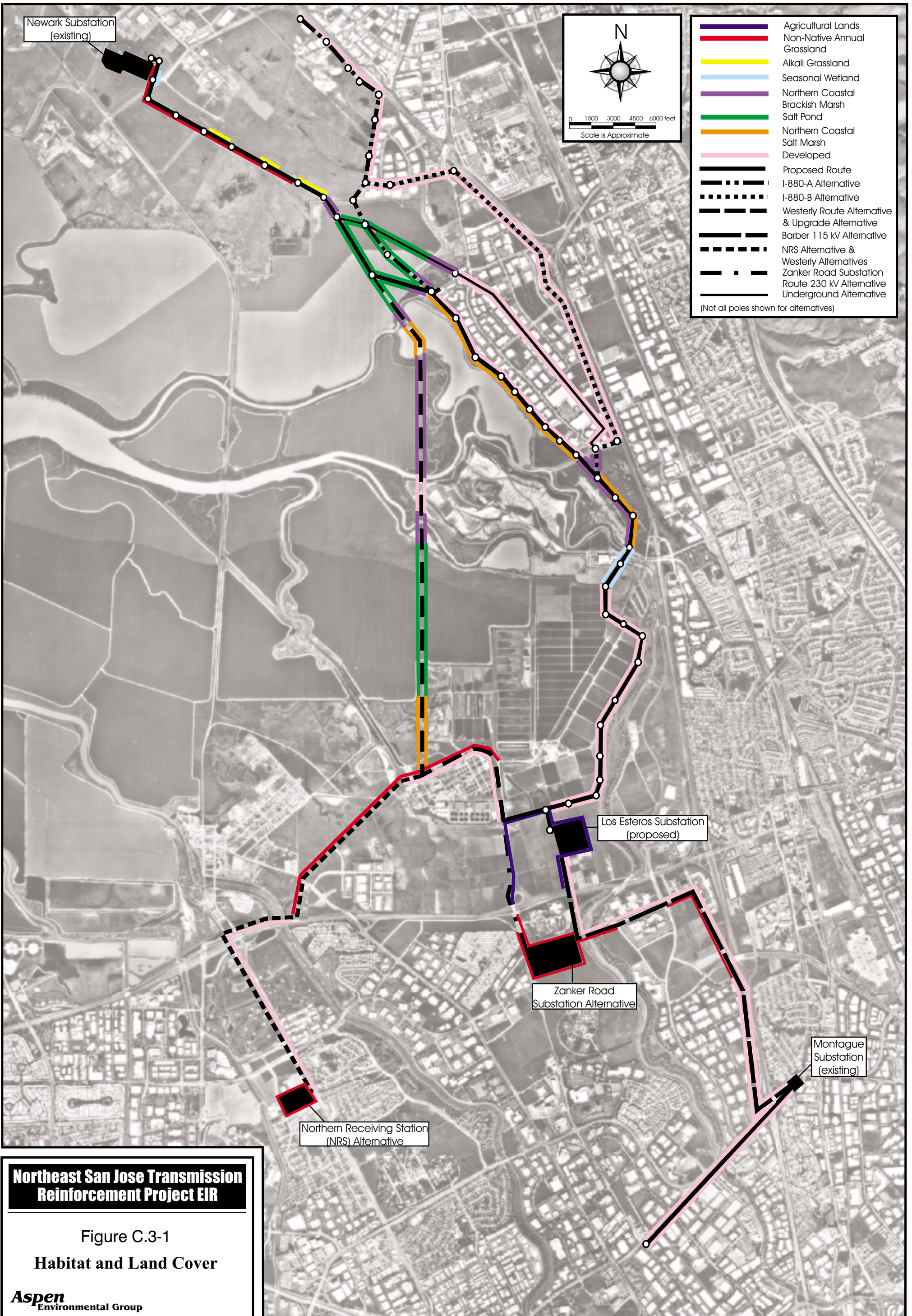
Northern Coastal Salt Marsh

Within the proposed transmission line route, northern coastal salt marsh occurs west and south of the Bayside Business Park in a re-created tidal area. Some areas are sparsely vegetated with herbaceous salt marsh vegetation while other areas have a fairly dense vegetation cover. A relatively undisturbed salt marsh occurs near Milepost 4.0. This community is composed of salt tolerant hydrophytes less than one meter tall. Common pickleweed is the dominant species, with jaumea, broadleaf peppergrass (*Lepidium latifolium*), and alkali heath as subdominants. Disturbed portions of this community were found at various locations along the proposed transmission line route that were equivalent to Jones and Stokes Associates (1998) “ruderal salt marsh community”. They described this ruderal community as a saline wetland community, generally occurring on salt pond levees, composed of common pickleweed and exotic weedy species such as brass-buttons, rabbitfoot grass, and slender-leaf iceplant (*Mesembryanthemum nodiflorum*).

Northern Coastal Brackish Marsh

Northern coastal brackish marsh is found at three locations along the proposed transmission line route. It is similar to salt marsh but is subject to freshwater input, and is dominated by perennial, emergent, herbaceous monocots up to two meters tall. Between Mileposts 4.1 and 4.3, there is a high quality brackish marsh dominated by cattail (*Typha latifolia*), bulrush, willow (*Salix* spp.), bristly ox-tongue, curly dock, saltgrass, and broadleaf peppergrass. Just south of this, between Mileposts 4.3 and 4.8, there is a

seasonally wet brackish marsh dominated by common pickleweed. At the northern end of the Santa Clara-San Jose Sewage Disposal Facility, between Mileposts 4.9 and 5.1, there is a pond with fringing brackish marsh dominated by common pickleweed, cattail, and bulrush.



Northeast San Jose Transmission Reinforcement Project EIR

Figure C.3-1
Habitat and Land Cover

Aspen
Environmental Group

Seasonal Wetland

Seasonal wetland habitat is characterized by poorly drained clay soils that pond water during the winter and are dry during summer. A disturbed seasonal wetland plant community is found in several shallow depressions on Pescadero clay soils in grassland near the Newark Substation, between Mileposts 0.0 and 0.3. Soils in this area are mapped as Pescadero clay (Jones and Stokes 1998). Dominant plant species include brass buttons, common spike-rush (*Eleocharis macrostachya*), hyssop loose-strife (*Lythrum hyssopifolium*), Italian ryegrass, alkali heath, and saltgrass. Seasonal wetlands near Milepost 0.0 are dominated by common spike-rush and contain annual semaphore grass (*Pleuropogon californicus*).

A seasonal wetland community dominated by saltgrass and rabbitfoot grass grows on Pescadero soils in the bottom of a non-tidal drainage channel that parallels the southern part of the Newark Substation site and the northern bank of the ditch that parallels the north side of Auto Mall Parkway between Mileposts 0.0 and 0.3. Additional seasonal wetland habitat may occur within areas mapped as alkali grassland between Mileposts 0.3 and 1.7.

Central Coast Cottonwood-Sycamore Riparian Forest

Central coast cottonwood-sycamore riparian forest parallels the proposed transmission line route between Mileposts 5.6 and 6.7. Dominant species along this riparian corridor include willow, western sycamore, Fremont cottonwood, coyote brush, fennel (*Foeniculum vulgare*), poison hemlock (*Conium maculatum*), and mallow (*Malva* spp.).

Upland Plant Communities

Upland plant communities within the proposed transmission line route include non-native annual grassland and alkali grassland.

Non-Native Annual Grassland

Within the proposed transmission line route, non-native annual grassland borders the Newark Substation and between the Newark Substation and Cushing Parkway (Mileposts 0.0 to 1.7). Dominant grasses include Italian ryegrass, hare barley (*Hordeum murinum* ssp. *leporinum*), and riggut brome (*Bromus diandrus*). Non-native annual grassland is also abundant at the proposed Los Esteros Substation in areas that are not in active agricultural uses (Milepost 7.2). Fields in this area are dense with black mustard (*Brassica nigra*), wild oat, white stem filaree, star thistle, wild radish, curly dock, annual bluegrass, and hare barley. Agricultural operations are ongoing in this area.

Along roadsides and on salt pond levees within the proposed transmission line route, a variant of the non-native annual grassland was observed. It was dominated by weedy forbs and grasses and contained

patches of bare ground. Dominant species included black mustard, hare barley, ripgut brome, long-beaked filaree (*Erodium botrys*), and white-stem filaree. The equivalent community was described by Jones and Stokes Associates (1998) as a “ruderal upland”.

Alkali Grassland

Alkali grassland is a drier version of Holland’s (1986) alkali meadow. This plant community is species impoverished, and contains a dense to open growth of perennial and annual grasses less than one meter high. It was observed along the proposed transmission line route between Mileposts 0.3 and 1.7. This community is intermingled with areas more commonly designated as non-native annual grassland. Alkali grassland is dominated by saltgrass, Italian ryegrass, Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), meadow barley (*Hordeum brachyantherum*), alkali heath, tarweed (*Hemizonia* spp.) and broadleaf peppergrass. In the study corridor, alkali grassland occurs on hydric Pescadero clay soils. Portions of alkali grassland may be wetland habitat. The lowest portions of this community, in disturbances such as tire ruts, often are dominated by saltgrass, brass buttons, common pickleweed, and alkali heath.

Other Areas

Salt Ponds

Most of the historic tidal salt marshes in south San Francisco Bay have been diked for use as salt ponds. These ponds are either open water or barren salt flats depending on the time of year and their function in the salt extraction process. These ponds are mostly unvegetated, but may have a very sparse presence of salt marsh vegetation along their edges including salt grass, common pickleweed, and alkali heath.

Agricultural Areas

Agricultural fields are found surrounding the greenhouse located at the proposed Los Esteros Substation near Milepost 7.2. Annual row crops are grown in these fields. Generally, these areas are bedded in the fall and planted in the spring. Harvest generally occurs between July and October.

Developed Areas

This classification includes buildings, landscaping, roadways, and parking lots. Landscaped areas with ornamental plants are found throughout the proposed transmission line route in developed areas such as the Bayside Business Park located between Mileposts 2.7 and 4.0. The landscaping includes ornamental plants such as baby sun rose (*Aptenia cordifolia*), red ironbark (*Eucalyptus sideroxylon*), oleander (*Nerium oleander*), Lombardy poplar (*Populus nigra*), and knobcone pine (*Pinus attenuata*). Lawn and planted ornamental trees are also found at scattered locations along the study corridor.

C.3.1.2.2 Wildlife

Wildlife species are distributed throughout the proposed transmission line route where suitable habitat occurs. Their distribution along the route is also strongly determined by climate and season as it correlates with life cycles of wildlife species. Wildlife species observed along the route are discussed below in terms of the habitats in which they are observed.

Northern Coastal Salt Marsh/Northern Coastal Brackish Marsh

Tidal salt and brackish wetlands are present where the preferred route crosses Mud Slough between Mileposts 2.5 and 2.7. The route is near a wetland mitigation pond between Mileposts 2.7 and 4.1. These wetlands may provide habitat for several special status species, including California clapper rail, salt marsh harvest mouse, saltmarsh common yellowthroat, and Alameda song sparrow.

Seasonal Wetlands

Seasonal wetlands occur within or near the proposed route at Pacific Commons between Mileposts 0.3 and 1.7. These wetlands are important winter and spring foraging areas for migrant shorebirds and waterfowl. Although the California tiger salamander and vernal pool tadpole shrimp occur at Pacific Commons, the shallow wetlands located within the right-of-way are usually inundated for short periods of time and are generally unsuitable for these species. The Fremont Airport site, between Mileposts 4.3 and 4.7, contains seasonal saline wetlands with areas of pickleweed. This area has been reported to support the salt marsh harvest mouse.

Central Coast Cottonwood-Sycamore Riparian Forest

Specific areas of the proposed route that include or are near riparian habitat include a segment between Mileposts 5.6 and 6.7 along Coyote Creek. A great blue heron rookery was observed near Milepost 5.6; in addition, the riparian habitat in this area may be suitable for special status species such as the Cooper's hawk and Pacific-slope flycatcher. Some riparian habitat in Coyote Creek appears to be suitable for the California yellow warbler or other migrant songbird species.

C.3.1.2.3 Special Status Species

Special Status Plant Species

Four special status plant species have been observed in the vicinity of the proposed transmission line route. A fifth species observed in the area, marsh gumplant (*Grindelia stricta* var. *angustifolia*), is on the California Native Plant Society (CNPS) List 4 "watch" list (Table C.3-5). None of the four special status species have been observed in areas that will be directly affected by project construction. Only one of the

aforementioned four species is state- or federal-listed: Contra Costa goldfields (*Lasthenia conjugens*) is a federal-endangered species. Two of the four special status plant species are federal species of concern and CNPS List 1B species, and one species is on CNPS List 1B only.

Alkali milk-vetch (*Astragalus tener* var. *tener*)

Alkali milk-vetch (*Astragalus tener* var. *tener*), a CNPS List 1B plant, is an annual herb found in vernal pools and alkali playas in the eastern San Francisco Bay area, southern Sacramento Valley, and northern San Joaquin Valley. Wetlands Research Associates, Inc. (1999) observed 35 to 40 individual plants growing along the upper fringes of created vernal pools in the Pacific Commons Preserve, approximately 1,500 feet southwest of the proposed project route near Milepost 1.0. Prior to this observation, alkali milk-vetch was believed to be extirpated from the Bay Area. Suitable habitat for this species is present between Mileposts 0.0 and 1.7.

San Joaquin spearscale (*Atriplex joaquiniana*)

San Joaquin spearscale (*Atriplex joaquiniana*), a federal species of special concern and CNPS List 1B plant, is an annual herb found in alkali meadows and annual grassland in eastern Alameda County. Thirty plants were observed in the Pacific Commons Preserve in vernal pools in alkali grassland habitat, approximately 750 feet southwest of the proposed project route near Milepost 1.0 during rare plant surveys conducted by Wetlands Research Associates, Inc. (1999). Prior to this observation, San Joaquin spearscale was believed to be extirpated from southwest Alameda County.

Congdon's tarplant (*Hemizonia parryi* ssp. *congdonii*)

Congdon's tarplant (*Hemizonia parryi* ssp. *congdonii*), an annual herb found in alkali grasslands throughout west central California, has been observed in the vicinity of the proposed right-of-way during rare plant surveys conducted by Wetlands Research Associates, Inc. (1999). Approximately 2,000 individual plants were observed in the Pacific Commons Preserve, between 500 feet and 1,500 feet southwest of the proposed project route at approximately Milepost 0.5. This plant is a federal species of concern and CNPS List 1B plant and, until documented by this survey, was believed to be extirpated from the southern San Francisco Bay area. Suitable habitat for this species is present between Mileposts 0.0 and 1.7.

Contra Costa goldfields (*Lasthenia conjugens*)

Contra Costa goldfields (*Lasthenia conjugens*), a federal-listed endangered and CNPS List 1B plant, is an annual herb found at limited locations in Napa, Solano, Contra Costa, and Alameda counties in vernal pools and wet valley and foothill grasslands. An occurrence of this plant species is being monitored in the vicinity of the proposed transmission line route, in the Pacific Commons Preserve, by Wetlands Research Associates, Inc. (1999). In 1999 approximately 2,600 plants were found in seasonally wet depressions and

swales within the Preserve, approximately 1,500 feet northeast of the proposed project route near Milepost 1.7. A second Contra Costa goldfields occurrence is southwest of the proposed transmission line route in the Seasonal Wetland Unit of the Don Edwards Wildlife Refuge. Suitable habitat for this species is present between Mileposts 0.0 and 1.7.

Table C.3-5 Special Status Plant Species Observed in the Study Area of the Proposed Project Route, Listed by Milepost

Species	Common Name	Milepost	Number of Occurrences	Habitat
<i>Astragalus tener</i> var. <i>tener</i>	Alkali milk-vetch	1.0	3	vernal pools and alkali playas
<i>Atriplex joaquiniana</i>	San Joaquin spearscale	1.0	2	alkali meadows and annual grassland
<i>Hemizonia parryi</i> ssp. <i>congdonii</i>	Congdon's tarplant	0.5	1	alkali grasslands
<i>Lasthenia conjugens</i>	Contra Costa goldfields	1.7	2	vernal pools and wet valley and foothill grasslands

Special Status Wildlife Species

A total of 50 special status wildlife species are known to occur in the south San Francisco Bay region in habitat similar to that found along the preferred transmission line route. During biological surveys of the proposed transmission line route, 17 observations of special status wildlife species were recorded (H.T Harvey and Associates, 1998). Legal status, habitat use, and locations of special status wildlife species are discussed below. Those species observed along the proposed route are noted and referenced to a segment of the route where observed. General wildlife surveys were conducted in May and June 1999. In addition to these reconnaissance-level surveys, protocol-level surveys for the burrowing owl (*Athene cunicularia*) were conducted by H.T. Harvey & Associates (1998). H.T. Harvey & Associates had previously conducted a number of surveys for salt marsh harvest mice and California clapper rails, and for habitat suitable for these species, in several areas just west and south of the proposed route. In addition, a protocol-level survey for nesting snowy plovers was conducted in Salt Ponds A22 and A23 in 1998. The results of these previous studies were used in conjunction with the present surveys to determine the locations of suitable habitat for these species along the proposed route. Locations of observations and suitable habitat for special status species are shown in Figure C.3-2. Additional species-specific surveys were conducted by Wetlands Research Associates, Inc. as follows:

- 1998-2000 - California tiger salamander adult and larvae surveys
- 1997-2000 - vernal pool crustacean surveys
- 1997-2000 - burrowing owl surveys
- 1997-2000 - general wildlife reconnaissance-level surveys.

Special Status Mammals

Salt-Marsh Wandering Shrew (*Sorex vagrans halicoetes*). The salt-marsh wandering shrew is a federal Species of Concern and a state Species of Special Concern. It is confined to the coastal salt marshes of

south San Francisco Bay. This species prefers medium high marsh, six to eight feet above sea level with abundant driftwood and pickleweed. H.T. Harvey & Associates found suitable habitat present in several areas between an unnamed tidal creek near the west end of Warren Avenue and the San Jose/Santa Clara Water Pollution Control Plant. Within the proposed transmission line route, the salt-marsh wandering shrew has not been observed, but is presumed to be present in suitable habitat.

Pallid Bat (*Antrozous pallidus*). The pallid bat, a state Species of Special Concern, occurs throughout California except for the high Sierra Nevada and the northwestern part of the state. Pallid bats roost in rock outcrops, caverns, hollow trees, buildings, and bridges, which provide cover and protection from high temperatures. Maternity colonies can include more than 100 individuals. Pallid bats have a stout skull and dentition such that they can take hard-shelled insects like beetles, Jerusalem crickets and scorpions for prey. Pallid bats are large, and slow-flying and most often forage on the ground (CDFG 1990). Although this bat is a potential forager along the proposed transmission line route, there is no suitable roost habitat in the project area.

Townsend's Western Big-Eared Bat (*Plecotus townsendii townsendii*). Townsend's western big-eared bat is a federal Species of Concern and a state Species of Special Concern. Big-eared bats are known to occur throughout California in grasslands and deserts as well as high-elevation forests where they use man-made structures, lava tubes, and limestone caves for roosting. Availability of potential roosting areas seems to be the limiting habitat requirement. These bats are known to nest in colonies with females collected in caves or abandoned buildings with young. Males are thought to roost alone in crevices in rocks or under bridges or in other manmade structures. Big-eared bats feed on insects caught on the wing. Like most bat species, the big-eared bat uses sonar to navigate during feeding which occurs at dusk and early evening. Although this bat is a potential forager along the proposed transmission line route, there is no suitable roost habitat in the project area.

