

## 3.5 Biological Resources

This section describes the biological resources occurring in the North Bay Water Recycling Program Project study area, and assesses the potential for the project alternatives to affect sensitive biological resources. Study areas were established for each of the proposed facilities or facility types, and wetlands and other biological resources were identified within these areas to assess the direct (footprint) and indirect effects (such as construction noise, light, or erosion) of the project on biological resources. Total impact area increases with each progressive alternative, since each alternative adds additional facilities. Phase 1 facilities were assessed at a project level.

Alternatives 1, 2 and 3 were assessed at a program level. Study areas include:

- **Pipelines:** This study area includes 153 miles of total potential pipeline alignments. For impact analysis of alignments within existing roadways, a 40-foot wide construction corridor was assumed, measured on each side of the roadway from centerline and including the roadway, road shoulder, and road-right-of-way. In cross-country alignments, the impact analysis evaluated a buffer area of approximately 50 feet on each side of the centerline.
- **Pump stations:** For these facilities, the study area included the footprint of the facility plus a 150-foot-wide buffer around the site.
- **New/enhanced storage facilities:** For these facilities, the study area included the anticipated footprint of the facility plus a 150 foot wide buffer around the site.

The Impacts and Mitigation Measures section defines significance criteria used for the impact assessment and presents a discussion of potential project-related impacts. Determination of significance of impacts in this EIR/EIS apply only to CEQA, not to NEPA.

### 3.5.1 Affected Environment/Setting

This evaluation of biological resources is based on field surveys, aerial photograph interpretation, and database review of vegetation communities, wildlife habitat, and jurisdictional “waters of the United States” that occur or potentially occur in the action area, including habitats, plant communities, and special-status plants and wildlife. Field surveys were conducted in 2008 and 2009 to augment existing information on biological resources and to verify the results of previously produced biological reports.

Vegetation communities are assemblages of plant species that occur together in the same area and are defined by species composition and relative abundance. The vegetation community descriptions and terminology used in this analysis are based on *A Manual of California Flora* (Sawyer and Keeler-Wolf, 1995), the California Department of Fish and Game’s (CDFG) *List of California Terrestrial Natural Communities Recognized by The California Natural Diversity Database* (CDFG, 2003), and Holland’s *Preliminary Description of Terrestrial Natural Communities of California* (Holland, 1986).

Recycled water service areas are described below, followed by vegetation community descriptions and species accounts. Species accounts are prefaced by a table indicating where species occur by service area and project alternative.

## Recycled Water Service Areas

### **LGVSD**

The LGVSD recycled water service area is located between Novato and central San Rafael, in the Las Gallinas Valley. This region is generally characterized by oak woodlands on the slopes and coastal salt marshes at the San Pablo Bay fringe, with a few pockets of annual grassland, freshwater marsh, riparian scrub, and freshwater ponds along the pipeline alignment. This area is home to the well-known China Camp State Park.

Treated wastewater that could be redirected for recycled water use under the proposed Project is currently discharged by LGVSD to the tidal portion of Miller Creek, approximately one mile upstream of San Pablo Bay, during the permitted discharge period of November 1 through May 31. Miller Creek is a tidally-influenced perennial creek having very low flows during the summer months (and winter months during a drought). During low tide, when the creek is experiencing low flows, effluent dominates the creek (RWQCB, 2003).

### **Novato SD**

The core service area is located in the City of Novato on the western fringe of North San Pablo Bay, with most development occurring west of Highway 101. Marin County is distinct from Sonoma and Napa Valley action areas, with the region experiencing a partly Mediterranean climate that is influenced by coastal weather patterns such as fog and on-shore flow, resulting in a number of Marin-county endemic plants. Vegetation is characterized by redwood, mixed conifer, riparian and oak woodlands, and forests on the western slopes, to annual grassland and chaparral at the transition to freshwater wetlands and coastal salt marshes along the bay margin.

Treated wastewater that could be redirected for recycled water use under the proposed Project is currently discharged from two Novato SD treatment facilities via one combined effluent outfall to the intertidal mud flats of San Pablo Bay, adjacent to the former Hamilton Air Force Base in Marin County, from September 1 through May 31. The discharge diffuser is located in the intertidal zone and is submerged at the +1 foot Mean Lower Low Water (MLLW) tidal elevation and above. At lower tidal elevations, the outfall is exposed and the San Pablo Bay water line can range from 1,000 to 3,500 feet from the end of the diffuser (RWQCB, 1999).