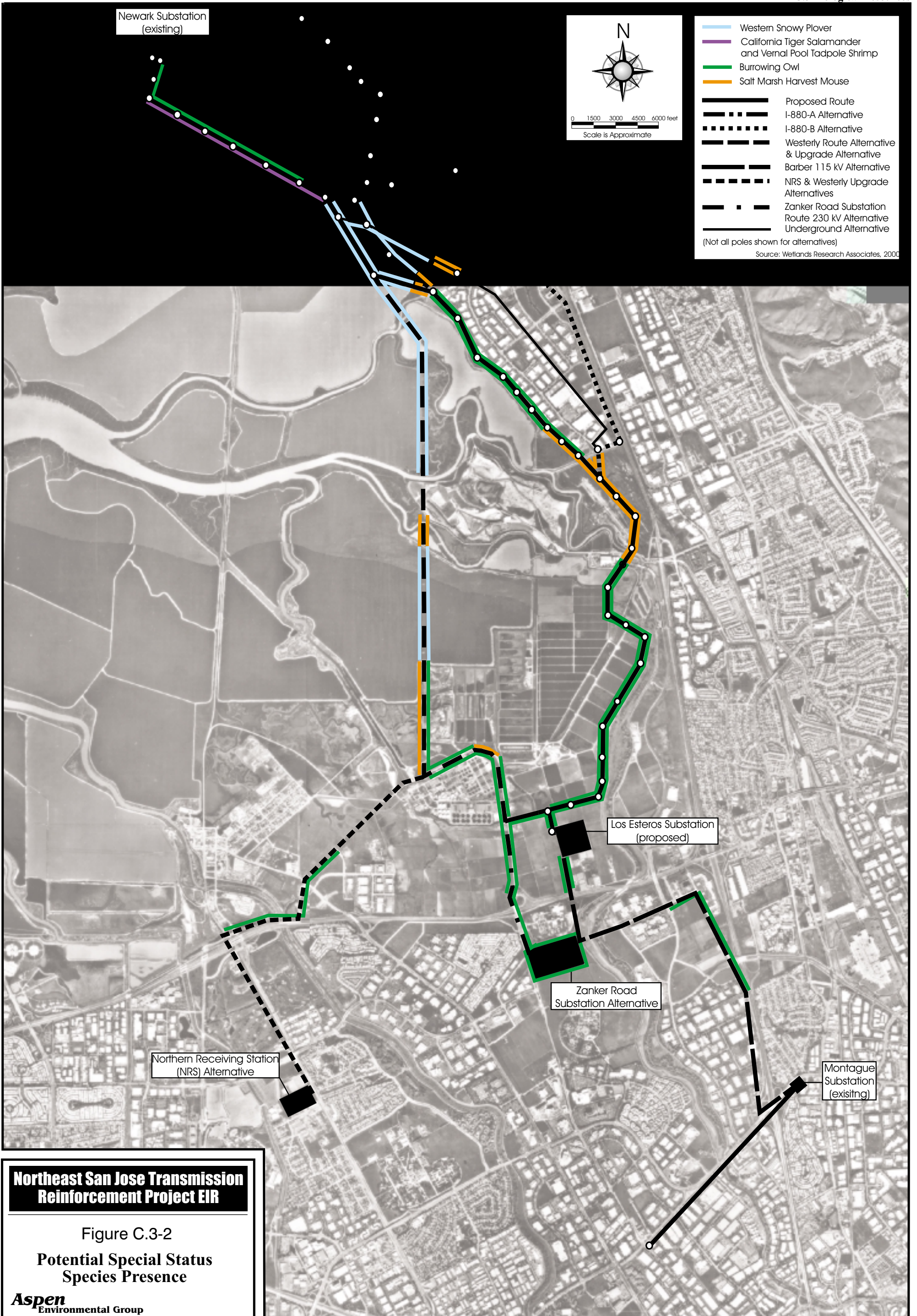
Long-Eared Myotis (*Myotis evotis*). The long-eared myotis is a federal Species of Concern that typically roosts in trees, under bark, caverns, buildings and rocky outcrops. Although this bat is a potential forager along the proposed transmission line route, there is no suitable roost habitat in the project area.

Fringed Myotis (*Myotis thysanodes*). The fringed myotis is a federal Species of Concern that typically roosts in caverns, trees, and buildings. Although this bat is a potential forager along the proposed transmission line route, there is no suitable roost habitat in the project area.

Long-legged Myotis (*Myotis volans*). The long-legged myotis is a federal Species of Concern that typically roosts in trees, crevices, caverns, and buildings. Although this bat is a potential forager along the proposed transmission line route, there is no suitable roost habitat in the study area.

Yuma Myotis (*Myotis yumanensis*). The Yuma myotis is a state Species of Special Concern and federal Species of Concern that typically roosts in buildings, bridges, caverns, crevices, and trees. Although this

bat is a potential forager along the proposed transmission line route, there is no suitable roost habitat in the study area.



Northeast San Jose Transmission Reinforcement Project EIR

Figure C.3-2
Potential Special Status Species Presence

Aspen
Environmental Group

California Mastiff Bat (*Eumops perotis californicus*). The California mastiff bat is the largest native bat in the United States. California mastiff bats are a federal Species of Concern and a state Species of Special Concern, and are thought to reside throughout most of California below 8,000 feet in elevation. Roosts are usually in large cracks in granite or sandstone, or in hollow trees within open habitats, and occasionally buildings. Their numbers are believed to be reduced as a result of development and loss of habitat. Although this bat is a potential forager along the proposed transmission line route, there is no suitable roost habitat in the study area.

Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*). The salt-marsh harvest mouse is a federal-listed Endangered Species and a state-listed Endangered Species. This species is found only in coastal salt marshes of San Francisco Bay and its tributaries. The southern subspecies, *R. r. raviventris*, is restricted to an area from San Mateo County and Alameda County along both sides of San Francisco Bay south to Santa Clara County. The salt marsh harvest mouse occurs with the closely-related, ubiquitous and abundant western harvest mouse (*R. megalotis*) at upper edges of marshes and in marginal areas. Both animals occur in pickleweed, but the salt marsh harvest mouse replaces the western harvest mouse in denser areas of pickleweed. The major threat to the habitat of this species is filling and diking marshland, and freshwater dilution of saline habitat conditions.

Densely vegetated tidal, saline marsh dominated by pickleweed is generally considered prime habitat for this species. Moderate populations of salt marsh harvest mouse have also been found in diked marshes. They may also be found in grassland habitats adjacent to pickleweed marshes, particularly during the spring. These grasslands are generally used by harvest mice only in the spring when new grass growth affords suitable cover and possible forage. Salt marsh harvest mice may also use adjacent grasslands on a daily basis to avoid high tide events.

Although no protocol-level surveys for this species were conducted for this project, the suitability of habitat along the route was assessed by salt marsh harvest mouse specialist Gretchen Flohr for H. T. Harvey & Associates. In addition, information is available from a previous report, in which Howard Shellhammer detailed the distribution of salt marsh harvest mouse habitat in the vicinity of the San Jose/Santa Clara Water Pollution Control Plant (H.T. Harvey & Associates 1998a). Along the project route, suitable habitat for the salt marsh harvest mouse is found in several areas. Marginally suitable habitat is present in pickleweed along the unnamed tidal channel at the west end of West Warren Avenue in Fremont, between Mileposts 2.5 and 2.7. Between Mileposts 2.7 and 4.1, pickleweed habitat is sparse along the western edge of the Bayside Business Park in the north, but becomes broader and more dense. South of the business park, the marshy habitat between Mileposts 4.1 and 4.3 is brackish and contains only sparse pickleweed in some places, but salt marsh harvest mice could potentially occur here. Between Mileposts 4.3 and 4.9, extensive, dense pickleweed provides high quality habitat for the salt marsh harvest mouse. During 1986 fall surveys, 27 salt marsh harvest mice were captured within the Bayside Business Park (Harvey and Stanley Associates 1987). South of Dixon Landing Road, a strip of dense pickleweed along the western edge of the waterbird pond and pickleweed in the muted tidal marsh on the west side of the

preferred route provide suitable habitat for this species between Mileposts 4.9 and 5.1. Salt marsh harvest mice are presumed to be present in all the aforementioned areas having suitable habitat.

Special Status Birds

American White Pelican (Pelecanus erythrorhynchos). The American white pelican, a state Species of Special Concern, nests in California only within the Klamath Basin. White pelicans feed from the surface using their bills to scoop up food fish and crustaceans. These birds never roost in trees, preferring to rest on beaches, levees, and sandbars or old driftwood. They are known to use fresh or saltwater habitats. American white pelicans are regularly observed resting and/or foraging on salt ponds in south San Francisco Bay. Nomadic and wintering flocks are likely to occur in the proposed transmission line route only in Salt Ponds A22 and A23 when water is present.

California Brown Pelican (Pelecanus occidentalis californicus). Listed as Endangered under both the federal and state Endangered Species Acts, the California brown pelican is generally found in marine and estuarine habitats; nesting usually occurs on offshore islands. It feeds strictly on fish by diving into the water. Although brown pelicans are often observed in the San Francisco Bay region, suitable aquatic foraging habitat is not present along the proposed transmission line route.

Double-Crested Cormorant (Phalacrocorax auritus). Double-crested cormorants are a state Species of Special Concern. They prefer water less than 9 meters (30 feet) deep with rocky or gravel bottoms. They feed on fish and crustaceans. The cormorant population is extremely susceptible to pesticide contamination in water and is thought to be declining as a result of human disturbance to habitat and increased gull predation on eggs and young. This species is a colonial breeder, nesting along rivers, lakes, in coastal areas, and on islands. Cormorants have also used electrical towers and bridges as nest sites in the south San Francisco Bay area. Nests are typically active from early March through August. Although cormorants may occasionally forage in Coyote Creek, the Bayside Business Park mitigation area, and Mud Slough, they are unlikely to nest within the proposed transmission line route.

Great Blue Heron Rookery (Ardea herodias). The great blue heron has no state or federal designation as a special status species; however, breeding colonies, or rookeries, are monitored by CDFG. One small rookery was observed in February 2000 by Wetlands Research Associates biologists along Coyote Creek near Milepost 5.1. Several herons were perched on nest structures in a large willow tree.

American Bittern (Botaurus lentiginosus). American bitterns are a federal Species of Concern and are usually found in freshwater emergent wetlands. It is rare along the margins of San Francisco Bay. One American bittern was observed by Wetlands Research Associates in a seasonal wetland north of the preferred route at the Pacific Commons site in 1999. Suitable habitat within the proposed transmission line route is limited to freshwater seasonal wetlands and brackish salt marsh areas.

Cooper's Hawk (*Accipiter cooperi*). The Cooper's hawk is a state Species of Special Concern. In the San Francisco Bay region, it generally nests in coniferous forests and dense woodlands comprised of California bay and oak. Although suitable breeding habitat is not present along the proposed transmission line route, Cooper's hawks likely are present during migration and winter in the riparian habitat along Coyote Creek.

Sharp-Shinned Hawk (*Accipiter striatus*). Sharp-shinned hawks are a state Species of Special Concern and usually nest in coniferous forests. In winter they can be found in most terrestrial habitats in the San Francisco Bay region. Like the Cooper's hawk, this species is likely present during migration and winter in the riparian habitat along Coyote Creek.

Golden Eagle (*Aquila chrysaetos*). The golden eagle is a state Species of Special Concern. These birds of prey feed mainly on small mammals which they hunt in open habitats. Secluded cliffs with overhangs and large trees are used for cover and nesting. Old nests are revisited and alternative nest sites are maintained. Golden eagles are occasionally observed foraging over larger grassland areas along the proposed transmission line route, particularly at the Pacific Commons site.

Ferruginous Hawk (*Buteo regalis*). Ferruginous hawks are a state Species of Special Concern. Ferruginous hawks frequent open grasslands, sagebrush, and fringes of juniper habitats where small mammals are present. This species is a rare winter visitor and migrant to the grasslands in south San Francisco Bay.

Northern Harrier (*Circus cyaneus*). The Northern Harrier is listed as a state Species of Special Concern. It is commonly found in open grasslands, agricultural areas, and marshes. Nests are built on the ground in areas where long grasses provide cover and protection. In the San Francisco Bay region, these nests may be occupied from early February through July. Harriers hunt for a variety of prey, including rodents, birds, frogs, reptiles, and insects by flying low and slow in a traversing manner utilizing both sight and sound to detect prey items.

H. T. Harvey and Associates observed harriers foraging over the grasslands between Mileposts 0.0 and 1.7 and at several locations in the vicinity of the waterbird pond. Although this species may forage in grasslands, ruderal habitats, and marshes throughout the proposed transmission line route, suitable nesting habitat is restricted to the moist grassland and marshy area at the south end of the Bayside Business Park.

White-Tailed Kite (*Elanus caeruleus*). White-tailed kites are a CDFG Fully Protected species. They prefer habitats with low ground cover and variable tree growth. Kite nests are built near the tops of oaks, willows, or other dense broad-leaved deciduous trees in partially cleared or cultivated fields, grassy foothills, marsh, riparian, woodland, and savannah. Kites prey primarily on small rodents (especially the California vole), but also feed on birds, insects, reptiles, and amphibians. When prey is abundant, these

birds may rear two broods in a single breeding season, and nesting activity may occur from early February to early September.

H. T. Harvey and Associates observed white-tailed kites along the project route during their 1999 surveys. They observed white-tailed kites in the vicinity of a grove of elms southeast of Milepost 0.3, at several locations along Coyote Creek between towers Mileposts 5.6 and 6.7, and in the trees along the fence row between Mileposts 6.7 and 7.0. This species is known to have nested for several years in riparian habitat along Coyote Creek just north of Milepost 5.6 and east of Milepost 6.0, and it could potentially nest in any suitable habitat along the proposed transmission line route. In addition to the grove of elms mentioned above, kites could nest in a willow just west of Milepost 4.3, in riparian habitat along Coyote Creek, in restored riparian habitat in the overflow channel along this creek, in the trees along the fence row between Mileposts 6.7 and 7.0, and possibly in the eucalyptus trees between the Water Pollution Control Plant sludge ponds and the adjacent Coyote Creek flood control levee. In 1998, a pair of kites nested in a small eucalyptus tree located on the Pacific Commons site several hundred feet north of the proposed route.

Prairie Falcon (Falco mexicanus). The prairie falcon is a state Species of Special Concern. It is associated primarily with perennial grasslands, savannahs, rangeland, and some agricultural fields. Nests are usually located in cliffs or rock outcrops, and nesting typically takes place from mid-February through mid-September. Prairie falcons use open terrain for foraging and eat mostly small mammals. Prairie falcons do not nest in the developed lowlands of south San Francisco Bay region, but are occasionally observed foraging along the proposed transmission line route, particularly at the Pacific Commons site.

American Peregrine Falcon (Falco peregrinus anatum). American peregrine falcons are a state-listed Endangered Species that usually breed and forage near water in association with cliffs and canyons used for cover and nesting. They also use large buildings and bridges for nesting. Peregrine falcons occur worldwide, especially in woodland, forest, and coastal habitats. Their previous decline, documented since the 1940's, has been attributed to eggshell thinning as a result of pesticide and PCB contamination. They are fast, agile flyers and feed on other birds caught on the wing. Peregrine falcons are regularly observed in south San Francisco Bay; however no suitable nesting habitat is present along the proposed transmission line route.

California Black Rail (Laterallus jamaicensis coturniculus). California black rails are a state-listed Threatened Species. They breed in a variety of wetland types. In the San Francisco Bay region they nest primarily in salt marshes associated with San Pablo Bay and Suisun Bay. They are a rare winter visitor to brackish marshes in south San Francisco Bay.

California Clapper Rail (Rallus longirostris obsoletus). California clapper rails are a federal-listed Endangered Species and a state-listed Endangered Species. The California clapper rail is resident of tidal salt marshes in San Francisco Bay. It nests from early March through August in the tallest vegetation along tidal sloughs, particularly in California cordgrass (*Spartina foliosa*) and marsh gumplant (*Grindelia*

stricta). This species forages along the edges of tidal sloughs, foraging less frequently in shorter marsh vegetation, such as that dominated by pickleweed. Due to loss of salt marsh habitat around the San Francisco Bay, populations of this species have declined considerably.

No protocol-level surveys for clapper rails were conducted for this project, and no clapper rails were detected during reconnaissance-level special-status species surveys. However, protocol-level surveys by H. T. Harvey and Associates (1990 a, b) in nearby areas found multiple clapper rails in South Coyote Slough and in the Warm Springs Marsh, not far to the south and west of the project route, during both the breeding and winter seasons. Because the unnamed tidal creek between the northeast corner of salt pond A23 and the west end of West Warren Avenue (between Mileposts 2.5 and 2.7) is connected to Warm Springs Marsh and provides *Scirpus* habitat similar to that in Warm Springs marsh, it is possible that clapper rails are present in this unnamed creek. For the purposes of this project, the clapper rail was presumed to be present in the marsh along the creek.

Western Snowy Plover (Charadrius alexandrinus nivosus). The western snowy plover is federal-listed Threatened and a state Species of Special Concern. It is a small shorebird that breeds along sandy coastal beaches and at scattered inland locations on alkaline flats and playas. Populations of this race have declined due to beach disturbance, the loss of sandy dunes and swales as a result of dune stabilization, and habitat loss at inland breeding sites. Although snowy plovers are not thought to have bred historically within the San Francisco Bay due to lack of suitable habitat, they have begun breeding in salt ponds around the bay this century. Here, they nest from early March through August on the bottoms of dried-out ponds or on islands and separated levees where they are protected from mammalian predators.

Although no surveys for snowy plovers were conducted for this project in 2000, H. T. Harvey and Associates conducted protocol-level surveys in 1998 in Salt Ponds A22 and A23 for the proposed Westerly Route Alternative (H. T. Harvey and Associates 1998b). At that time, they observed no plovers in pond A23, although up to 11 adult snowy plovers were observed during a single survey of pond A22, and nine nests were found in this pond.

The amount of suitable nesting habitat in these ponds appears to vary annually, with more suitable habitat present when water levels are lower, exposing a greater amount of alkali flat.

Long-Billed Curlew (Numenius americanus). The long-billed curlew is a state Species of Special Concern that commonly breeds in wetland areas on grazed, mixed grass and short grass prairies, or in wet meadows. Open crop lands are used for foraging during the winter months. Eastern U.S. populations have declined significantly as a result of agricultural practices, and these populations have been proposed for federal listing as endangered. Western populations, though reduced, seem to be stable. Long-billed curlews do not nest in the San Francisco Bay area, but are common winter visitors to grasslands, pastures, mudflats, and salt ponds.

California Least Tern (*Sterna antillarum browni*). Historical breeding habitat for the California least tern, listed as Endangered by both state and federal Endangered Species Acts, extended along the Pacific Coast from southern Baja California, Mexico, north to Monterey and San Francisco Bays. The majority of least terns in California nest from Santa Barbara County south (H.T. Harvey and Associates 1993). Their breeding range is discontinuous due to the absence of appropriate habitat and to the destruction of former breeding sites. The species is colonial, but colonies change locations readily for unknown reasons. The least tern prefers open, sandy beaches in the vicinity of lagoons and estuaries. Generally, this bird arrives at its breeding grounds in April. Regular breeding in the San Francisco Bay region has occurred only at two localities: Alameda Island and Bay Farm Island. Elsewhere in the region, breeding has been minimal and sporadic. Two pair nested on levees at the Alvarado salt ponds in 1978; a few pair nested on levees near Coyote Hills Slough in the late 1970's; and a pair nested at the Baumberg Tract in 1985. Least terns also nested at Bair Island for 10 to 15 years during the 1970's and early 1980's but have since abandoned the site (Duke 1997). Besides readily moving nest sites, this species is known for its range of nesting substrate, with the common factor being an absence of vegetation. The California least tern was last observed breeding within the system of salt ponds managed by Cargill Salt Company in the 1980's; nevertheless, several areas within the complex are important to this species, especially for foraging (Wetlands Research Associates 1994). This complex is approximately one to two miles west of the proposed transmission line route. Field surveys by H.T. Harvey and Associates found no suitable nesting habitat within the preferred route. Potentially suitable foraging habitat was found in Salt Ponds A22 and A23, in the lagoon along the western edge of the Bayside Business Park, and in waterbird pond; however, it is expected to occur only as a rare post-breeding forager in the vicinity of the proposed transmission line route.

Western Burrowing Owl (*Athene cunicularia hypugea*). The burrowing owl is a federal Category 2 Candidate Species and a California Species of Special Concern. These owls are year long residents of open, dry habitats and prefer grasslands with sparse tree or shrub canopies. Burrowing owls are found in close association with California ground squirrels, whose abandoned burrows the owls use for shelter and nesting. Adults will perch near the nest burrow during the morning and evening hours and take cover in the nest during the hottest part of the day. Burrowing owls nest in the San Francisco Bay area from early February through August. These owls prey on insects, small mammals, reptiles, and carrion. Burrowing owls are known to successfully nest in and adjacent to developed areas including college campuses and airports. However, burrowing owls rely upon rodent burrows and suitable foraging habitats and many human activities including poisoning and trapping rodents, discing and paving land have reduced habitat for this species and contributed to its population decline.

Potentially suitable burrowing owl breeding habitat is present along much of the proposed transmission line route. To determine the location and number of owls breeding along the project route, protocol-level surveys were conducted during May and June 1999. After reconnaissance of the entire alignment for potentially suitable habitat (relatively flat grassland or ruderal habitat with ground squirrel burrows or

artificial burrows), each area providing potentially suitable habitat was visited early in the morning or late in the evening on three additional days.

Most of the burrowing owls along the project alignment were concentrated between Mileposts 0.0 and 1.7. Nearly all of the habitat in this area is suitable for nesting owls, and much of this portion of the project route is a burrowing owl mitigation area. Five occupied nests were found between Mileposts 0.3 and 1.7; three of the nests were determined to be within the immediate proposed transmission line route, while two others were just outside the proposed transmission line route. Young were seen only at one nest, although a pair of owls was associated with each of the other four nests. In addition, two burrows showing signs of recent owl use (either abandoned nests or roosting burrows) were found within the immediate proposed transmission line route, although no owls were seen at these burrows. One of the occupied nests and one of the previously occupied burrows were located at artificial burrows provided as mitigation for impacts to burrowing owls elsewhere; the remaining burrows being used by owls were old ground squirrel burrows. Additional pairs of owls not included in the totals above (because they were well outside of the proposed transmission line route) were present at artificial burrows farther west of the proposed transmission line route.

Further south, potentially suitable burrowing owl breeding and foraging habitat is present along the western edge of the Bayside Business Park, which provides ground squirrel burrows and open or ruderal habitats. Here, two nests with young were found within the immediate proposed transmission line route. One was at the northwest corner of a ruderal field north of Milepost 4.1, while the other was in a narrow grassy bank between a parking lot and the adjacent pickleweed marsh. No burrowing owls were observed nor are there recent records of nesting in the proposed transmission line route south of Milepost 4.1. However, potentially suitable breeding habitat is present along a berm in mixed grassland/pickleweed habitat in the vicinity of Milepost 4.7; along the Coyote Creek flood control levee and the edges of the Water Pollution Control Plant sludge ponds between Mileposts 5.1 and 6.7; and on the edges of the sludge ponds between Mileposts 6.7 and 7.0. Despite the lack of recent records from these areas, burrowing owls could breed at these locations. Potentially suitable foraging habitat is present in these areas and in the agricultural habitat between Mileposts 7.0 and 7.2, and around the buildings currently occupying the site of the proposed substation.

Short-Eared Owl (Asio flammeus). Short-eared owls are a state Species of Special Concern that winter in California, and are rare breeders in the marshes of the San Francisco Bay region. Short-eared owls build their own nests on the ground, usually in open grassland or marsh areas. Nesting activity occurs between early March and late August. Short-eared owls have been observed during the breeding season in annual grasslands at the Pacific Commons site and adjacent Don Edwards San Francisco Bay National Wildlife Refuge.

Vaux's Swift (Chaetura vauxi). Vaux's swifts are a federal Species of Concern and can occur throughout the state during migration. During the breeding season, they are usually associated with coniferous forests

with hollow snags for nesting. No suitable breeding habitat is present along the proposed transmission line route.

Allen's Hummingbird (Selasphorus sasin). The Allen's hummingbird is a federal Species of Concern that breeds in the San Francisco Bay region. Breeding occurs in a variety of habitat types, but especially in riparian, oak woodland, and coastal scrub communities. Along the proposed transmission line route, the riparian habitat of Coyote Creek provides the most suitable breeding habitat for this species.

Pacific-Slope Flycatcher (Empidonax difficilis). Pacific-slope flycatchers are a federal Species of Concern. Pacific-slope flycatchers are neotropical migrants that generally nest in riparian habitats in the San Francisco Bay region. Along the proposed transmission line route, they would most likely occur along Coyote Creek.

California Horned Lark (Eremophila alpestris actia). The California horned lark is a state Species of Special Concern. They are a ground-foraging and nesting bird, frequenting grasslands and other open habitats with low, sparse vegetation. They are widespread breeders along the coast and in the Central Valley, and it represent the only subspecies of horned lark that breed in the general region of the project.

Horned larks have been recorded in small numbers in grassland and ruderal habitats in the vicinity of the proposed transmission line route during the nonbreeding season, but potentially suitable breeding habitat is present at only one location along the route. The runways of the old Fremont Airport, located just outside the proposed transmission line route, provide open ground with short, scattered vegetation potentially suitable for use by nesting California horned larks.

Bank Swallow (Riparia riparia). Listed as Threatened under the California Endangered Species Act, the bank swallow is a migrant and very local breeder in the San Francisco Bay region. Nesting habitat is limited to high, vertical banks of rivers, streams, and ocean cliffs. Suitable breeding habitat is not present along the proposed transmission line route.

Bewick's Wren (Thryomanes bewickii). The Bewick's wren is a federal Species of Concern. It is commonly found in chaparral, coastal scrub, oak woodlands, and riparian habitats. This bird is a cavity nester, using old woodpecker holes, tree hollows, and even crevices in rocks. Suitable breeding habitat along the proposed project route occurs along Coyote Creek.

Loggerhead Shrike (Lanius ludovicianus). Loggerhead shrikes are a state Species of Special Concern and federal Species of Concern that have the characteristic behavior of impaling their captured prey upon barbed wire or thorns. Shrikes occur throughout California in dry grassland habitats and open sage and scrub habitats. They nest in shrubs or isolated trees in stick nests constructed by both male and female breeding birds. Shrikes nest from early March through July in the San Francisco Bay region. Suitable

nesting habitat is present in the vicinity of the proposed transmission line route. Populations of loggerhead shrikes have declined significantly in the last 20 years.

During reconnaissance surveys conducted by H.T. Harvey and Associates in 1999, loggerhead shrikes were observed in a number of locations along the survey route. Many of these birds were simply foraging in the grasslands, ruderal habitats, and marsh habitats along the project route. Although most of the proposed transmission line route provides suitable foraging habitat, nesting habitat within or immediately adjacent to the route is more limited. Potentially suitable nesting habitat is present, and this species is expected to breed, in the vicinity of the grove of elms (and associated shrubs) southeast of Milepost 0.3; in the willow just west of Milepost 4.3; in riparian habitat along Coyote Creek between Mileposts 5.6 and 6.7; in restored riparian habitat and scrubby vegetation in the overflow channel along Coyote Creek between Mileposts 5.6 and 6.7; in the eucalyptus trees between the Water Pollution Control Plant sludge ponds and the adjacent Coyote Creek flood control levee, between Mileposts 5.6 and 6.7; in scrubby habitats within the Water Pollution Control Plant complex; and in the trees and shrubs along the fence row between Mileposts 6.7 and 7.0.

California Yellow Warbler (*Dendroica petechia brewsteri*). California yellow warblers are a state Species of Special Concern. Breeding occurs in riparian woodland habitat in coastal California to the Sierra Nevada and the northeast portion of the state. Riparian habitat loss, brood parasitism by brown-headed cowbirds and increased predation are believed to have caused the yellow warbler population to decline. Yellow warblers migrate mostly to Central and South America in the fall and return to California to breed from late April to mid-August.

Although no yellow warblers were observed by reconnaissance surveys conducted by H. T. Harvey and Associates, potentially suitable breeding habitat is present, and this species is expected to breed, immediately adjacent to the proposed transmission line route in cottonwoods and willows along Coyote Creek, from the vicinity of Milepost 5.6. This species is known to breed in similar habitat along Coyote Creek in the vicinity of Milepost 6.0, although this habitat is far enough from the preferred route that yellow warblers in these upstream areas are not expected to be affected by the project.

Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*). Salt marsh common yellowthroats are a state Species of Special Concern and federal Species of Concern. It inhabits emergent vegetation and breeds both in fresh and brackish marshes. These birds breed from mid-March to early August in the San Francisco Bay region. Saltmarsh common yellowthroats have been found during the breeding season from Tomales Bay, Marin County, south to the Santa Clara-Santa Cruz county line. Other subspecies of common yellowthroat occur in the region during migration and winter (August - May). Because these subspecies cannot be reliably distinguished in the field, determination of the presence of saltmarsh common yellowthroats can be achieved only by locating nests in the breeding range of this subspecies, or via the observation of yellowthroats during the summer months when the saltmarsh common yellowthroat is the only subspecies in the region. Although little is known regarding the movements of this taxon, the

wintering area has been described as coastal salt marshes from the San Francisco Bay region to San Diego County (Grinnell and Miller 1944).

Saltmarsh common yellowthroats were observed to be fairly common in several areas along the proposed transmission line route. Fairly large numbers were observed in the *Scirpis* marsh along the unnamed tidal creek near the west end of West Warren Avenue in Fremont, between Mileposts 2.5 and 2.7; in the marshy habitat between Mileposts 4.1 and 4.3; in the overflow channel along Coyote Creek and in the scrubby vegetation within the Water Pollution Control Plant complex between Mileposts 5.6 and 6.7. Smaller numbers were present in the patch of cattails in the vicinity of Milepost 4.1, along Coyote Creek between Mileposts 4.7 and 4.9, and in the emergent vegetation around the edges of the waterbird pond between Mileposts 4.9 and 5.1.

Yellow-Breasted Chat (Icteria virens). The yellow-breasted chat is a state Species of Special Concern. It is a large warbler that requires dense riparian thickets for breeding. It potentially occurs along Coyote Creek during migration, but suitable nesting habitat is not present along the proposed transmission line route.

Grasshopper Sparrow (Ammodramus savannarum). The grasshopper sparrow is a federal Species of Concern that is an uncommon resident of grasslands in the San Francisco Bay region. Grasshopper sparrows require nest in densely vegetated grasslands with scattered shrubs for perching. Within the preferred route, suitable habitat is present at the Pacific Commons site in the drier upland areas.

Alameda Song Sparrow (Melospiza melodia pusillula). A state Species of Special Concern and federal Species of Concern, the Alameda song sparrow is one of three subspecies of song sparrow breeding only in salt marsh habitats in the San Francisco Bay region. This subspecies is found in marshes bordering south San Francisco Bay. Here it is most abundant in the taller vegetation found along tidal sloughs, including salt marsh cord grass and marsh gumplant, nesting from early March to mid-August. Although it is occasionally found in bulrushes in brackish marshes, the Alameda song sparrow is very sedentary and is not known to disperse upstream into freshwater habitats. Populations of the Alameda song sparrow have declined due to the loss of salt marshes around the bay, although within suitable habitat it is still fairly common.

During reconnaissance surveys conducted by H.T. Harvey and Associates in 1999, song sparrows were observed to be fairly common in several areas along the preferred route, although the racial identity of the song sparrows at various points along the route is unknown. The location of the interface between populations of the Alameda song sparrow and those of the race breeding in freshwater riparian habitats (*M. m. gouldii*) in the vicinity of the proposed transmission line route is not well known due to difficulties in distinguishing individuals of these two races in the field. Conclusive identification of individual song sparrows as *pusillula* (rather than the widespread upland race *M. m. gouldii*) is not possible unless the birds are examined in the hand. *Pusillula* has been identified by mist-netting operations as close to the project

site as Triangle Marsh, approximately 1.5 miles southwest of the project route (Basham and Mewaldt 1987), while individuals banded during the breeding season near the Coyote Creek Riparian Station, between Mileposts 5.6 and 6.7, have all been *gouldii*. Therefore, while it can be assumed that none of the song sparrows breeding south of tower 28 are *pusillula*, it is more difficult to make confident determinations about racial identity of song sparrows breeding along the project route in tidal habitats or in areas closer to the bay.

Due to the freshwater influence in the marshes in and near the proposed transmission line route, this habitat was thought by Cogswell (1987) to be only marginally suitable for use by *pusillula*. However, maps and text in several references (e.g. Jurek 1974, Walton 1978, Basham and Mewaldt 1987) indicate that these authorities considered *pusillula* to occur as far east as the Warm Springs Marshes, although none of these studies identified birds in the hand in or upstream from the project route. The numerous song sparrows in the brackish *Scirpus* marsh along the unnamed tidal creek near the west end of West Warren Avenue in Fremont may have been Alameda song sparrows and should be assumed to belong to this race. Song sparrows were also found at other various points along the route. Although the freshwater nature of the vegetation in these areas suggest that these birds are *gouldii*, these areas are very close to saline habitats, and it will be assumed that the song sparrows in these areas (i.e., all song sparrows north of Milepost 5.6) are *pusillula* unless they can be examined in the hand.

Tricolored Blackbird (*Agelaius tricolor*). Tricolored blackbirds are a state Species of Special Concern and are also a federal Species of Concern. These birds nest in large colonies near freshwater marshes with dense emergent vegetation. Loss of wetland and open grassland habitats to development have led to this species' decline. Tricolored blackbirds are known to forage, sometimes in large flocks, in ruderal/grassland habitats along portions of the project route during the nonbreeding season. However, there is little breeding habitat for this species in the proposed transmission line route. A few pairs of tricolored blackbirds nested just north of Milepost 6.7 during the late 1980s, although habitat in this area is now unsuitable for use by this species. Nesting habitat is present in only two areas in the proposed transmission line route: a patch of cattails north of Milepost 4.1, and the emergent vegetation in the marshy habitat between Mileposts 4.1 and 4.3. Tricolored blackbirds may not have nested at either location during the spring or summer of 1999, although a few males were seen in the cattails north of Milepost 4.1 in late June.

Special Status Reptiles

Western Pond Turtle (*Clemmys marmorata*). The western pond turtle is a federal Species of Concern and a state Species of Special Concern. It is found near permanent water in a variety of habitats. This reptile was once common in California. Habitat loss and hunting have caused drastic declines in turtle numbers. Suitable aquatic habitat for western pond turtles occurs along Coyote Creek, but stream channelization and development of nearby uplands has likely eliminated suitable nesting sites.

Special Status Amphibians

California Tiger Salamander (*Ambystoma californiense*). The California tiger salamander is a federal Candidate for listing and a state Species of Special Concern. They are typically found in grasslands with seasonal pools for breeding. They use ground squirrel burrows for summer estivation. In the proposed transmission line route, both adults and larvae have been observed in several seasonal pools in the southeast corner of the Warm Springs Seasonal Wetland (Caires et al. 1993). The majority of the larvae were observed in rushes and algae on the periphery of salt pond 4b in the Warm Springs Seasonal Wetland. In addition, this species is present in numerous seasonally ponded wetlands within the Pacific Commons site. The closest known location of California tiger salamanders occurs in one seasonal pool directly underneath PG&E Co.'s existing transmission line corridor between Auto Mall Parkway and Cushing Road. The area between the transmission corridor and the eastern edge of the Warm Springs Seasonal Wetland may also serve as dispersal and/or estivation habitat for salamanders from the seasonal pools in the Pacific Commons site, and pools in the Warm Springs Seasonal Wetland.

California Red-Legged Frog (*Rana aurora draytonii*). Although the California red-legged frog, a federal Threatened Species and a state Species of Special Concern, occurs in the San Francisco Bay region, suitable habitat for this species is not present along the proposed transmission line route. California red-legged frogs are typically found in permanent or intermittent streams, ponds, and wetlands with dense vegetation.

Special Status Fish

Central California Steelhead (*Oncorhynchus mykiss*). The central California steelhead is listed as Threatened under the federal Endangered Species Act. Steelhead have been eliminated from most streams in south San Francisco Bay; however, a small run still persists in Coyote Creek and in Upper Penitencia Creek, a tributary to Coyote Creek (Harvey and Stanly Associates, Inc. 1988; Roper 1997). Steelhead would not remain in lower Coyote Creek because of brackish and warm conditions. Very little work has been done on Coyote Creek since the 1988 fisheries evaluation was conducted for the Santa Clara Valley Water District. The current status of the steelhead population is unknown. Suitable spawning and rearing habitat for steelhead does not exist at or below the Dixon Landing Road crossing, where tidal action influences water quality. However, if summer water temperatures are cool enough, suitable holding habitat may still exist in the impoundment above Dixon Landing Road, where tides do not influence water quality. Lower Coyote Creek serves primarily as a migration corridor for adults and smolts (Smith 1997).

Special Status Invertebrates

Vernal Pool Tadpole Shrimp (*Lepidurus packardii*). The vernal pool tadpole shrimp is listed as Endangered under the federal Endangered Species Act. Vernal pool tadpole shrimp generally inhabit

vernal pools and swales of clear to highly turbid water in the Sacramento Valley. In the proposed transmission line route, vernal pool tadpole shrimp have been observed in several seasonal pools in the southwest corner of Warm Springs Seasonal Wetland, which is part of the USFWS San Francisco Bay National Wildlife Refuge (Caires et al. 1993). In addition, eggs and adult shrimp have been found in numerous seasonally-ponded wetlands on the Pacific Commons site (Entrix 1997).

C.3.1.2.4 *Sensitive Habitats*

Vegetation

Four plant communities within the proposed transmission line route were identified as sensitive habitats for special status plants. These are:

- Northern Coastal Salt Marsh
- Northern Coastal Brackish Marsh
- Seasonal Wetland
- Alkali Grassland.

Each of these sensitive habitats and the associated species, as well as potential jurisdictional wetlands, are described below.

Northern Coastal Salt Marsh. Within the proposed transmission line route, northern coastal salt marsh is found west and south of the Bayside Business Park. Some areas are sparsely vegetated with herbaceous salt marsh vegetation while other areas have a fairly dense vegetation cover. A relatively undisturbed salt marsh is found around Milepost 4.0. Common pickleweed dominates this plant association, with other species occurring such as jaumea, broadleaf peppergrass, and alkali heath. The only special status plant species associated with this plant community within the study corridor is marsh gumplant, which was observed in the vicinity of the proposed project route by Jones and Stokes Associates (1998).

Northern Coastal Brackish Marsh. Within the proposed transmission line route, northern coastal brackish marsh is found in several locations. Between Mileposts 4.1 and 4.3, a high quality brackish marsh is dominated by cattail (*Typha latifolia*), bulrush, willow (*Salix* spp.), bristly ox-tongue, curly dock, saltgrass, and broadleaf peppergrass. At the northern end of the Santa Clara-San Jose Sewage Disposal Facility, between Mileposts 4.9 and 5.1, a large pond contains fringing brackish marsh dominated by common pickleweed, cattail, and bulrush. The only special status plant species potentially associated with this plant community is marsh gumplant, which was observed in the vicinity of the proposed project route by Jones and Stokes Associates (1998).