### **SVCS**

The recycled water service area is concentrated in rural Sonoma Valley and the City of Sonoma, within the Outer North Coast Ranges sub-region of the California Floristic Province (Hickman, 1993).<sup>1</sup> The Outer North Coast Ranges experience a Mediterranean climate, and compared to coastal California this region has colder winters and hotter summers. The Outer North Coast Ranges include the Mayacamas Mountains that define the east boundary of Sonoma Valley. The Sonoma

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<sup>1</sup> Geographic subdivisions are used to describe and predict features of the natural landscape. The system of geographic units is four-tiered: provinces, regions, sub-regions, and districts. Three floristic provinces cover the State of California: California Floristic Province, Great Basin, and Desert. The California Floristic Province is the largest and is made up of six regions.

Mountain Range defines the west boundary of Sonoma Valley. This region is generally characterized by mosaics of upland oak and mixed evergreen forests, native and non-native grasslands, chaparral, upland scrub communities, marsh and wetland communities, and riparian scrubs, woodlands and forests. The core action area supports vineyards, ornamental landscaping, non-native annual grassland, valley oak and coast live oak woodlands, and riparian vegetation along numerous intermittent and perennial streams. Some streams support emergent wetland vegetation.

The SVCSD would also deliver water to the Napa Salt Marsh Restoration Area via a pipeline extending southeast from Sonoma Valley to the Napa Marsh. Leaving Sonoma, the pipeline traverses ruderal and grazed upland grassland, farmland, vineyards, and seasonal and permanent wetlands. As the pipeline approaches its terminus at now-defunct commercial salt ponds at the Napa Salt Marsh Restoration Area, the pipeline traverses seeps and tidal marsh.

Treated wastewater that could be redirected for recycled water use under the proposed Project is currently discharged by SVCSD into Schell Slough during the wet weather period of November 1 through April 30. Schell Slough flows to San Pablo Bay by way of Steamboat Slough, Third Napa Slough, Second Napa Slough, and the lower reaches of Sonoma Creek. Schell Slough is a tidal estuary which receives freshwater flow from Schell Creek during the wet weather months. During the dry weather months, Schell Slough is a dead end slough, and is flushed only by limited tidal action (RWQCB, 2002).

### ***Napa SD***

The service area is located in the city of Napa in the lower reaches of Napa Valley, which is separated from Sonoma Valley by the Mayacama Range to the west and from the vast Central Valley by the Vaca Mountains to the east. The Napa Valley represents the northernmost extension of San Francisco Bay wetlands, and is a transitional bioregion comprising the eastern boundary for Coast Redwood and the intermixing area between coast live oak and interior live oak. This region is generally characterized by a relatively small urban core west of the Napa River, oak woodlands, abundant streams and riparian corridors, non-native annual grassland, chaparral scrub, freshwater marshes, wetlands, and the Napa River system. Brackish water and coastal salt marshes occur in the southernmost portions of Napa County. Small vineyards and farmland dominate the developed landscape.

Treated wastewater that could be redirected for recycled water use under the proposed Project is currently discharged from the Napa SD Soscol wastewater treatment plant to the Napa River at Soscol Ferry Road, during the permitted discharge period of November 1 through April 30 (RWQCB, 2000).

## **Vegetation Communities**

### ***Annual Grassland***

Annual grasslands consist of sparse to dense coverage of non-native grasses often associated with numerous other annual and perennial herbs. These grasslands typically occur on deeper soils in the gaps between oak and riparian forests, and also form the understory of several other plant

communities. Exotic grassland species generally respond well to moderate disturbance, such as grazing, which may have played a role in their widespread establishment. Along roadsides and beneath the many valley oak and coast live oak trees, annual grasslands provide a nearly continuous ground coverage. These areas have generally low habitat structure and diversity as a result of historic management and disturbances. Most of the upland habitat within the north bay region has been converted to agriculture, including oat hay, pastureland, and more recently, vineyards. These areas support a mixture of native and nonnative vegetation in the form of annual grasses, herbs, and wildflowers, along with oat hay and grapevines. Ruderal species, which are typically aggressively-growing, nonnative plants, appear where repeated disturbance such as vehicular traffic alters the natural ecosystem.

California annual grassland includes mostly non-native annual grasses and few non-native herbaceous forbs. The dominant grass species in this community include wild oat (*Avena barbata*), annual ryegrass (*Lolium multiflorum*), ripgut brome (*Bromus hordaceus*), and foxtail barley (*Hordeum murinum* var. *leporinum*). Herbaceous forbs include California burclover (*Medicago polymorpha*), ox-tongue daisy (*Picris echioides*), cutleaf geranium (*Geranium dissectum*), star-thistles (*Centaurea* spp.), wild radish (*Raphanus sativa*), black mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), filaree (*Erodium cicutarium*) and uncommonly, California poppy (*Eschscholzia californica*), California buttercup (*Ranunculus californica*), and dove lupine (*Lupinus bicolor*).