Seasonal Wetland. A disturbed seasonal wetland plant community is found in several low, shallow areas on Pescadero clay soils in grassland near the Newark Substation, primarily between Mileposts 0.0 and 0.3. Other seasonal wetlands are found east and west of the study corridor on the Pacific Commons Preserve between Mileposts 0.3 and 1.7. Dominant plant species include brass buttons, common spike-

rush (*Eleocharis macrostachya*), hyssop loose-strife (*Lythrum hyssopifolium*), Italian ryegrass, alkali heath, and saltgrass. Deeper seasonal wetlands found near Milepost 0.0 are dominated by common spike-rush and contain annual semaphore grass (*Pleuropogon californicus*). Special status species associated with this plant community include Contra Costa goldfields, San Joaquin spearscale, and alkali milk-vetch, all of which were observed in the vicinity of the proposed project route during recent surveys conducted by Wetlands Research Associates (1999).

Alkali Grassland. A disturbed alkali grassland exists in scattered portions of the proposed transmission line route between Mileposts 0.0 and 1.7. This plant community is dominated by Italian ryegrass, Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), meadow barley (*Hordeum brachyantherum*), alkali heath, and broadleaf peppergrass. In the study corridor, alkali grassland grows in a low landscape position on hydric Pescadero clay soils. The lowest portions of this community, in disturbances such as tire ruts, often are dominated by brass buttons, common pickleweed, and alkali heath. Special status species associated with this plant community include Congdon's tarplant and San Joaquin spearscale, both of which were observed in the vicinity of the proposed project route during surveys conducted by Wetlands Research Associates (1999).

Potential Jurisdictional Wetlands

Wetlands are also considered sensitive habitats as a result of their protection under Section 404 of the Clean Water Act. Wetland types along the proposed route that are potentially subject to jurisdiction under Section 404 are:

- Northern Coastal Salt Marsh
- Northern Coastal Brackish Marsh
- Seasonal Wetland.

Additional habitats possessing "wetland" hydrology but lacking the vegetation component may be eligible for protection as "Waters of the United States" under Section 404 and under the wetland guidelines adopted by the California Fish and Game Commission. These areas include saltponds, mudflats, stream channels, or other areas that are inundated during a portion of the wet season but lack the wetland soil and vegetation criteria defined by the U.S. Army Corps of Engineers. Detailed descriptions of each of the potential wetland types are presented in Section C.3.1.1.1.

Wildlife

Agency-designated sensitive habitats are discussed in Section C.3.1.1.4, special habitat management areas.

C.3.1.3 Applicable Regulations, Plans, and Standards

Applicable regulations include federal and state regulations that address the protection of sensitive species, wetlands, streams, and riparian plant communities. Although CEQA indirectly regulates biological resources, it is not specific to these resources and is addressed elsewhere in this document.

Federal Endangered Species Act. The Federal Endangered Species Act of 1973, and Title 16 (implementing regulations) of the United States Code of Federal Regulations (CFR) 17.1 et seq., designate and provide for protection of threatened and endangered plants and animals and their critical habitat. Procedures for addressing federal-listed species follow two principal pathways, both of which involve consultation with the USFWS, which administers the act for all terrestrial species. The first pathway is set up for situations where a non-federal government entity must resolve potential adverse impacts to species protected under the Act. The second pathway is spelled out under Section 7 of the Act and involves projects with a federal connection or requirement; typically these are projects where a federal lead agency is sponsoring or permitting the proposed project. In these instances, the federal lead agency initiates and coordinates the following steps:

- Informal consultation with USFWS to establish a list of target species
- Preparation of biological assessment assessing potential for the project to adversely affect listed species
- Coordination between state and federal biological resource agencies to assess impacts/propose mitigation
- Development of appropriate mitigation for all significant impacts on federally listed species.

USFWS ultimately issues a final opinion on whether the project will affect the federally listed species.

Federal Clean Water Act. Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into "waters of the United States" without a permit from the U.S. Army Corps of Engineers. The definition of waters of the United States includes wetland 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" (33 CFR 328.3 7b). The U.S. Environmental Protection Agency (U.S. EPA) also has authority over wetlands and may override a Corps permit. Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may be eligible for one of the Nationwide Permits that require less review than an individual permit.

Executive Order 11990, Section 1(a) established a federal policy of "no net loss" of wetlands. Compensation for wetland impacts may include restoration and/or off-site replacement or enhancement. However, the characteristics of the restored or enhanced wetlands must be equal to or better than those of the affected wetlands.

California Endangered Species Act of 1984. Sections 2050 through 2098 of the California Fish and Game Code outline the protection provided to California's rare, endangered, and threatened species. Section 2080 of the California Fish and Game Code prohibits the taking of plants and animals listed under the authority of the California Endangered Species Act of 1984. Individual animal species declared to be Threatened or Endangered by the California Fish and Game Commission are listed in Title 14 of the

California Code of Regulations (CCR) under Section 670.5. In addition, the Native Plant Protection Act of 1977, Fish and Game Code Section 1900 et seq., gives the California Department of Fish and Game authority to designate state Endangered, Threatened, and Rare plants and provides specific protection measures for identified populations.

Sensitive species that would qualify for listing but are not currently listed are afforded protection under CEQA. Guidelines for Implementation of the California Environmental Quality Act of 1970 (CEQA Guidelines), Title 14, CCR section 15065 ("Mandatory findings of significance") requires that a reduction in numbers of a rare or endangered species be considered a significant effect. Section 15380 ("Rare or endangered species") provides definitions and provides for assessment of unlisted species as rare or endangered under CEQA if the species can be shown to meet the criteria for listing. Unlisted plant species on the California Native Plant Society's lists 1A, 1B, and 2 would typically be considered under CEQA.

California Streambed Alteration Notification/Agreement. Sections 1601-1606 of the California Fish and Game Code require that a Streambed Alteration Application be submitted to the CDFG for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake". The Department reviews the proposed actions and, if necessary, submits to the Applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the Department and the Applicant is the Streambed Alteration Agreement. Often, projects that require a Streambed Alteration Agreement also require a permit from the United States Army Core of Engineers (USACE) under Section 404 of the Clean Water Act. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

C.3.2 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PROJECT

C.3.2.1 Introduction

This section presents the environmental impacts and mitigation measures for the proposed project related to biological resources. The first part of the section is an overview of the definition and use of significance criteria related to biological resources. The second part discusses impact assessment methodology. The third part of the section presents the Applicant's proposed measures to avoid or minimize project impacts related to vegetation and wildlife resources, identifies impacts, assigns a level of significance to each impact, and outlines steps that would be taken to mitigate significant impacts.

C.3.2.2 Definition and Use of Significance Criteria

C.3.2.2.1 *Significance Criteria*

Significance criteria for impacts to biological resources were developed based on Section 15065 and Appendices G and I of the CEQA Guidelines, and Section 21083 of the Public Resources Code. According to these guidelines, a project will have a significant effect on biological resources if it would:

- Substantially affect, reduce the number of, or restrict the range of a unique, rare, or endangered species of animal or plant, or the habitat of the species (Section 15065, Appendix G, Appendix I)
- Interfere substantially with the movement of any resident or migratory fish or wildlife species (Appendix G)
- Threaten to eliminate a plant or animal community (Section 15065a)
- Substantially diminish or reduce habitat for fish, wildlife, or plants (Appendix G)
- Change the diversity of species, or number of any species of plants or animals (Appendix I)
- Cause a fish or wildlife population to drop below self-sustaining levels (Section 15065)
- Introduce new species of plants or animals into an area, or in a barrier to the normal replenishment of existing species (Appendix I)
- Deteriorate existing fish or wildlife habitat (Appendix I).

For the purposes of this EIR, three principal components of the guidelines outlined above were considered:

- Magnitude of the impact (e.g., substantial/not substantial)
- Uniqueness of the affected resource (rarity)
- Susceptibility of the affected resource to perturbation (sensitivity).

The evaluation of significance must consider the interrelationship of these three components. For example, a relatively small magnitude impact to breeding burrowing owls (*Athene cunicularia*) would be considered significant because the species is increasingly rare in the San Francisco Bay region and is believed to be very susceptible to burrow disturbance. On the other hand, a plant community such as non-native annual grassland is not rare or as sensitive to disturbance. Therefore, a much larger magnitude of impact would be required to result in a significant impact.

Vegetation

The following significance criteria were used to assess the significance of potential project impacts to affected vegetation resources. References to CEQA Guidelines are included in parentheses. Significant impacts are those that would result in:

- Substantial disturbance of a special status species¹ or its habitat (Section 15065, Appendix G, Appendix I)

¹ Special status species are defined here to include all species listed, proposed for listing, or candidates for listing under the Federal Endangered Species Act; the California Endangered Species Act; the CDFG's list of Species of Special Concern; plant species included on CNPS Lists 1A, 1B, and 2; as well as species that would qualify for inclusion into any one of these lists (CEQA Guidelines, Section 15380). The Final EIR incorporates recently proposed changes to the CNPS Inventory. These changes reflect the current state of knowledge on the rarity and

- A substantial reduction in the numbers of a special status plant species (Section 15065)
- Indirect loss of a special status plant species or its habitat (Section 15065a)
- Filling or degradation of wetlands and waters subject to the jurisdiction of the USACE pursuant to the Federal Clean Water Act (no net loss of wetlands) (Appendix G and Appendix I)
- Creation of substantial barriers for dispersal of plant species (Appendix G)
- Compaction of soils, clearing of vegetation, or other activities that substantially increase erosion and sedimentation (Appendix G)
- Introduction of non-native plant species or facilitating the dispersal of existing populations of non-native plants (Appendix I).

Wildlife

Evaluation of impacts to wildlife resources considers the magnitude of impact, the rarity of the resource, and susceptibility of the resource to impacts. All impacts that are defined in Section 15065 of the CEQA Guidelines as significant have been designated as significant in this EIR. A project is considered to have potentially significant biological impacts if it would:

- Substantially diminish habitat for fish or wildlife
- Cause a fish or wildlife population to drop below self-sustaining levels
- Interfere substantially with the movement of any resident or migratory fish or wildlife species
- Reduce the number or restrict the range of a rare or endangered species
- Adversely affect species under the protection of the Migratory Bird Treaty Act (burrowing owls, nesting raptors, passerines)
- Threaten to eliminate a plant or animal community
- Substantially affect a rare or endangered species or the habitat of that species.

Significant impacts to biological resources are not limited to projects affecting only state or federally listed endangered species. A species that is listed will also be considered rare or endangered if it can be shown to meet the following criteria (CEQA Guidelines 15380):

- When its survival and reproduction in the wild are in immediate jeopardy from one or more causes
- It is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens
- It is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

endangerment of these species. Although the proposed changes to the CNPS Inventory have not been finalized, the new information has been used in this EIR to reassess the significance of impacts to the species proposed for changes in their CNPS List status.

C.3.2.2.2 *Impact Assessment Methodology*

Vegetation

Vegetation resources were surveyed along the study corridor extending along the length of the proposed transmission line, as well as the proposed alternative alignments. Proposed locations and impacting parameters were compared with the locations of identified biological resources to determine the following:

- Type of affected resource
- Area, population, and status of the affected resource
- Nature of the potential impact (e.g., construction vs. maintenance, short-term vs. long-term, and direct vs. indirect).

Special status plant populations were reviewed and designated for avoidance based on the species' rarity, magnitude of the potential impacts, and sensitivity of the species to disturbance. No special status plant species have been found within the proposed transmission line route and are therefore unlikely to be directly impacted by the proposed project.

All of the potential impacts to vegetation resources were compared to the significance thresholds listed in Section C.3.2.2.1, above. Mitigation for all significant impacts is also proposed.

Wildlife

The significance criteria were applied to the wildlife species and habitats within the proposed transmission line route in order to evaluate the significance of impacts associated with the construction and operation of the proposed project. An example of a significant impact is substantial disturbance or habitat removal of a burrowing owl nest site. Burrowing owl burrows are often used on an annual basis during the breeding season and are established by owl use over many years. In this example a substantial impact may be construction activity in the vicinity of a nest that would disrupt normal breeding behavior or result in the abandonment of a nest.

Other examples of sensitive wildlife resources are: California tiger salamander estivation and breeding habitat, and western snowy plover nesting areas. These limited-distribution habitats are most susceptible to project impacts due to their importance to wildlife populations during critical life stages and due to the finite amount of these resources available. Project impacts to such sensitive resources would have far-reaching consequences for one or more wildlife populations, and are therefore considered significant.

Impacts to less sensitive wildlife habitat would be considered adverse but not significant. Widespread habitat that does not contain wildlife concentration areas or critical resources is considered less sensitive. For example, impacts to some annual grassland and landscaped areas would not be considered significant.

C.3.2.3 Applicant Proposed Measures

In the Proponent’s Environmental Assessment (June 1998, primarily covering the Westerly Route Alternative, which was the proposed project at that time), PG&E Co. proposed several measures designed to reduce potential impacts to biological resources associated with construction and operation of the Westerly Route. The proposed transmission line route and Westerly Route Alternative have similar potential impacts; therefore, the previously proposed measures (with minor modifications) are applicable to the proposed project. The following general measures are proposed by the applicant to be implemented to avoid or minimize anticipated impacts to biological resources from project development:

- An ongoing endangered species/sensitive habitat educational program for construction crews will be conducted by a qualified biologist(s) prior to the commencement of the proposed project and during construction activities. Sessions will include discussion of the federal and state Endangered Species Acts, the consequences of noncompliance with these acts, and identification and values of sensitive species and wetland habitats
- An educational brochure will be produced for construction crews working on the project. Color photographs of sensitive species will be included, as well as a discussion of protective measures agreed to by PG&E Co. and the resource agencies for each tower located in sensitive habitat
- Vehicles will be confined to existing roads or approved routes
- A biological monitor will be on site during any construction activity in sensitive habitat
- Photodocumentation of all habitat before and after construction will occur and be part of the project report due to the resource agencies no later than 90 days following completion of construction
- Diligent efforts by PG&E Co. will be used to protect the existing plant community at tower work sites. However, temporary impacts to habitat will be addressed through a revegetation/restoration plan prepared in conjunction with the resource agencies
- The biological monitor will document monitoring activities and prepare a report within 90 days of completion of construction
- Permanent impacts, including habitat loss, will be mitigated by purchasing habitat credits or purchasing mitigation lands. Impacts to wetlands will be mitigated at a 3:1 ratio. Impacts to burrowing owl habitat will be mitigated by purchasing habitat credits or purchasing mitigation land at a 1:1 ratio
- Trash dumping, firearms, and pets will be prohibited in the project area.

Table C.3-6 presents the Applicant Proposed Measures that PG&E Co. has stated it will implement to minimize environmental impacts.

Table C.3-6 Applicant Proposed Measures

Issue / Species	Measure Text
Construction	

Issue / Species	Measure Text
Measure 10.5a. Vernal Pool Tadpole Shrimp	<p>Field surveys are currently being conducted to determine the presence of endangered vernal pool tadpole shrimp within the project area. A qualified biologist is conducting the survey according to CDFG guidelines and federal requirements. If tadpole shrimp and/or habitat are located within the project area, every attempt will be made to avoid the area. If avoidance is not possible, a Section 7 consultation may be entered into with USFWS. PG&E Co. proposes to mitigate for any direct or indirect impacts to the tadpole shrimp, or its habitat, by employing a combination of measures that may be appropriate to offset construction impacts. Mitigation could include two or more of the following measures: 1:1 on site creation of habitat; 1:1 off site preservation of extant habitat; and 1:2 vernal pool restoration at a publicly owned location. The combination of measures would equal an overall compensation ratio of 2:1. These mitigation measures are similar to those required in a 1995 biological opinion for the Morrison Creek Mining Project, which impacted vernal pool habitat on a 290-acre site in Sacramento County (Arnold, 1998). Exact mitigation requirements for this project would be negotiated with the USFWS.</p> <p>It may also be possible to negotiate with Catellus Corporation on a shared mitigation solution for vernal pool tadpole shrimp, since Catellus is currently developing a mitigation package for the Pacific Commons site. Any such agreement would have to be proportional to the amount of vernal pool tadpole shrimp habitat disturbed by this project in relation to that impacted by the Catellus Corporation project.</p>
Measure 10.6a. California Tiger Salamander	<p>Field surveys are currently being conducted to determine the presence of California tiger salamanders within the project area. A qualified biologist is conducting the survey according to CDFG guidelines and federal requirements. If tiger salamander breeding and/or estivation habitat is located within the project area, every attempt will be made to avoid these areas. If avoidance is not possible, PG&E Co. proposes to mitigate for any impacts to tiger salamander breeding and/or estivation habitat at a ratio of 1:1, in accordance with current CDFG guidelines. Specifically, for each acre of breeding/estivation habitat that is impacted, 1 acre of extant California tiger salamander breeding and/or estivation habitat would be preserved. The preserved acreage could include habitat located at off-site locations in combination with preservation of California tiger salamander habitat on the project site. The actual ratio of on site to off site preserve acres would be determined by agreement with CDFG.</p> <p>It may also be possible to negotiate with Catellus Corporation on a shared mitigation solution as described for the vernal pool tadpole shrimp.</p>
Measure 10.11a. Vegetation	<p>Trees requiring removal to provide conductor clearance will be replaced on site with low-growing species at a ratio of 1:1.</p>
Measure 10.12a. Special-Status Plants	<p>In consultation with CDFG (Hilliard, 1998), mitigation measures have been developed to ensure the protection and conservation of special-status plant species within the project area. No special-status plant species have been identified from the project area during surveys conducted in April 1998. Final surveys are scheduled for July 1998. Following the completion of all surveys, if it is determined that special-status plant species occur within the project area, PG&E Co. will modify the project to avoid impacts to the identified species. If identified special-status plant species cannot be avoided, PG&E Co. will:</p> <ul style="list-style-type: none"> • Modify the project to minimize impacts to identified species • Acquire suitable habitat for identified species within the vicinity of the project • Develop a long-term habitat enhancement plan for identified species • Monitor the implementation of and the compliance with these mitigation measures

Issue / Species	Measure Text
Measure 10.13a. Salt Marsh Harvest Mouse	<p>If the proposed route is selected, PG&E Co. would consult with USFWS and CDFG to coordinate avoidance and/or mitigation measures. These measures could include, but would not be limited to the following:</p> <ul style="list-style-type: none"> • At Milepost 4.1, an enclosure will be constructed to preclude the mouse from construction areas. • A qualified biologist will remove all mice from within the enclosure in accordance with CDFG guidelines and federal requirements. • A biological monitor will ensure the integrity of the enclosure by checking it daily. • In any area where workers must walk through sensitive habitat to access construction areas, appropriate routes will be selected under the supervision of a biological monitor to minimize or avoid contact with pickleweed, even if such routes are less direct. • Where several trips must be made through sensitive vegetation, the biological monitor will ensure that workers use multiple routes to avoid wearing a path into the vegetation. • Upon reaching the construction area, workers will limit their daily trips to a minimum. • Any temporary impacts to salt marsh habitat will be mitigated by implementation of a restoration/revegetation plan approved by resource agency personnel. • Any permanent impacts will be mitigated through purchase of habitat credits or mitigation land. • If necessary, a Section 7 consultation will be entered into with USFWS.
Measure 10.14a. California Clapper Rail	<p>Areas along the route with suitable foraging and/or nesting habitat will be surveyed by a qualified biologist. PG&E Co. will coordinate avoidance and/or mitigation measures developed with the resource agencies. Mitigation will include, but not be limited to the following:</p> <ul style="list-style-type: none"> • Habitat will be avoided by spanning all suitable habitat. • No construction will occur within 250 feet of known clapper rail breeding habitat during the period February 1 through August 31. No access to the construction site through clapper rail habitat will occur during the same period. • A biological monitor will be present at all times while construction occurs near the 250-foot buffer area for clapper rail habitat. The monitor will be on site from February 1 through August 31. • In construction zones that occur close to the 250-foot buffer where workers must access, the number of daily trips made by the crew will be minimized. • Any temporary impact to salt marsh habitat will be mitigated by implementing a revegetation/ restoration plan approved by the resource agencies. • Any permanent impact to suitable habitat will be mitigated with a purchase of habitat credits or purchase of off-site mitigation land. • If necessary, a Section 7 consultation will be entered into with USFWS.
Measure 10.15a. Western Snowy Plover	<p>Field surveys will include those for the western snowy plover. Areas along the route with suitable habitat will be surveyed by a qualified biologist. This species is known to nest along both the preferred route and the Easterly Route Alternative. PG&E Co. will coordinate avoidance and/or mitigation measures as appropriate with the USFWS and CDFG. If this species is found in the project area:</p> <ul style="list-style-type: none"> • Construction in the vicinity of Salt Ponds A22 and A23 will be avoided from early March through August. • If necessary, a Section 7 consultation will be entered into with USFWS.
Measure 10.16a. California Least Tern	<p>Field surveys will include those for the California least tern. This species is not known to nest within the project area; however, there might be suitable foraging habitat near the project area. PG&E Co. will coordinate avoidance and/or mitigation measures as appropriate with the USFWS and CDFG and will implement one of the following:</p> <ul style="list-style-type: none"> • Avoidance in known foraging areas from April through August • If necessary, a Section 7 consultation will be entered into with the USFWS

Issue / Species	Measure Text
Measure 10.17a. Burrowing Owl	<p>A preconstruction survey for burrowing owls will occur no more than 30 days prior to construction to identify any nesting location on or near the construction zone. These surveys are in accordance with CDFG guidelines and federal requirements. Areas along the route where nesting or foraging burrowing owls have been observed, or areas with mounds, berms, or other suitable ground nesting locations will be surveyed. If owls are located within the project area, CDFG will be notified, and PG&E Co. will coordinate avoidance and/or mitigation measures as appropriate, such as relocation of tower locations, or if permitted, passive relocation of owls to alternate natural or artificial burrows. In consultation with CDFG (Bean, 1998), the following mitigation measures will be implemented:</p> <ul style="list-style-type: none"> • If construction activities occur during the owl breeding season and if burrowing owls are observed on or within 250 feet of a project site during preconstruction surveys, a 250-foot protective buffer will be established with the placement of a barrier fence. The fence will remain in place for the duration of the breeding season. The fence integrity will be monitored by a qualified biologist. • All foraging and nesting habitat that could be lost due to construction activities will be calculated and reported to CDFG. This acreage will be mitigated at a 1:1 ratio with the purchase of habitat credits or the purchase of off-set mitigation land.
Measure 10.18a. Salt Marsh Wandering Shrew	<p>If the proposed route is selected, PG&E Co. will consult with USFWS and CDFG to coordinate avoidance and/or mitigation measures. These measures could include, but would not be limited to the following:</p> <ul style="list-style-type: none"> • At Milepost 4.1, an enclosure will be constructed to preclude the shrew from construction activity or construction areas. • A qualified biologist will remove any salt marsh wandering shrew from within the enclosure in accordance with CDFG guidelines and federal requirements. • A biological monitor will ensure the integrity of the enclosure by checking it daily. • In any area where workers must walk through sensitive habitat to access construction areas, appropriate routes will be selected under the supervision of a biological monitor to minimize or avoid contact with pickleweed, even if such routes are less direct. • Where several trips must be made through sensitive vegetation, the biological monitor will ensure that workers use multiple routes to avoid wearing a path into the vegetation. • Upon reaching the construction area, workers will keep their trips to a minimum. • Any temporary impacts to salt marsh habitat will be mitigated by implementing a revegetation/ restoration plan approved by the resource agencies. • Any permanent impacts will be mitigated through the purchase of habitat credits or offsite mitigation land. • If necessary, a Section 7 consultation will be entered into with USFWS.
Measure 10.19a. Tri-colored Blackbird	<p>Areas along the route with suitable breeding habitat will be surveyed by a qualified biologist. Preconstruction surveys will also occur. If this species is located prior to construction, PG&E Co. will consult with the USFWS and CDFG to coordinate avoidance and/or mitigation measures. Avoidance is possible by spanning suitable habitat.</p> <ul style="list-style-type: none"> • If construction is scheduled during the breeding season, a buffer of 250 feet will be observed to protect breeding tri-colored blackbirds. • A biological monitor will be present to ensure that construction activity would not result in nest abandonment.
Measure 10.20a. Saltmarsh Common Yellowthroat	<p>Field surveys for the saltmarsh common yellowthroat will be conducted by a qualified biologist. If this species is located prior to construction, PG&E Co. will consult with the USFWS and CDFG to coordinate avoidance and/or mitigation measures:</p> <ul style="list-style-type: none"> • If construction is scheduled during the breeding season, a buffer of 250 feet will be observed to protect breeding saltmarsh common yellowthroats. • A biological monitor will be present to ensure that construction activity would not result in nest abandonment.
Measure 10.21a. California Yellow Warbler	<p>Field surveys will include the California yellow warbler. Areas along the route with suitable habitat will be surveyed by a qualified biologist. If this species is located prior to construction, PG&E Co. will consult with the USFWS and CDFG to coordinate avoidance and/or mitigation measures. Avoidance is possible by spanning suitable habitat.</p> <ul style="list-style-type: none"> • If construction is scheduled during the breeding season, a buffer of 250 feet will be observed to protect breeding California yellow warblers. • A biological monitor will be present to ensure that construction activity would not result in nest abandonment.
Measure 10.22a. Alameda Song Sparrow	<p>Field surveys will include the Alameda song sparrow. Areas along the route with suitable habitat will be surveyed by a qualified biologist. If this species is located prior to construction, PG&E Co. will consult with the USFWS and CDFG to coordinate avoidance and/or mitigation measures. Avoidance is possible by spanning suitable habitat.</p> <ul style="list-style-type: none"> • If construction is scheduled during the breeding season, a buffer of 250 feet will be observed to protect the Alameda song sparrow. • A biological monitor will be present to ensure that construction activity would not result in nest abandonment.

Issue / Species	Measure Text
<i>Measure 10.23a. Raptors (Northern Harrier, White-tailed Kite, Golden Eagle, Short-eared Owl, and Others)</i>	<p>In consultation with the CDFG (Bean, 1998) mitigation measures have been developed to ensure the protection and conservation of raptors within the project area. Protective measures that will be implemented include:</p> <ul style="list-style-type: none"> • Before the spring breeding season (and prior to the start of construction), a survey of the construction area for potential sensitive raptor habitat will be performed by a qualified biologist. The CDFG will review and approve the survey findings. It is expected that if construction occurs in suitable habitat before the onset of the breeding season, the construction disturbance would cause the raptors to seek alternate sites for breeding and nest construction. • If avoidance of active nests is not practicable (March to September) a buffer of 250 feet will be maintained around any nesting raptor. • In the event of a nesting raptor, a qualified biological monitor will be provided by PG&E Co., and remain on site during construction activities to ensure there is no nest abandonment. • In the event of a nesting raptor, CDFG will provide authorization for nest removal after the young have been observed foraging.
<i>Measure 10.24a. Other Avian Species</i>	<p>Field surveys for protected avian species will be conducted by a qualified biologist. If these species are located prior to construction, PG&E Co. will consult with USFWS and CDFG to coordinate avoidance and/or mitigation measures.</p> <ul style="list-style-type: none"> • If construction is scheduled during the breeding season, a buffer of 250 feet will be observed around the nest location. • A biological monitor will be present to ensure that no construction activity would result in nest abandonment.
Operation	
<i>Measure 10.25a. Predation</i>	<p>The following mitigation measures will be implemented to reduce predation impacts:</p> <ul style="list-style-type: none"> • Steel tubular poles will be used within the Bay portion of the project to minimize perching and predation opportunities. • Predation opportunities can be lessened through the use of bird guards to discourage perching at tower locations within the general area of California clapper rail. • Predation opportunities will be evaluated during preconstruction surveys. PG&E Co. will contribute to a predator control program in Santa Clara County to help control feral cat/red fox populations. • Artificial burrows will be installed (where property owners concur) to increase escape cover for burrowing owls. • Habitat enhancement opportunities will be developed with the resource agencies at all tower locations designated as contributing to the issue of predation. Habitat enhancement will be developed to increase escape cover for prey.
<i>Measure 10.26a. Bird Electrocutation</i>	<p>PG&E Co. will construct the 115 kV power lines to raptor-protection guidelines (APLIC, 1996). No impacts are expected from the 230 kV transmission line, therefore no mitigation is necessary. Final engineering drawings for the 115 kV towers will be reviewed by a qualified biologist to ensure all birds are protected from electrocution.</p> <p>Because electrocutions at substations are expected to be rare events, no mitigation is proposed. However, since substation outages are expensive, PG&E Co.'s customary practice is to correct any problem at a substation causing repeated outages. Solutions to wildlife-caused outages at substation are specific to the equipment and species involved. Some potential solutions are discussed in NRECA (1996) and <i>Electrical World</i> (1996).</p>
<i>Measure 10.27a. Bird Collisions</i>	<p>Bird flight patterns and collision mortality will be monitored on portions of the line where the potential for mortality is moderate to high. Study design and significance criteria will be developed in consultation with the appropriate agencies. If significant additional mortality results from construction of the transmission line, mitigation measures such as line marking or compensation will be developed with the appropriate agencies.</p>

C.3.2.4 Proposed 230 kV Transmission Line Route

This subsection presents the potential impacts of the proposed project and mitigation measures related to biological resources. The first part of the section is an overview of the impact categories identified in the impact assessment. The second and third parts of the subsection present each of the potential project impacts related to vegetation and wildlife resources, respectively, and outline the steps that would be taken to mitigate significant impacts.

C.3.2.4.1 *Impact Overview*

Vegetation

Assessments of potential impacts to special status plants and plant communities are organized into four categories of impacts:

- Temporary and permanent loss of plant communities
- Temporary and permanent loss of special status plant species and their habitats
- Overland travel disturbance of plant communities
- Overland travel disturbance of special status plant species and their habitats.

Temporary and permanent habitat loss represent direct impacts to special status plants and plant communities. The remaining two impact categories are considered indirect impacts of the proposed project. Direct impacts can be quantitatively assessed because they are functionally linked to the actions required to construct, operate, and maintain the proposed project. Indirect impacts are assessed with less quantification because they can be affected by a number of independent factors that can vary in magnitude or frequency (e.g., duration of construction, time of year, existing plant community condition). All four impact categories contain potential impacts that could result from all phases of the project: construction, operation, and maintenance of the proposed facilities.

It was assumed that temporary habitat loss would consist of areas that have been cleared or bladed to facilitate construction but possess potential for restoration. Examples of impacts assumed to cause temporary habitat loss include bladed construction access and foot work areas at structure locations. Permanent habitat loss was assumed to consist of areas to be occupied by permanent project facilities such as substations, towers, and permanent access routes inside the corridor. Tower work areas would occupy approximately 40,000 square feet and structure foundations would occupy approximately 33 square feet per structure. Overland travel impacts would consist of off-road travel in areas that do not require blading, such as between towers along the transmission line route.

Temporary habitat loss is assumed for all areas around towers and substations during the construction phase. Overland travel by construction traffic is considered a temporary impact, and is assumed for areas between towers which do not have existing access roads.

All impacts discussed in the following section are designated as "significant" or "not significant." However, the sensitivity of the adversely affected resources varies. Impacts to some natural plant communities are considered significant because of the potential for indirect affects, while other impacts are significant because of the inherent value or sensitivity of the resource. For example, impacts to a California Native Plant Society List 1B plant species would be considered significant because the species is considered by CNPS to be rare, threatened, or endangered in California and elsewhere.

Wildlife

Impacts to wildlife resources as a result of proposed project construction, maintenance, or operations, were separated into those likely to occur from construction (both short-term and long-term impacts) and those that could occur as a result of transmission line and substation operation. Potential impacts to federal- and state-listed species, candidate species, and species of special concern are also discussed.

Seven general impact categories are described below. Project-related disturbances described in each category are meant to include all activities that might occur during the life of the project, including scheduled maintenance activities.

Wildlife Habitat Removal. Wildlife habitat removal includes activities such as: (1) grading and blading, (2) tree or shrub removal, and (3) tree trimming or scraping road surfaces such that subsurface disturbance occurs. Each of these activities could effectively remove existing habitat, thereby reducing the amount of habitat available to local wildlife populations. Habitat removal would occur primarily during project construction when vehicles require access to structure or substation locations. In some areas, access would require construction of new roads or upgrade of existing roads, including road widening. Blading of previously undisturbed surfaces may also occur to access structure locations. Blading would remove rocks, large shrubs, and other objects from the soil surface, leaving a relatively clear pathway for construction vehicles. Tree trimming would remove branches within the right-of-way (ROW) to provide clearance for the transmission lines. In addition, habitat would be removed at many structure locations, at substation locations, and at construction staging areas. Staging areas may not be graded in all cases; however, it is anticipated that these areas could be substantially damaged by vehicle parking and materials storage activities during construction. Specific wildlife habitats, which would be affected, are discussed in Section C.3.1.2.2.

Wildlife Habitat Disturbance. This category includes activities during construction or operation that would affect the local wildlife habitat but would not involve subsurface soil disturbance, blading, or clearing of vegetation. The primary form of habitat disturbance would be the use of heavy equipment during stringing of the line, and use of off-road vehicles within the 160-foot ROW (see Project Description). Off-road overland travel would not involve grading or road improvements. Overland travel during construction and maintenance of the proposed project would result in some crushed vegetation and potential loss of individual animals such as small mammals or reptiles whose burrows would be compacted.

Direct Mortality and Direct Disturbance to Wildlife. Direct loss of small mammals, reptiles, and other less mobile species would result primarily from the use of construction vehicles. Direct mortality associated with increased human activity is also anticipated, particularly animal/vehicle collisions. In addition, temporary direct disturbance to wildlife would occur during project construction.

Indirect Impacts to Wildlife from Increased Human Presence and Access. Indirect impacts resulting from human disturbance during project construction, maintenance, or the reclamation process (due to heavy vehicle operation, or helicopter flights, etc.) would cause displacement of some wildlife to other habitats, which may or may not be able to support additional animals. Impacts as a result of increased human disturbance may also include reduced reproductive success in local wildlife populations, including songbirds, small mammals, reptiles, and special status species.

Increased Predation. The proposed project would introduce structures to areas that are currently open, treeless habitats. As a result, wildlife species such as raptors in the vicinity of the proposed transmission line route would be given a competitive advantage. The addition of tall structures that can be used as perches during hunting would benefit some raptor populations by providing a secure vantage point from which to survey large areas of habitat. In addition, habitats, which raptors had previously used only occasionally, would become routine hunting areas due to the increase in available perches.

Bird Electrocutation. Raptors are most susceptible to electrocution because of their size, distribution, and behavior (Ondorff et al., 1981). They often perch on tall structures that offer them optimal views of prey. Bird electrocutions occur when the wingspan of the bird is greater than the spacing between any two conductors on a power pole or when a bird bridges the gap between a conductor and a ground wire. Bird electrocutions are, therefore, generally a problem associated with low voltage powerlines less than 69 kV (on which conductors are closer together). High voltage transmission lines, such as those to be constructed in the proposed project, are typically constructed with a greater distance between conductors; thus, there is less risk of bird electrocutions. The spacing of conductors on transmission line structures is almost always greater than the largest North American bird, except perhaps for the California Condor.

Bird Collisions. Most bird collisions with powerlines occur under two common conditions: (1) when a powerline or other aerial structure transects a daily flight path used by a concentration of birds, and (2) when migrants are traveling at reduced altitudes and encounter tall structures in their path (Brown, et al., 1993). Collision rates generally increase in low light conditions, during inclement weather, such as rain or snow, during strong winds, and during panic flushes when birds are startled by a disturbance or are fleeing from danger. Collisions are more probable along wetlands, valleys that are bisected by powerlines, and within narrow passes where powerlines run perpendicular to flight paths.

C.3.2.4.2 *Specific Environmental Impacts and Mitigation Measures*

The proposed project will result in permanent and temporary removal of habitat. Temporary habitat removal would include short-term impacts during construction. Permanent habitat removal would involve long-term impacts associated with permanent project facilities, such as substations, that will remain throughout the life of the project. Examples of these impacts are:

- Construction/upgrade of access roads within proposed transmission line route for travel between towers (temporary)

- Substation construction (permanent)
- Blading around tower sites (temporary)
- Structure foundations (permanent)
- Construction of permanent access routes within the proposed transmission line route (permanent).

Each of these activities would cause the removal of existing vegetation and substantial disturbance of the surface soil layers. Specific impacts and mitigation measures are described below. Impacts are broken down into Construction, Operations, and Special Status Species impacts.

Proposed project impacts are presented according to the impact categories already described. Impacts are identified as significant or not significant and classified according to the resulting level of impact when mitigation measures are applied. Mitigation measures are numbered and cross-referenced when they apply to more than one impact. Not all of the wildlife species identified in the baseline section will be discussed in this section. The impacts and mitigation discussion will address wildlife species and habitats that would be affected by the project, based on information obtained through field survey and published and unpublished resource agencies' data.

Mitigation measures have not been proposed for **Class III**, adverse, but not significant, impacts for the following reasons: (1) these impacts would be mitigated indirectly by association with plant communities that would be mitigated, (2) impacts are associated with wildlife habitat proposed for mitigation, and (3) avoidance of sensitive species to the extent possible are included as part of the project description.

CONSTRUCTION WILDLIFE IMPACTS

There are five potential impacts to wildlife and habitats along the proposed transmission line route that will result from construction of the proposed project. These include: temporary and permanent loss of plant communities, wildlife habitat removal, wildlife habitat disturbance, direct mortality and direct disturbance to wildlife, and overland travel disturbance of plant communities.

Four potential biological resource impacts are associated with the operation of electric transmission lines: indirect impacts on wildlife from increased human presence, predation on wildlife by raptors, the electrocution of birds (particularly raptors), and bird collisions with conductors. Impacts to raptors could result throughout the life of the project.

Impact 1: Temporary and Permanent Loss of Plant Communities

Northern Coastal Salt Marsh. Temporary impacts to northern coastal salt marsh will result from construction of single-leg towers and construction vehicle traffic between Mileposts 2.7 and 4.1. Though towers will not be constructed within salt marsh, construction activities will extend up to 50 feet from the western edge of the parking lot. Due to the sensitivity of this plant community, temporary losses of salt

marsh are considered **Class II** impacts that are significant but mitigable by avoidance and restoration as described in Mitigation Measure B-1.

Northern Coastal Brackish Marsh. Permanent and temporary impacts to northern coastal brackish marsh will result from tower construction between Mileposts 4.1 and 4.9. Three single-leg towers will be constructed at Mileposts 4.3, 4.5, and 4.7. Towers will be placed directly in brackish marsh habitat, resulting in permanent impacts of approximately 33 square feet per structure. Temporary impacts will result from construction traffic crossing approximately 200 linear feet of vegetated habitat to reach tower sites at Mileposts 4.3 and 4.5. Vegetation will be crushed and soils disturbed as a result of construction traffic. A 40,000 square foot area will be disturbed by construction activities (temporary impact) at each of these sites. Due to the sensitivity of this plant community, permanent and temporary losses of brackish marsh are considered **Class II** impacts that are significant but mitigable by restoration and off-site compensation as described in Mitigation Measure B-1.

Seasonal Wetland. Temporary impacts to seasonal wetland habitat will result from twin-legged tower construction and vehicle traffic between Mileposts 0.0 and 1.7. Tower placement will avoid seasonal wetland habitat, but the work area around each tower will likely impact seasonal wetland. No permanent impacts will result, since towers will be located outside of all seasonal wetland habitat. Due to the sensitivity of this plant community, potential impacts to seasonal wetlands are considered **Class II** impacts that are significant but mitigable by restoration and off-site compensation as described in Mitigation Measure B-1.