By themselves, nonnative annual grasslands support a generally low diversity of wildlife, but nearby oak woodland and riparian communities greatly enhance the wildlife habitat benefits of these areas. Many wildlife species use both native and non-native grasslands for refugia and nesting and foraging materials, and wooded habitats adjacent to grasslands in the action area provide shelter and breeding and nesting habitat. Amphibians in this community include western toad (*Anaxyrus boreas*), Pacific tree frog (*Pseudacris regilla*), and California slender salamander (*Batrachoseps attenuatus*). Common reptiles in Sonoma grassland habitats include western fence lizard (*Sceloporus occidentalis*), western skink (*Eumeces skiltonianus*), gopher snake (*Pituophis melanoleucus*), and western rattlesnake (*Crotalus viridis*), which are often found in association with woody debris or rocks. Blacktail jackrabbit (*Lepus californicus*), Audubon's cottontail (*Sylvilagus audubonii*), and Botta's pocket gopher (*Thomomys bottae*) are common. Small rodents provide forage for area raptors (birds of prey) including red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), red-shouldered hawk (*Buteo lineatus*), and northern harrier (*Circus cyaneus*). Birds that nest and forage locally in grasslands include western meadowlark (*Sturnella neglecta*), red-winged blackbird (*Agelaius phoeniceus*), and song sparrow (*Melospiza melodia*). Principal game species in this habitat type include blacktail deer (*Odocoileus hemionus*), California quail (*Callipepla californica*), and mourning dove (*Zenaida macroura*).

Aside from landscaped urban areas and disturbed ruderal areas, California annual grassland is a most common vegetation community in Novato, Sonoma, and Napa. This community occurs along roadsides and off-road pipeline routes throughout the action area, varying from disturbed ruderal vegetation to relatively intact grassland communities. California annual grassland is found

in the surrounding hillsides along with oak woodlands and is often found in areas that have been grazed or otherwise converted to agriculture.

### **Oak Woodland**

Oak woodlands typically occur on higher slopes and ridgetops where soils are well-drained. Throughout the project vicinity, this habitat community is present in areas that have not been cleared for cattle grazing or residential development. Oaks provide food, cover, and nesting sites for many wildlife species. On account of historic grazing and management activities, oak woodlands support a savannah-like woodland structure, with clusters of a few scattered mature oaks separated from each other by weedy annual grasslands. Relatively degraded annual grasslands are common both between and beneath wooded portions of the action area. Valley oak (*Quercus agrifolia*) and coast live oak (*Quercus agrifolia*) are the dominant canopy trees along rural action area roads. Other trees that are regionally common include California buckeye (*Aesculus californica*) and California black walnut (*Juglans californica*).

Coast live oak forests support an abundance of birds, reptiles and amphibian species. Coast live oak and valley oak woodlands in the action area support many of the same species as described above in the annual grasslands habitat, but also many that occur in the riparian woodland habitat described below. Coast live oak woodlands are a prominent habitat type in the LGVSD area, and are present in SVCSD and Napa SD recycled water service areas upslope from the valley floor. While oak woodlands are prevalent in Novato, pipelines in the recycled water service area are largely installed in urban roadways and open grasslands.

### **Riparian**

The subclassification of riparian woodland and scrub communities is principally determined by the dominant species that occur near project components. Riparian habitat varies throughout the action area; vegetation along drainage corridors forms sparse to dense woodlands and scrub, and in some disturbed areas riparian habitat is displaced by nonnative annual grassland. Dominant species vary and include valley oak (*Quercus lobata*), coast live oak (*Q. agrifolia*), and Oregon ash (*Fraxinus latifolia*) often accompanied by arroyo willow (*Salix lasiolepis*), red willow (*S. laevigata*), California bay (*Umbellularia californica*), walnut (*Juglans californica*), big-leaf maple (*Acer macrophyllum*), and black cottonwood (*Populus balsamifera*). Below the tree canopy, a relatively dense understory of shrubs and sapling trees comprised of California and Himalayan blackberry (*Rubus ursinus* and *R. discolor*), mulefat (*Baccharis salicifolia*), California wild rose (*Rosa californica*), and various rushes (*Juncus* spp.). Riparian scrub in the action area is characterized by dense thickets of arroyo and red willows. This community supports very little herbaceous understory due to low light conditions at the soil surface, which suppresses seed germination. Riparian scrub may succeed to any of several riparian woodland or forest types in the absence of flooding disturbance.