Alkali Grassland. Seven twin-legged towers will be constructed between Mileposts 0.3 and 1.7; several areas along this section are dominated by alkali grassland. Temporary loss of this plant community will result from construction vehicles traveling between towers between Mileposts 0.3 and 1.7. Permanent impacts to alkali grassland will result from an angle structure that will be installed at Milepost 1.7. Since portions of alkali grassland may be wetland habitat, potential impacts to this plant community are considered **Class II** impacts that are significant but mitigable by avoidance and restoration as described in Mitigation Measure B-1.

Mitigation Measure for Temporary and Permanent Loss of Plant Communities

The objective of the **avoidance, restoration, and off-site compensation** mitigation measure is to reduce the potential impacts to wetland plant communities within and adjacent to the proposed transmission line route to a less-than-significant level by restoring affected areas and enhancing areas off site. Permanent and temporary loss of wetland plant communities will be mitigated by a combination of avoidance, restoration, and off-site compensation.

B-1 The initial step for this measure will be completion of a jurisdictional wetlands delineation of the proposed transmission line corridor. Once the delineated wetlands have been verified by the U.S.

Army Corps of Engineers (USACE), avoidance measures will be finalized. Avoidance will consist of flagging or fencing allowable travel routes and construction areas to minimize impacts to wetland plant communities. Flagging will be used to designate approved travel routes and work areas in portions of the project route that are far from wetland plant communities. Protective fencing will be installed in those portions of the proposed transmission line route that are immediately adjacent to wetlands. Construction work areas within or immediately adjacent to wetlands will be located and fenced to avoid or minimize wetland impacts.

Unavoidable temporary loss of wetland plant communities during construction will be mitigated by restoration of the impacted area to pre-construction conditions. Where restoration of temporary impacts is not feasible and where permanent wetlands impacts occur from tower installation, off-site compensatory mitigation will be provided. Additional off-site compensation will be required if the responsible agencies determine that restoration of temporary impacts has failed.

A Restoration Plan will be developed by the applicant and submitted to the Corps, Regional Water Quality Control Board (RWQCB), California Public Utilities Commission, City of Fremont, and City of San Jose at least 60 days prior to the start of any construction. The plan will contain information for wetland mitigation location and wetland type to be created for any proposed off site wetland creation, and details on soil preparation, seed collection, planting, maintenance, and monitoring for on-site restoration efforts and off-site wetland creation. Quantitative success criteria will also be presented in the plan. The mitigation objective for affected wetland plant communities will be restoration to pre-construction conditions as measured by species cover, species composition, and species diversity. Success criteria will be established by comparison with reference sites approved by the Corps and RWQCB.

Wetland restoration and creation will be monitored for five years after mitigation site construction to assess progress and identify problems. Remediation actions will be taken during the five-year period if necessary to ensure the success of the restoration effort.

Non-Native Annual Grassland/Agricultural Areas. Between Mileposts 0.0 and 1.7, approximately 1440 square feet of non-native annual grassland will be permanently lost as a result of project construction. Permanent loss of this plant community will occur throughout the route where tower footings are installed. Portions of non-native annual grassland will be temporarily affected by construction vehicles traveling between towers between Mileposts 0.0 and 1.7 to deliver supplies and equipment during construction activities. Two conductor pull areas are located between Mileposts 0.0 and 1.7, resulting in temporary impacts of approximately one acre each. Due to the disturbed nature of, and human modifications to, non-native annual grassland and agricultural areas, temporary and permanent impacts to these plant communities are considered **Class III** impacts that are adverse but not significant. No specific mitigation measures are proposed for impacts to non-native annual grassland or agricultural areas.

Developed Areas. The proposed project will result in temporary loss of developed areas, such as ornamental plantings and landscape strips, at nine separate locations in the Bayside Business Park and three locations at the southern end of the WPCP treatment ponds. This plant community will be affected between Mileposts 2.7 and 4.1 along the Bayside Business Park. Approximately 145 eucalyptus trees will be affected between Mileposts 5.1 and 7.0. Eucalyptus, a with maximum height of 150 to 200 feet, are too tall to grow adjacent to a high voltage electrical line and will be replaced with species with a lower maximum height. Temporary and permanent impacts to this plant community are considered **Class III** impacts that are adverse but not significant. No specific mitigation measures are proposed for impacts to landscape plantings.

Impact 2: Wildlife Habitat Removal

Wildlife habitat removal may occur during construction of access roads and tower placement along the proposed transmission line route. These activities could effectively remove existing habitat, thereby reducing the amount of habitat available to local wildlife populations. Habitat removal would occur primarily during project construction when vehicles require access to structure or substation locations. In addition, habitat would be removed at many structure locations, at substation locations, and at construction staging areas. Staging areas may not be graded in all cases; however, it is anticipated that these areas could be substantially affected by vehicle parking and materials storage activities during construction. Annual grassland is the primary habitat that will be affected during construction. Since this habitat type is abundant in the region, the relatively small area removed is considered adverse, but not significant, and a **Class III** impact to wildlife.

Impact 3: Wildlife Habitat Disturbance

This category includes activities during construction or operation that would affect the local wildlife habitat but would not involve subsurface soil disturbance, blading, or clearing of vegetation. The primary form of habitat disturbance would be the use of heavy equipment during stringing of the line, and use of off-road vehicles within the 160-foot ROW (see Project Description). Off-road overland travel would not involve grading or road improvements. Overland travel during construction and maintenance of the proposed project would result in some crushed vegetation and potential loss of individual animals such as small mammals or reptiles whose burrows would be compacted, resulting in an adverse **Class III** impact.

Impact 4: Direct Mortality and Direct Disturbance to Wildlife

Direct loss of small mammals, reptiles, and other less mobile species would result primarily from the use of construction vehicles. Direct mortality could occur as a result of animal-automobile collisions, and crushing of burrows or nests by heavy equipment. Direct mortality associated with increased human activity is also anticipated, particularly animal-vehicle collision. In addition, temporary direct disturbance

to wildlife would occur during project construction. Direct mortality of reptiles and small mammals, which are not as mobile as larger wildlife species, would likely occur, resulting in an adverse **Class III** impact. Direct mortality of larger, mobile wildlife species, resulting in a **Class II** impact, would be mitigated according to Mitigation Measure B-2 below. In addition, mortality of ground-nesting birds (or their young) such as northern harrier, would be considered a **Class II** impact.

Mitigation Measure for Mortality and Disturbance to Wildlife

The purpose of this measure is to provide specific directions and descriptions of actions that would reduce human-contact related mortality among wildlife in the vicinity of the project during construction.

B-2 In order to reduce direct mortality impacts during construction, construction specifications will include the following conditions:

- Vehicles will not exceed 10 mph on designated access roads or in the ROW
- Litter or other debris that may attract animals will be removed from the project area; organic waste will be stored in enclosed receptacles, removed from the project site daily, and disposed of at a suitable waste facility
- No pets will be allowed in the construction area, including access routes and staging areas
- Construction crews will be monitored by a qualified biologist approved by CPUC.

Application of this mitigation measure would reduce impacts to wildlife to a less-than-significant level. Successful application of this measure would result in few to no mortalities among wildlife in the vicinity of the proposed project during construction.

Impact 5: Overland Travel Disturbance of Plant Communities

Overland travel will involve vehicles traveling off of the existing roads without a bladed route. Impacts to plant communities would result from overland travel by construction vehicles and assorted heavy equipment moving between towers during construction, as well as travel for annual maintenance of the facility and use by the general public. Each of these activities would cause temporary impacts to existing vegetation but would not involve the same magnitude of disturbance as described for temporary and permanent habitat removal. Impacts would include soil compaction, crushing of vegetation, and disturbance of seasonal wetland habitat.

Overland travel impacts will vary in magnitude from minor to severe depending on variables such as vegetation type, topography, volume of traffic, and types of vehicles. Efforts to restore areas that have not been severely affected by overland travel may cause more disturbance than the original impact. The proposed mitigation for overland travel impacts provides agency discretion to identify areas where restoration would be undesirable. Specific impacts and mitigation measures are described below.

Plant communities that would be affected by overland travel include:

Northern Coastal Salt Marsh
Seasonal Wetlands
Non-Native Annual Grassland

Northern Coastal Brackish Marsh
Alkali Grassland

Not all of the plant communities are equally sensitive to overland travel disturbance, not all of these impacts would occur in every plant community, and overland travel would be limited to areas where other existing surface roads are not available. Impacts to alkali grassland and non-native annual grassland are considered adverse but not significant **Class III** impacts and no specific mitigation measures are proposed.

Overland travel disturbance to salt marsh, brackish marsh, and seasonal wetlands is considered a **Class II** significant impacts, which is mitigable with implementation of Mitigation Measure B-3. Overland travel impacts to salt marsh are possible between Mileposts 2.7 and 4.1. Nine towers will be erected along this strip, and damage to salt marsh habitat located adjacent to the Bayside Business Park is possible. Overland travel impacts to brackish marsh are possible between Mileposts 4.1 and 4.8, where no roads exist to facilitate movement of construction traffic between three towers. In particular, the relatively undisturbed brackish marsh at approximately Milepost 4.2 may suffer from overland travel by construction traffic. Overland travel impacts to seasonal wetlands are possible between Mileposts 0.0 and 0.3, where approximately ten seasonal wetlands have been mapped by Jones and Stokes Associates (1998). Four towers will be located between Mileposts 0.0 and 0.3, and they are to be located in the immediate vicinity of mapped seasonal wetlands.

Mitigation Measure for Disturbance to Plant Communities from Overland Travel

B-3 PG&E Co. shall map and flag overland travel routes prior to construction or periodic maintenance during operation to identify and avoid impacts to sensitive habitats (North Coastal Salt Marsh, North Coastal Brackish Marsh, and Seasonal Wetlands) and minimize total impact area. The mapping/flagging shall be reviewed by a CPUC-approved biologist prior to use of these routes for construction to ensure adequate protection for sensitive plant communities.

Impact 6: Indirect Impacts to Wildlife from Increased Human Presence and Access

Indirect impacts would occur as a result of increased human presence throughout the project area, with heaviest concentrations occurring during construction at tower and substation locations, during stringing of the line, and at construction staging areas. Wildlife in the vicinity of the proposed project would be displaced by increased human activity and associated disturbance to wildlife. Since this effect could potentially harm wildlife populations during critical life stages and would increase pressures upon adjacent populations and habitats, the impact would be significant. Indirect impacts resulting from human disturbance during project construction, maintenance, or the reclamation process (due to heavy vehicle operation, or helicopter flights, etc.) would cause displacement of some wildlife to other habitats, which

may or may not be able to support additional animals. Impacts as a result of increased human disturbance may also include reduced reproductive success in local wildlife populations, including songbirds, small mammals, reptiles, and special status species. Mitigation of indirect impacts through avoidance during critical seasons (Mitigation Measure B-4, below) would result in a **Class II** impact.

Mitigation Measure for Impacts to Wildlife from Increased Human Presence and Access

The primary mitigation measure to reduce impacts to wildlife as a result of increased human presence during construction of the proposed project is avoidance by scheduling and pre-construction surveys.

B-4 Construction and operation activities shall be scheduled to avoid critical seasons. Raptor nests, vernal pools, salt ponds, and other sensitive habitats will be avoided during specific seasons throughout the construction, operation, and maintenance of the proposed project. Surveys conducted prior to any construction activities will be performed by qualified biologists to locate raptor nests and other resources in/or adjacent to the ROW and access road areas. Northern harrier is a ground nesting bird known to occur in the project area. To avoid disturbance to ground nests, preconstruction surveys will be conducted to identify current locations of these resources and to flag allowable travel routes. No travel would be allowed to occur outside these areas. Designated existing roads will be used; if such roads are not present, flagged routes that have been surveyed by a biologist will be used. If nests are observed, the avoidance period and buffer distances shown in Table C.3-7 will be observed.

Table C.3-7 Avoidance and Buffer Requirements for Reducing Impacts to Special Status Species

Special Status Species	Habitat ₁	Activity to Avoid	Avoidance ₂ Period	Buffer Distance	Buffer for over-flights
Salt-marsh wandering shrew	marsh with driftwood and pickleweed	construction	none	exclosure	none
Salt marsh harvest mouse	salt marsh dominated by pickleweed	construction	none	exclosure	none
Double-crested cormorant	nests	construction	3/1 - 6/30	0.25 mile	500 feet
Great blue heron (rookery)	nests	construction	2/1 - 6/30	0.25 mile	500 feet
Northern harrier	nest site	construction	3/1 - 6/30	0.5 mile	500 feet
White-tailed kite	nest site	construction	3/1 - 6/30	0.5 mile	500 feet
Western snowy plover	nest site	construction	3/1 - 7/30	0.25 mile	500 feet
Short-eared owl	nest site	construction	3/1 - 6/30	0.25 mile	500 feet
Burrowing owl	nest site	construction	3/1 - 6/30	250 feet	500 feet
Loggerhead shrike	nest site	construction	3/1 - 6/30	250 feet	500 feet
Saltmarsh common yellowthroat	nest site	construction	3/1 - 6/30	250 feet	500 feet
Alameda song sparrow	nest site	construction	3/1 - 6/30	250 feet	500 feet

California tiger salamander	grassland estivation areas breeding pools	construction construction	none 12/1 - 5/30	minimize 250 feet	none
Vernal pool tadpole shrimp	seasonal pools	construction	12/1 - 5/30	250 feet	none

- ¹ Avoidance areas will be identified by coordinate or Milepost and will be provided to construction management before project construction begins.
² Subject to modification upon approval by CDFG.

Surveys will be based on the CDFG survey protocol established for baseline surveys on the proposed project. Specific distances from resources (see Table C.3-7) will be maintained during construction, maintenance, and overflights. Travel areas will be flagged prior to construction (see Mitigation Measure B-3), and biological monitors as specified by CPUC will be present during construction to verify that no vehicular travel occurs outside flagged areas. Biological monitors will have the authority to terminate construction activities if any significant adverse effect on special status species is observed.

Application of this measure would reduce impacts to wildlife to a less-than-significant level (**Class II**).

OPERATION IMPACTS

Impact 7: Increased Predation

New transmission towers could increase the opportunity for raptors to prey on wildlife in general along the preferred route. There is a potential for raptors to perch on new towers and prey on sensitive species such as the California clapper rail. Although neither the California clapper rail or the number of raptors is large, any decrease in this species' population would be a significant impact. Likewise, predation on tri-color blackbirds, saltmarsh yellowthroats, Alameda song sparrows, yellow warblers, and burrowing owls or their young would be a significant impact. Increased predation on sensitive species, therefore, would be considered potentially significant; however Applicant Proposed Measure 10.25a would prevent these impacts from occurring. Therefore, the impact is considered to be adverse (**Class III**) but not significant.

Impact 8: Electrocuting of Birds

Electrocuting only occurs when a bird simultaneously contacts two conductors of different phases or a conductor and a ground. This happens most frequently when a bird attempts to perch on a structure with insufficient clearance between these elements. On a 230 kV transmission line, all clearances between conductors or between conductors and ground are sufficient to protect even the largest birds and no impacts are expected (APLIC, 1996).

In most 115 kV power line configurations, clearances between conductor phases or between conductors and ground are sufficient to protect perching birds. Although final engineering drawings for the 115 kV

power lines have not been prepared, PG&E Co. expects to use a raptor-safe configuration (PG&E Co. 1998).

Impact 9: Bird Collisions

Bird collisions with man-made structures have been reported in the scientific literature for over a century (see Avery et al., 1980 and Herbert and Reese, 1995 for extensive annotated bibliographies). A number of bird collision studies of transmission lines have been conducted. Many of these are of limited scope, but several recent studies have been both well designed and complete (Hartman et al., 1992; Faanes, 1987; Pearson, 1993). These studies indicate that the primary factor in determining the number of birds colliding with a transmission line is the number of birds flying through the area. For instance, a Mare Island study (Hartman et al., 1992) found that both bird flights and collision mortality were much greater on a section of a 115 kV pole line that paralleled a tidally influenced salt pond than on a section that passed through a hayfield. High use of the salt pond by migratory waterfowl and shorebirds resulted in more collisions than a hayfield that is generally used by fewer birds. Other factors that influence the rate of bird collision are species, age, flocking behavior, weather conditions, land use, topography, and line placement and configuration (APLIC, 1994). In the south San Francisco Bay, the highest mortality is expected where lines cross tidal mudflats that are used extensively by feeding shorebirds.

It is impossible to predict the magnitude of bird mortality from the transmission line without extensive information on bird species and movements in the project vicinity. These data are not available for the proposed transmission line route. However, it is possible to make some qualitative predictions based on previous studies in other areas. It is generally expected that collision mortality will be greatest where the movements of susceptible species are the greatest. In addition, the placement and visibility of the line will influence the amount of collision mortality.

Along the proposed transmission line route, significant features for waterfowl and shorebirds are the salt ponds, Coyote Creek, Newby Island Landfill, salt marshes, and the Santa Clara Valley Water Pollution Control Plant. The most visible bird movements are the gulls traveling to the Newby Island Landfill in the morning to feed, and returning to roosting sites in the evening. Gulls are not particularly susceptible to collisions with power lines (Leitner, 1981), but nevertheless have been found under the existing lines at Coyote Creek near the Newby Island Landfill (Ryan, 1997). Shorebirds may collide with the proposed line where it would cross tidal portions of Coyote Creek. Shorebirds regularly move in and out of these areas as the tides alternately expose and cover the mud banks. Salt pond levees are often used as resting areas. Salt Ponds A22 and A23 may dry up partially during the summer, and some birds may use these areas for feeding. The threatened western snowy plover is known to breed in Salt Pond A22. However, bird movements around the salt ponds depend on the complex relationships between feeding and resting areas, here and elsewhere in the South Bay, which are largely undocumented.

The proposed transmission line route parallels an existing PG&E Co. transmission line corridor. In general, several transmission lines within a single corridor are expected to be more visible to birds than single lines (APLIC, 1994). Additional bird mortality is expected to be lower when a line is constructed within an existing corridor than when it crosses new areas. In addition, the visibility of the new line will be enhanced by its bundled conductors, that is, two large conductors tied together. However, no studies have been done on the relative mortality rates of birds of bundled versus single conductors. Several studies have documented that most bird strikes are caused by the static wire, a smaller diameter wire that is placed above the conductors. Saverno et al. (1996) found that 82 percent of 35 observed collisions were with the static wire rather than the conductors.

PG&E Co.'s Applicant Proposed Measure 10.27a would reduce collision impacts but not to less-than-significant levels. Collision impacts would remain significant, a **Class I** unavoidable impact of the proposed project.

SPECIAL STATUS SPECIES IMPACTS

Special status species habitats would be affected by construction and operation of the proposed project. Potential impacts to special status plants and wildlife in and near the proposed transmission line route and mitigation measures to avoid or reduce these impacts are discussed below.

Impact 10: Temporary and Permanent Loss of Special Status Plant Species and their Habitats

Four special status plant species (alkali milk-vetch, San Joaquin sparscale, Congdon's tarplant, and Contra Costa goldfields) have been observed in the vicinity of the proposed transmission line route between Mileposts 0.0 and 1.7 during surveys conducted by Wetlands Research Associates (1999). None have been observed within the proposed transmission line route itself, including work areas; however, potential habitat for some or all of these four species may exist within the route. No permanent impacts are anticipated for any of these species. Temporary impacts to special status plant species and their habitats are possible if individuals of any of these species occur but were not present during previous rare plant surveys within the proposed transmission line corridor. Impacts to special status plant species and their habitats would be considered a **Class II** impact, significant but one that can be mitigated, as described in Mitigation Measure B-5.

Mitigation Measure for Loss of Special Status Plant Species and Their Habitats

The objective of this mitigation measure is to **avoid** special status plants. Permanent and temporary loss of special status plants will be mitigated through avoidance.

B-5 Prior to construction, comprehensive rare plant surveys will be conducted on the Pacific Commons Preserve and the Newark Substation site (Mileposts 0.0 to 1.7). These surveys will be

appropriately timed to cover the blooming periods of the four special status plant species known to occur in the area (April, May, and July). Maps depicting the results of these surveys will be prepared and will include other recently mapped special status plant occurrences in the area (WRA 1999) to ensure that the full scope of rare plant habitat in the project route vicinity is delineated.

Information on these special status plant population locations will be provided to construction personnel in a pre-construction seminar. Any special status plant occurrences located within 200 feet of the proposed project construction corridor will be fenced prior to the start of any construction. Maps and reports, as well as proposed fence locations, shall be provided to the CPUC's approved biological monitor for review and approval prior to the start of construction.

Impact 11: Overland Travel Disturbance of Special Status Plant Species and their Habitats

The four special status plant species observed in the vicinity of the proposed transmission line route (alkali milk-vetch, San Joaquin spearscale, Congdon's tarplant, and Contra Costa goldfields) occur a sufficient distance from the transmission line route that direct impacts from construction and overland travel are unlikely. However, alkali grassland is potential habitat for alkali milk-vetch, San Joaquin spearscale and Congdon's tarplant, and this habitat is found at several locations along the proposed transmission line route between Mileposts 0.3 and 1.7. Movement between the seven proposed towers in this segment by traffic during construction and post-construction maintenance could disrupt this plant community and the special status plant species that have the potential to occur there. Contra Costa goldfields, known to occur in seasonal wetlands in the area, may be adversely affected by overland travel between Mileposts 0.0 and 0.3 in seasonal wetland habitat. Impacts to special status plant species and their habitats would be a **Class II** impact, significant, but one that can be mitigated to a less than significant level as described in Mitigation Measure B-6.

Mitigation Measure for Disturbance of Special Status Plant Species and Their Habitats

B-6 Pre-construction and pre-maintenance surveys for special status plants will be conducted in areas susceptible to overland travel disturbance by construction vehicles. Occurrences of special status plants will be flagged, and overland travel will be prohibited in these areas. Maps and reports, as well as proposed fence locations, shall be provided to the CPUC's approved biological monitor for review and approval prior to the start of construction.

Impact 12: Salt Marsh Harvest Mouse

Suitable salt marsh harvest mouse habitat in north coastal salt marsh and north coastal brackish marsh along the proposed transmission line route is found in several areas. These are as follows:

- North coastal salt marsh along the unnamed tidal channel at the west end of West Warren Avenue, between Mileposts 2.5 and 2.7

- Along the western edge of the Bayside Business Park in the vicinity of Milepost 4.1
- Pickleweed stands between Mileposts 4.1 and 4.7
- A strip of dense pickleweed along the western edge of the waterbird pond and pickleweed in the muted tidal marsh on the west side of the proposed transmission line route between Mileposts 4.9 and 5.1.

Potential construction impacts to the salt marsh harvest mouse include habitat removal/disturbance, direct mortality, and indirect disturbance from increased human presence and access. Potential operation impacts include increased predation and disturbance during maintenance activities.

The transmission line will span the wetland between Mileposts 2.5 and 2.7; therefore, construction impacts to salt marsh harvest mouse habitat associated with tower construction will be avoided at this segment. Surface disturbance during tower construction in suitable habitat between Mileposts 4.1 and 4.7, and 4.9 to 5.1 will result in potentially significant impacts to the mouse in these areas. In addition, staging areas required for conductor stringing equipment may impact salt marsh harvest mouse habitat at Milepost 4.1.

Between Mileposts 4.1 and 4.8, where the extension of Fremont Boulevard has been proposed, mitigation measures associated with the extension will reduce that project's impacts to a less-than-significant level. If the extension is completed before construction of the proposed project, impacts to the salt marsh harvest mouse between Mileposts 4.1 and 4.7 would be less than significant since no coastal salt marsh habitat would be disturbed. If the roadway extension is not completed before transmission line construction, there is a potential for direct impacts to the salt marsh harvest mouse.

Surface disturbance of habitat for the salt marsh harvest mouse is considered a potentially significant impact but it would be avoided with implementation of Applicant proposed Measure 10.13a, which will adequately protect the harvest mouse, resulting in non-significant (**Class III**) impacts.

Impact 13: Salt Marsh Wandering Shrew

Suitable salt marsh wandering shrew habitat in north coastal salt marsh and north coastal brackish marsh along the proposed transmission line route is found in the same locations as those of the salt marsh harvest mouse.

Potential construction impacts to the salt marsh wandering shrew include habitat removal/disturbance, direct mortality, and indirect disturbance from increased human presence and access. Potential operation impacts include increased predation and disturbance during maintenance activities.

The transmission line will span the wetland between Mileposts 2.5 and 2.7; therefore, construction impacts to shrew habitat associated with tower construction will be avoided at this segment. Surface disturbance during tower construction in suitable habitat between Mileposts 4.1 and 4.7, and 4.9 to 5.1 will result in

potentially significant impacts to the shrew in these areas. In addition, staging areas required for conductor stringing equipment may impact shrew habitat at Milepost 4.1.

Surface disturbance of habitat for the salt marsh wandering shrew is considered to be potentially significant, but it would be avoided with implementation of Applicant Proposed Measure 10.18a, which will adequately protect the shrew, resulting in non-significant (**Class III**) impacts.

Impact 14: California Clapper Rail

Suitable California clapper rail habitat in north coastal salt marsh and north coastal brackish marsh along the proposed transmission line route is found along the unnamed tidal channel at the west end of West Warren Avenue, between Mileposts 2.5 and 2.7.

Placement of tower footings along the preferred route is not expected to result in a loss of habitat for the California clapper rail because the transmission line would span north coastal salt marsh and north coastal brackish marsh in the vicinity of Milepost 2.5. Construction-related noise during the nesting season, however, may cause California clapper rails to abandon nesting.

Construction disturbance of breeding California clapper rails is considered potentially significant, but it would be avoided with implementation of Applicant Proposed Measure 10.14a, which will adequately protect the clapper rail, resulting in non-significant (**Class III**) impacts.

Impact 15: Western Snowy Plover

In the San Francisco Bay region, western snowy plovers nest from early March through August on the bottoms of dried salt ponds or on islands and separated levees where they are protected from mammalian predators. Salt Ponds A22 and A23, between Mileposts 1.7 and 2.7, provide suitable nesting and post-nesting habitat for the species.

Tower construction in the salt ponds could result in the loss of habitat, destruction of nests and young, or cause nest abandonment.

Construction disturbance of breeding western snowy plovers is considered to be potentially significant, but it would be avoided with implementation of Applicant Proposed Measure 10.15a, which will adequately protect the harvest mouse, resulting in non-significant (**Class III**) impacts.

Impact 16: California Least Tern

The California least tern nests on bare or sparsely vegetated, flat substrates along the coast or edge of San Francisco Bay. These terns forage in bays, lagoons, and tidal sloughs.

No suitable California least tern nesting habitat is present along the proposed transmission line route. Potentially suitable foraging habitat is present in Salt Ponds A22 and A23, in the lagoon along the western edge of the Bayside Business Park between Mileposts 2.7 and 4.1, and in waterbird pond near Milepost 5.1.

Impacts to the California least tern could be potentially significant if construction activity deterred this species from foraging within the project area. However, impacts would be avoided with implementation of Applicant Proposed Measure 10.16a, which will adequately protect the least tern, resulting in non-significant (**Class III**) impacts.

Impact 17: Burrowing Owl

Burrowing owls in the San Francisco Bay region are generally found in annual grasslands supporting populations of California ground squirrels. The owls utilize ground squirrel burrows for roosting and nesting.

Suitable habitat is present for the burrowing owl along the proposed transmission line route in several areas. These are:

- Non-native annual grassland at the Pacific Commons site between Mileposts 0.0 and 1.7;
- The western edge of the Bayside Business Park between Mileposts 2.7 and 4.1;
- Potential suitable habitat along the proposed transmission line route between Mileposts 4.9 and 7.2.

Impacts to the burrowing owl could occur if construction activities occurred within a 75-meter (250-foot) buffer of an active nest. Likewise, if burrowing owls move into a construction zone prior to the start of construction, or during construction, there is the potential for individual owls, their young, and their eggs to be destroyed. This would be a significant impact. Nest abandonment caused by construction-related disturbance is also considered a significant impact.

Loss of foraging and nesting habitat, or construction disturbance during the breeding season are considered potentially significant, but those impacts would be avoided with implementation of Applicant Proposed Measure 10.17a, which will adequately protect the burrowing owl, resulting in non-significant (**Class III**) impacts.

Impact 18: Loggerhead Shrike

Suitable habitat in non-native annual grassland/coyote brush scrub, agricultural areas, and riparian forest for the loggerhead shrike is found at several locations along the proposed transmission line route. These are:

- Non-native annual grassland at the Pacific Commons site between Mileposts 0.0 and 1.7;

- The western edge of the Bayside Business Park between Mileposts 2.7 and 4.1;
- Potentially suitable Central Coast cottonwood-sycamore riparian forest habitat along the proposed transmission line route between Mileposts 4.9 and 7.2.

Significant impacts to the loggerhead shrike could occur if construction of new transmission towers in annual grassland or near Coyote Creek coincided with the breeding season and resulted in nest abandonment. No direct impact to suitable habitat is expected.

Construction disturbance during the breeding season of the loggerhead shrike is considered a potentially significant impact but it would be avoided with implementation of Applicant Proposed Measure 10.24a, which will adequately protect the loggerhead shrike, resulting in non-significant (**Class III**) impacts.

Impact 19: California Yellow Warbler

Along the proposed transmission line route, suitable breeding habitat in Central Coast cottonwood-sycamore riparian forest for the California yellow warbler occurs in the general area of Coyote Creek between Mileposts 4.9 to 5.5, and in the general area of Milepost 6.4.

Significant impacts to the California yellow warbler could occur if construction of new transmission towers along the preferred route near Coyote Creek coincided with the breeding season and resulted in nest abandonment. No direct impacts to suitable habitat is expected.

Construction disturbance during the breeding season of the California yellow warbler is considered a potentially significant impact, but it would be avoided with implementation of Applicant Proposed Measure 10.21a, which will adequately protect the warbler, resulting in non-significant (**Class III**) impacts.

Impact 20: Saltmarsh Common Yellowthroat

The saltmarsh common yellowthroat occurs in north coastal salt marsh, north coastal brackish marsh, and Central Coast cottonwood-sycamore riparian forest. Suitable habitat for this species along the proposed transmission line route is found between Mileposts 2.5 and 2.7 and in the general area between Mileposts 5.5 and 6.4.

Significant impacts to the yellowthroat could occur if construction of new transmission towers occurred in close proximity to active nests. If construction along the proposed transmission line route near Mileposts 2.5 and 2.7 or along Coyote Creek coincided with the breeding season, nest abandonment could occur.

Construction disturbance during the breeding season of the saltmarsh common yellowthroat is considered potentially significant but it would be avoided with implementation of Applicant Proposed Measure 10.20a

which will adequately protect the saltmarsh common yellowthroat, resulting in non-significant (**Class III**), impacts.

Impact 21: Alameda Song Sparrow

The Alameda song sparrow occurs in north coastal salt marsh and north coastal brackish marsh. Along the proposed transmission line route, suitable habitat for this species is present along levees between Mileposts 1.7 and 2.5, in tidal wetlands between Mileposts 2.5 and 2.7, and Mileposts 4.2 to 4.9.

Construction of the transmission towers could impact the Alameda song sparrow if activity occurs in close proximity to nesting habitat during the breeding season. This action could disrupt the breeding season and cause nest abandonment, a significant impact. No direct impacts to suitable habitat are expected as towers will span such habitat.

Construction disturbance during the breeding season of the Alameda song sparrow is considered a potentially significant impact but it would be avoided with implementation of Applicant Proposed Measure 10.22a, which will adequately protect the song sparrow, resulting in non-significant (**Class III**) impacts.

Impact 22: Tricolored Blackbird

Along the proposed transmission line route, suitable breeding habitat for the tricolored blackbird is found in north coastal brackish marsh, with suitable breeding conditions limited to an area between Mileposts 4.7 and 5.5. The tricolored blackbird could be impacted if construction of the line occurred within 250 feet of a breeding colony and caused an interruption of this species' breeding season.

Construction disturbance during the breeding season of the tricolored blackbird is considered a potentially significant impact but it would be avoided with implementation of Applicant Proposed Measure 10.19a, which will adequately protect the tricolored blackbird, resulting in non-significant (**Class III**) impacts.

Impact 23: California Tiger Salamander

California tiger salamander breeding and estivation habitat in seasonal wetlands and non-native annual grassland potentially occurs between Mileposts 0.0 and 1.7 of the proposed transmission line route at the Pacific Commons site. If pre-construction surveys determine that salamander breeding pools and/or estivation habitat are present along the proposed transmission line route, minor modifications to tower locations can generally be made to avoid these locations.

If towers cannot be relocated to avoid these areas, loss of breeding and/or estivation habitat for California tiger salamanders would be a significant impact, but this would be avoided with implementation of

Applicant proposed Measure 10.6a, which will adequately protect the salamander, resulting in non-significant (**Class III**) impacts.

Impact 24: Steelhead-Central California Coast Evolutionary Significant Units

Coyote Creek provides important habitat for numerous aquatic species, including a migration path for the federal threatened steelhead (Central California Coast Evolutionary Significant Unit); however, no construction activities will occur in or immediately adjacent to Coyote Creek. The transmission lines would span the stream and a helicopter would be used to string the conductors. Consequently, no aquatic impacts are anticipated.

Impact 25: Vernal Pool Tadpole Shrimp

Vernal pool tadpole shrimp habitat in seasonal wetland occurs between Mileposts 0.0 and 1.7 of the proposed transmission line route at the Pacific Commons site. If pre-construction surveys determine that vernal pool tadpole shrimp habitat is present along the proposed transmission line route, minor modifications to tower locations can generally be made to avoid these locations.

If towers cannot be relocated to avoid these areas, loss of seasonal wetland habitat and vernal pool tadpole shrimp are considered potentially significant, but this loss would be avoided with implementation of Applicant Proposed Measure 10.5a, which will adequately protect the vernal pool tadpole shrimp, resulting in non-significant (**Class III**) impacts.

Impact 26: Raptors

Noise and activity associated with transmission tower construction during the non-nesting season could disturb raptors and cause them to temporarily avoid the construction area. This would be a less-than-significant **Class III** impact. Sensitive raptor species could abandon nesting attempts if disturbed during the breeding season. This would be considered a potentially significant impact, but it would be avoided with implementation of Applicant Proposed Measure 10.23a, which will adequately protect breeding raptors resulting in non-significant (**Class III**) impacts.

Impact 27: Other Avian Species

Noise and activity associated with transmission tower construction could cause disturbance to other avian species that are not designated as special status species. These include migratory waterfowl, shorebirds, and other birds common to the region, but protected by state and federal regulations. Work performed near foraging habitat could cause some birds to disperse, but this would be a temporary and less-than-significant **Class III** impact. Construction activity also has the potential to cause nest abandonment if nests are present. Species covered under the Migratory Bird Treaty Act are protected, and nest abandonment

would be a considered a potentially significant impact that would be avoided with implementation of Applicant Proposed Measure 10.24a, which will adequately protect other avian species, resulting in non-significant (**Class III**) impacts.

C.3.2.5 Proposed Substation Site and 115kV Lines

Impact 8: Electrocution of Birds

Although the non-energized metal structures in a substation are grounded, birds and climbing animals can be electrocuted by reaching energized conductors from grounded equipment. Several recent surveys report on bird and animal-caused substation outages in the United States (NRECA 1996; Nobel et al., 1996). These surveys focus on problems that wildlife cause to substation operation, but indicate that most problems in substations are caused by tree squirrels, raccoons, domestic cats, and birds, especially starlings, blackbirds, and pigeons. Raptors are rarely electrocuted at substations, except for an occasional hawk or owl attempting to roost or feed in the equipment (APLIC, 1996). In a qualitative survey of animal-caused outages at PG&E Co. substations, squirrels, raccoons, and birds (pigeons, starlings, and blackbirds) were identified as the primary pests in substations (Boland and Williams, 1994). Electrocutions of wildlife at the proposed substation are expected to be very rare. Bird electrocutions are considered a potentially significant impact, but PG&E Co.'s Applicant Proposed Measure 10.26a would reduce the impact to levels that are not significant (**Class III**).

Impact 28: Special Status Species

Construction and operation of the proposed substation site and associated transmission lines will not impact any native plant communities. However, non-native annual grassland and agricultural areas, which provide habitat for the burrowing owl, loggerhead shrike, and raptors, will be lost. Approximately 24 acres of non-native annual grassland and agricultural areas will be permanently lost by construction of the Los Esteros Substation.

The burrowing owl, loggerhead shrike, and raptors could be affected if construction of the proposed Substation occurred within 250 feet of a nest and caused an interruption in breeding or abandonment of an active nest. Construction disturbance during the breeding season of the burrowing owl, loggerhead shrike, and raptors is considered a potentially significant impact that can be reduced to non-significant levels with implementation of Applicant Proposed Measures 10.17a, 10.23a, and 10.27a. No additional mitigation is required.

C.3.2.6 Proposed Trimble-Montague Upgrade Alternative

Construction and operation of the proposed Trimble-Montague Upgrade Alternative will not impact any native plant communities. Most of the route follows developed areas with little or no wildlife habitat

value. Any impacts to wildlife or habitat along this route is considered a **Class III** impact, adverse, but not significant.

C.3.2.7 Cumulative Impacts and Mitigation Measures

Vegetation. Cumulative impacts to vegetation resources include all impacts by projects that are planned or projected to be built during the life of the proposed Northeast San Jose Transmission Project. Projects were considered in the cumulative analyses if their potential impacts considered together with the impacts of the Northeast San Jose Transmission Project would be additive and compound or increase the vegetation impacts assessed above.

Wildlife. Cumulative impacts to wildlife resources include all impacts that are planned or projected to be built during the life of the proposed project. Although planned or proposed projects in the south San Francisco Bay region will not impact the same special status species at the same levels or in the same way; cumulatively, wildlife habitat is degraded or lost as a result of these activities. The Northeast San Jose Transmission Line Project contributes to the degradation of wildlife habitat in the region. This is considered a significant impact.

Implementation of the Applicant's Proposed Measures will reduce the proposed project's contribution to cumulative impacts to wildlife resources to a less-than-significant level.

C.3.2.8 Unavoidable Significant Impacts

Bird Collisions. Bird collision potential will be significantly reduced through the application of recommended mitigation measures (Koop and de Jong, 1989). Studies have shown that waterfowl collision rates can be reduced by as much as 89 percent using flight diverters. However, due to the dynamic nature of waterfowl and shorebird habitats in the vicinity of the project, it is likely that during the lifetime of the proposed project a small number of bird collisions would still occur. Loss of bird species protected by the Migratory Bird Treaty Act would be considered a significant and unavoidable impact (**Class I**).

C.3.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES: ALTERNATIVES

C.3.3.1 Underground Through the Business Park

Environmental Setting. The Underground Through the Business Park (underground segment) Alternative would replace the portion of the proposed transmission line route between Mileposts 1.8 and 4.1. The route is the same as the proposed route until Milepost 1.8 where, in this alternative, the overhead line would turn southeast. The overhead lines would then follow a straight line to the point immediately adjacent to (and west of) the location where the two easternmost existing 115kV lines enter the business park. In the back of the parking lot at this point, there would be two transition structures that would take

the lines underground. Two transition structures would be constructed in the southwest corner of the property located on the eastern corner at the end of Fremont Boulevard. From the transition structures, the overhead line would then connect to the pole at Milepost 4.3 of the proposed Transmission Line Route. From that point south, the route would follow the proposed route. The underground segment passes through a business park development with few biological resources.

Environmental Impacts and Mitigation Measures. The underground alternative avoids Salt Pond A23 and therefore would eliminate bird collisions there and along the west side of the business park. The absence of towers in the business park area would reduce potential predation impacts. This alternative would also reduce construction impacts to nesting western snowy plovers in Salt Pond A23, breeding saltmarsh common yellowthroats and Alameda song sparrows between Mileposts 2.5 and 2.7, and burrowing owls near Milepost 4.1. Construction of the underground segment would be in developed areas and would not affect any sensitive biological resources. Other potential impacts that could occur elsewhere along the proposed transmission line route would remain. Potential impacts resulting from this alternative alignment segment can be reduced to a less than significant level by implementing the applicant's proposed measures and Mitigation Measures B-1 through B-6.

Cumulative Impacts and Mitigation Measures. Cumulative bird strike impacts and increased predation would be slightly less if the underground alternative were selected. Other impacts on wildlife would be same as those of the proposed transmission line route.

Unavoidable Significant Impacts. No additional unavoidable significant impacts to biological resources would result if the underground alternative is implemented.

C.3.3.2 I-880-A Alternative

Environmental Setting. The I-880-A Alternative would replace the first 2.7 miles of the proposed transmission line route. Rather than starting at the Newark Substation, it would start about a mile east of the substation at a tap off PG&E Co.'s existing Newark-Metcalf 230kV line, which crosses Auto Mall Parkway at a point about 1000 feet west of I-880. The alternative would then follow the west side of I-880 (along the eastern edge of the Pacific Commons Preserve) for about 0.75 mile, where a single angle pole would be located in the Preserve. The alternative route would then route the transmission lines along the east boundary of the Pacific Commons site and rejoin the proposed transmission line route near Milepost 2.2. This route would be located mostly along the Pacific Commons boundary along I-880 and along the commercial development to the east.

Disturbed annual grassland and ruderal vegetation along the Pacific Commons boundaries provide habitat for several common wildlife species; however, these areas are generally unsuitable for most special status species due to degraded habitat conditions and human activity.

Environmental Impacts and Mitigation Measures. The I-880-A Alternative would avoid sensitive areas of the Pacific Commons site that support the California tiger salamander, vernal pool tadpole shrimp, and burrowing owl, thereby eliminate potential impacts to these species. Bird collisions and potential increased predation would be reduced by placing the tower locations along the margins of the Pacific Commons site adjacent to developed areas. Impacts associated with the proposed transmission line route south of Milepost 1.7 would remain unchanged.

If a combination of Alternative I-880-A and Alternative I-880-B were implemented, bird collisions and increased predation impacts would be further reduced. A combination of Alternative I-880-A and the underground alternative would also reduce these impacts since tower locations would be in developed areas.

Potential impacts resulting from this alternative segment can be reduced to a less than significant level (**Class II**) by implementing the applicant's proposed measures and Mitigation Measures B-1 through B-6.

Cumulative Impacts and Mitigation Measures. Cumulative impacts to the California tiger salamander, vernal pool tadpole shrimp, and burrowing owl would be reduced if the I-880-A Alternative is implemented; bird collisions and increased predation would also be reduced. By combining Alternatives I-880-A with I-880-B or the underground segment, potential cumulative impacts to wildlife, especially bird collisions and predation, would be further reduced.

Unavoidable Significant Impacts. No additional unavoidable significant impacts to biological resources would result if the I-880-A Alternative is implemented.

C.3.3.3 I-880-B Alternative

Environmental Setting. The I-880-B Alternative requires implementation of the I-880-A Alternative. This alternative route crosses developed areas and follows I-880 between the southern terminus of the I-880-A route and Milepost 4.3. South of Milepost 4.3, this route is unchanged from the proposed transmission line route.

Environmental Impacts and Mitigation Measures. The combination of I-880-A and I-880-B Alternatives would reduce potential impacts to special status species. Impacts that would be eliminated by this combination include impacts to nesting northern harrier, western snowy plover, short-eared owl, California tiger salamander, and vernal pool tadpole shrimp. Implementation of this alternative would reduce impacts to the salt-marsh wandering shrew, white-tailed kite, burrowing owl, loggerhead shrike, saltmarsh common yellowthroat, and Alameda song sparrow. Placement of towers along I-880 would also reduce impacts due to bird collisions and increased predation. Potential impacts resulting from this alternative alignment segment can be reduced to a less than significant level (**Class II**) by implementing the Applicant's Proposed Measures and Mitigation Measures B-1 through B-6.

Cumulative Impacts and Mitigation Measures. Cumulative impacts to the special status species discussed above would be reduced if the I-880-B alternative is implemented; bird collisions and increased predation would also be reduced.

Unavoidable Significant Impacts. No additional unavoidable significant impacts to biological resources would result if the I-880-A Alternative is implemented.

C.3.3.4 Westerly Route Alternative

Except for the initial 1.7-mile section and the last mile approaching the substation, the Westerly Route Alternative alignment passes through salt pond and north coastal salt marsh. The initial 1.7-mile section of the alignment is the same as the proposed project; the final mile section approaches the substation from the west, adjacent to the Zanker Road Landfill and the San Jose/Santa Clara Water Pollution Control Plant.

Environmental Setting. The Cargill salt ponds along the Westerly Route Alternative alignment (Ponds A22, A23, A19, and A18) are high salinity ponds (Wetlands Research Associates, Inc. 1994) with salinity levels, when flooded, above 100 parts per thousand (sea water is approximately 34 parts per thousand). Although suitability for aquatic wildlife is limited, the drained and unvegetated ponds and levees provide important habitat for shorebirds, waterfowl, and several species protected under the federal and state Endangered Species Acts, including the western snowy plover and California least tern. Suitable nesting and post-nesting habitat is available to several species of birds, especially along the salt pond levees and their shores. Herons and gulls use this habitat for roosting and, in the ponds of lowest salinity, for foraging fish.

The Westerly Route Alternative passes through tidal slough and northern coastal brackish marsh habitat intermittently between Mileposts 1.7 and 4.0, where the alignment crosses Mud Slough, Coyote Slough and their adjacent marshes. These areas are known to be habitat for the California clapper rail that were observed during previous surveys of these areas (H.T. Harvey & Associates 1998). A marsh area at Milepost 4.0 has been reported to be suitable habitat for the salt marsh harvest mouse (H.T. Harvey & Associates 1998). Additional special status species reported in these habitats include the saltmarsh common yellowthroat and Alameda song sparrow.

The Westerly Route Alternative alignment passes through northern coastal salt marsh between Mileposts 5.1 and 5.4. The salt marsh habitat is diked and unlikely to support clapper rails; however, the salt marsh harvest mouse is often found in these types of marshes. This type of habitat is important for survival, since the local tidal marsh salinity levels are generally below those that provide suitable habitat for this species. The salt marsh habitat along the alignment has been mapped as suitable for both the salt marsh harvest mouse and the salt marsh wandering shrew (H.T. Harvey & Associates 1998). Additional special status

species likely to be found in this marsh include the saltmarsh common yellowthroat and the Alameda song sparrow.

Environmental Impacts and Mitigation Measures. The Westerly Route Alternative between the Newark Substation and Milepost 1.7 would have the same potential impacts to biological resources at the Pacific Commons site as the proposed transmission line route. South of Milepost 1.7, the Westerly Route, would cross areas of high shorebird and waterfowl use at Salt Ponds A22 and A23, Mud Slough, Salt Pond A19, Coyote Creek, and Salt Pond A18. Habitat and/or breeding impacts to several special status species associated with these areas, including salt marsh harvest mouse, western snowy plover, and California clapper rail, would occur if the Westerly Route was implemented. Breeding season impacts to special status birds in these wetland habitats would be the same as those described for the proposed transmission line route; however, this habitat type in the Westerly Route is more extensive. Although the Westerly Route Alternative increases the level of impacts to several special status species and their habitats, the Applicant's Proposed Measures (Measures 10.13a - 10.15a, 10.20a, and 10.22a) and Mitigation Measures B-1 through B-6 for impacts related to the proposed transmission line route would adequately reduce these impacts to a less-than-significant level (**Class II**).

For this alternative, PG&E Co. has committed to removal of existing 115kV lines and distribution lines (as described in Section B.6.1.4). The removal of these lines would reduce the potential for bird collisions in the Refuge; however, most of the towers that would be removed are between two other sets of lines so the collision impact would not be significantly reduced. This alternative has a larger number of towers and greater length of transmission lines crossing salt ponds and the edges of tidal wetlands. Because of the size and location of the new line, this alternative will likely result in more bird collisions and over the proposed transmission line route; these are unavoidable significant impacts.

Cumulative Impacts and Mitigation Measures. Cumulative impacts caused by bird collisions and predation on special status species will be increased if the Westerly Route Alternative is implemented; these are unavoidable cumulative impacts (**Class I**).

Unavoidable Significant Impacts. Unavoidable significant impacts include increased bird collisions with transmission lines and towers where they cross salt ponds and wetlands, and increased predation of special status species in the vicinity of the Westerly Route Alternative.

C.3.3.5 Substation Alternatives

C.3.3.5.1 Northern Receiving Substation (NRS) Alternative

Environmental Setting. The NRS site is at the northwest corner of the intersection of Lafayette Street and Gianera Street in Santa Clara. It is on an approximately 11-acre undeveloped parcel adjacent to the Newark to Scott, Newark to Kifer and Newark to Trimble 115 kV power lines. The transmission line

route to the NRS begins at Milepost 5.4 of the Westerly Route Alternative. The route passes south of Alviso and would require the installation of supporting structures in wetlands near the Guadalupe River. The alignment crosses the Guadalupe River and continues to the north side of the SR 237 intersection with Lafayette Street.

The NRS site has few biological resources. The burrowing owl and loggerhead shrike may occasionally forage on the site.

Environmental Impacts and Mitigation Measures. Impacts and mitigation measures would be the same as those for the proposed transmission line route and the proposed substation site. Additional, potentially significant impacts are associated with the 3.1 mile extension to the NRS site. Implementation of this alternative could result in impacts to biological resources in the wetlands north of SR 237. Surveys for special status species would be required to determine the level of impact. Special status species likely to occur in this alignment include steelhead, saltmarsh common yellowthroat, and Alameda song sparrow. Potential impacts resulting from this alternative can be reduced to a less than significant level (**Class II**) by implementing the applicant's proposed measures and Mitigation Measures B-1 through B-6.

Cumulative Impacts and Mitigation Measures. Cumulative impacts, particularly to wetlands, bird collisions, and predation of special status species would be increased if the NRS Alternative were implemented.

Unavoidable Significant Impacts. Unavoidable significant impacts include increased bird collisions with transmission lines and towers where they cross wetlands north of SR 237, and increased predation of special status species along the 3.1 mile extension.

C.3.3.5.2 Zanker Road Substation Alternative

Environmental Setting. The Zanker Road Substation site is a 32.8-acre parcel owned by the County of Santa Clara and is located south of the Santa Clara County Valley Transit Agency (VTA) Administration Center and west of Coyote Creek. The site is zoned "industrial park", is level, and undeveloped. A PG&E Co. 24-inch-diameter gas pipeline runs diagonally through the site and would need to be relocated. The Cisco Systems Agnews East Campus project is located immediately to the south. The site is in close proximity to the existing and forecasted electrical load. The transmission line to the site would pass through agricultural land, cross SR 237 at Zanker Road, and continue south on the east side of Zanker Road to the substation.

The Zanker Road Substation site has few biological resources. The presence of burrowing owls adjacent to the site on the VTA maintenance yard suggests that owls may forage or nest on the Zanker Road substation site. Potential foraging habitat for the loggerhead shrike is also present on the site.

Environmental Impacts and Mitigation Measures. The Zanker Road Substation site is highly disturbed and has little potential for biological impacts. Potential impacts resulting from use of this alternative substation site, including those to burrowing owl foraging and breeding habitat, can be reduced to a less than significant level by implementing the applicant's proposed measures and Mitigation Measures B-1 through B-6.

Cumulative Impacts and Mitigation Measures. Most direct or indirect potential cumulative impacts resulting from this alternative alignment segment can be reduced to a less than significant level by implementing the applicant's proposed measures and Mitigation Measures B-1 through B-6. Cumulative impacts, particularly bird collisions and predation of special status species would be the same as the proposed project.

Unavoidable Significant Impacts. Unavoidable significant impacts include increased bird collisions with transmission lines and towers and increased predation of special status species along the approximately one-mile transmission line extension.

C.3.3.6 Trimble-Montague 115kV Upgrade Alternatives

C.3.3.6.1 Barber 115kV Upgrade Alternative

Environmental Setting. This alternative would start directly south from the proposed project's substation, following the route of the existing Agnews 115kV Tap Line, but it would turn east about 1500 feet south of SR 237, crossing Coyote Creek at a point due west of the end of Technology Drive (which becomes Bellew Drive). The route would continue east to Technology Drive/Bellew Drive, then turn south on Barber Lane, past the Tasman overcrossing, to the Montague Expressway/I-880 interchange. The line would cross the interchange from northwest to southeast and to the substation, which is immediately southeast of the interchange.

The Barber Upgrade has few biological resources due to development along the route. Saltmarsh common yellowthroat and California yellow warbler habitat is present along Coyote Creek.

Environmental Impacts and Mitigation Measures. Most of this route is in developed areas where impacts to biological resources are expected to be less-than-significant. Potential impacts to biological resources resulting from this alternative alignment segment can be reduced to a less than significant level by implementing the applicant's proposed measures. The crossing of Coyote Creek potentially impacts breeding birds in the riparian habitat; however, Applicant Proposed Measure 10.24a for protection of avian species, provided for the proposed transmission line route will prevent impacts to breeding birds from being significant.

Cumulative Impacts and Mitigation Measures. Cumulative impacts resulting from the increased length of the transmission line, particularly bird collisions and predation of special status species, would be increased if the Barber 115kV Upgrade Alternative is implemented.

Unavoidable Significant Impacts. Unavoidable significant impacts include increased bird collisions with transmission lines and towers, and increased predation of special status species along the transmission line route to the Montague Substation. These impacts would be increased compared to the proposed project.

C.3.3.6.2 Underground Trimble-Montague 115kV Alternative

Environmental Setting. In this alternative, the Trimble-Montague line would be installed underground along the same route as the proposed route. A transition structure would be required at the southeast corner of Zanker Road and Trimble Road, then a trench would be dug along Trimble Road and Montague Expressway. Another transition structure would be required west of Interstate 880 where the lines would be brought back aboveground, and the lines would cross I-880 overhead, as proposed in the preferred route. Since this alternative is underground in a developed area; no significant biological resources are present.

Environmental Impacts and Mitigation Measures. The underground Trimble-Montague alternative would not result in additional impacts to biological resources compared to the proposed project.

Cumulative Impacts and Mitigation Measures. The placement of transmission lines underground reduces cumulative impacts resulting from typical lines supported by towers.

Unavoidable Significant Impacts. No additional unavoidable significant impacts to biological resources would result if the Underground Trimble-Montague alternative is implemented.

C.3.4 NO PROJECT ALTERNATIVE

The No Project Alternative would cause no immediate impacts to vegetation or wildlife resources. It would decrease the cumulative impacts to natural plant communities, special status plant species, and wildlife over the near term of projects proposed for the region.

C.3.5 MITIGATION MONITORING PROGRAM

Mitigation for significant impacts to vegetation resources will include avoidance, minimization, restoration, and compensation. Specific mitigation for affected resources will be developed in consultation with the California Public Utilities Commission, Bureau of Land Management, the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and associated resource management agencies and individuals, utilizing the general mitigation guidelines adopted by those agencies. Emphasis will be placed

on avoidance as the primary means of mitigating potential impacts to natural plant communities, wetlands, and special status species. Factors considered in evaluating priority for avoidance included:

- Regulatory status (state and federal legal protection)
- Known distribution
- Resource concentration/dispersal
- Potential for natural recovery or restoration.

Vegetation resources that have high sensitivities to impacts were identified and given the highest priority for avoidance. Other forms of mitigation were adopted where avoidance was not possible. Off-site compensation will be used to mitigate for loss and for the recovery lag time inherent in restoration and natural recovery of plant communities and habitats. Table C.3-8 summarizes the mitigation monitoring program for the impacts discussed in Sections C.3.2 and C.3.3.

Biological resource monitoring will be conducted by individuals with specific qualifications relevant to the resources that will be monitored. Types of qualifications that will be considered for selecting monitors include:

- Emphasis of undergraduate/graduate degree(s)
- Related experience
- Special skills such as statistical analysis, experimental design, species identification, vegetation sampling, etc.

Depending on the monitoring objective, individuals will have suitable experience in soil science, botany, ecology, restoration, wildlife observation, and wetland delineation. The objective will be to utilize monitors who can collect and analyze the data required to document mitigation success, problems, and, if necessary, suggest remedial action. Specific qualifications of biological resource monitors will be discussed with the regulatory agencies prior to construction.

The lead agency (CPUC) will provide support and ensure that the applicant provides the required funding and personnel to prepare and implement the mitigation measures, including monitoring plans, monitoring, report writing, and documentation.

Table C.3-8 Mitigation Monitoring Program

Impact (Class)	Mitigation Measures	Location	Responsible Agency	Monitoring/ Reporting Action	Effectiveness Criteria	Timing
Proposed Project and Alternatives						
CONSTRUCTION IMPACTS						
1. Temporary and permanent loss of plant communities (Class II)	B-1 Avoidance, restoration, and offsite compensation	All wetland habitats in the proposed route	CDFG, CPUC	Biological monitor present; photodocumentation; report submitted for review and approval within 30 days of construction	Planting survival rate designated in restoration plan (percent cover, height, species composition)	Restoration plan - 60 days prior to construction. Annual report to be submitted during 5-year monitoring period
4. Direct Mortality and Direct Disturbance to Wildlife(Class II)	B-2 Avoidance, vehicle restrictions, and litter removal	Mileposts 0.0-7.6	CDFG, CPUC	Biological monitor present; report to be submitted for review within 30 days of construction	No activity outside of designated areas	Throughout project construction
5. Overland travel disturbance of plant communities (Class II)	B-3 Travel restrictions to ensure adequate protection for sensitive plant communities	Mileposts 0.0-7.6	CDFG, CPUC	Biological monitor present; photodocumentation; report within 90 days of construction	No activity outside of designated areas	Throughout project construction
OPERATION IMPACTS						
5. Overland travel disturbance of habitats (Class II)	B-3 Travel restrictions to ensure adequate protection for sensitive plant communities	Mileposts 0.0-7.6	CDFG, CPUC	Biological monitor present; pre-access survey within 30 days of scheduled maintenance; submit report to CDFG and CPUC within 30 days of scheduled maintenance	Sensitive habitats are avoided; no disturbance during breeding season; owls occupy alternate burrows, if required	Periodic maintenance; may include 5-year monitoring
6. Indirect impacts to wildlife from increased human presence and access (Class II)	B-4 Avoidance of construction and operation activities during critical seasons	Mileposts 0.0-7.6	CDFG, CPUC	Specific monitoring/reporting determined by CDFG; documentation also provided to CPUC for review.	Prevent unauthorized access	Periodic maintenance
IMPACTS TO SPECIAL STATUS WILDLIFE SPECIES AND HABITATS						
10. Temporary and permanent loss of special status plant species and their habitats (Class II)	B-5 Pre-construction surveys, avoidance, education	Milepost 0.0-7.6	USFWS CDFG, CPUC	Biological monitor present; photodocumentation; report within 90 days of construction/periodic maintenance	No loss of special status plants	Throughout project construction and periodic maintenance
11. Overland travel disturbance of special status plant species and their habitats (Class II)	B-6 Pre-construction and pre-maintenance surveys, avoidance of critical habitat, education	Milepost 0.0-7.6	USFWS, CPUC CDFG	Biological monitor present; photodocumentation; report within 90 days of construction/periodic maintenance	No loss of special status plants	Throughout project construction and periodic maintenance

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