Riparian woodland (including mixed riparian and willow riparian scrub) habitat provides food, water, migration and dispersal corridors, breeding sites, and thermal cover for many resident and migratory wildlife species. Wooded stream edges serve as nesting sites and escape habitat for

many species. Foliage, bark, and ground substrates provide a variety of foraging areas. Birds that forage for insects in riparian areas include Bewick's wren (*Thryomanes bewickii*), black phoebe (*Sayornis nigricans*), and black-headed grosbeak (*Pheucticus melanocephalus*). Bark-insect foraging birds also occur in this habitat and include acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picooides nuttalli*), and white-breasted nuthatch (*Sitta canadensis*). Other bird species expected in the riparian corridor include dark-eyed junco (*Junco hyemalis*), bushtit (*Psaltriparus minimus*), oak titmouse (*Baeolophus inornatus*), chestnut-backed chickadee (*Poecile rufescens*), and brown creeper (*Certhia americana*). Riparian woodland areas also support piscivorous birds such as the belted kingfisher (*Ceryle alcyon*).

Riparian woodlands provide habitat for reptiles and amphibians including the western toad, California newt (*Taricha torosa*), Pacific tree frog, and Pacific slender salamander. Mammals such as the western harvest mouse (*Reithrodontomys megalotis*), deer mouse (*Peromyscus maniculatus*), western gray squirrel (*Sciurus griseus*), Virginia opossum (*Didelphis marsupialis*), and raccoon (*Procyon lotor*) utilize these habits for nesting and foraging. Small rodents attract raptors such as red-shouldered hawk (*Buteo lineatus*) and red-tailed hawk. Blacktail deer and striped skunk (*Mephitis mephitis*) are also expected.

Riparian woodland and scrub communities are prevalent and generally intact along numerous project-area streams and drainages in the SVCSD and Napa SD areas. The LGVSD Peacock Gap action area crosses only one ephemeral drainage which appears to have been redirected into an underground culvert as it passes among urban homes bordering San Pedro Road; the pipeline extending from the wastewater treatment plant north to Hamilton field borders and crosses Miller Creek, which offers low- to moderate-quality riparian scrub habitat. In the three Novato SD action area drainages, riparian vegetation is highly disturbed to the extent that riparian communities are largely absent and displaced by California annual grassland or Himalayan blackberry scrub, though some riparian willow scrub persists in a drainage ditch along the railroad.

## **Wetlands**

### **Freshwater marshes**

Freshwater marshes occur at many recycled water service area locations: at areas with slow moving and shallow water or perennially saturated soils, such as in low-flow stream channels or where gravel bars support a sparse cover of annual and perennial emergent vegetation species, often in association with willow scrub habitat; in flood control channels and irrigation ditches; alongside roadways and bike trails; and in detention ponds throughout the action area. Freshwater marsh or freshwater emergent wetland habitats are generally dominated by perennial emergent monocots and other hydrophytic vegetation; common species include cattail (*Typha latifolia* and *T. agrifolia*), bulrush (*Scirpus* sp.), spikerush (*Eleocharis* spp.), lance-leaved water plantain (*Alisma lanceolatum*), and Baltic rush (*Juncus balticus*). Freshwater marshes are among the most productive wildlife habitats. They provide food, water, and shelter for many species of amphibians, reptiles, birds, and mammals. Freshwater marsh and freshwater seep habitats are often contiguous with riparian habitat and support many of the same wildlife species previously described.

Freshwater marshes are found throughout the SVCSD, Novato SD and Napa SD recycled water service areas at stream crossings, in irrigation canals, along roadside ditches, and at other topographical low areas. Freshwater wetlands are found along a few roadside segments within the LGVSD Peacock Gap area, at the LGVSD wastewater treatment ponds, and along Miller Creek and unnamed tributaries near the treatment ponds. Phase 1 pipelines in southern Novato border freshwater wetlands, as do Phase 1 pipelines along Rowland Boulevard and Olive Avenue in north Novato. Freshwater marsh occurs in the Novato SD recycled water service area near the Basic System pipeline as it crosses the Black Point/Day Island area; near the Partially Connected System pipeline in the Bel Marin Keys/Hamilton Field area; and near the Fully Connected System pipeline as it crosses Sears Point. In the SVCSD recycled water service area, freshwater marsh occurs near Phase 1 pipeline crossings at Schell Creek, Fowler Creek and Rodgers Creek, beside Napa Road between Arnold Dr. and Broadway, and extensively along the off-road pipeline extending to the Napa Salt Marsh Restoration Area, as well as along the Phase 2 off-road pipeline west of Viansa winery. Freshwater marsh occurs in the Napa SD recycled water service area along the Phase 1 pipeline at Third Avenue; where the Basic System pipeline crosses Carneros Creek and approaches the Napa River; and where the Partially Connected System pipeline approaches the Napa River.

### Seasonal Wetlands

Seasonal wetlands occur in topographical low-points where water is allowed to saturate or inundate for long periods of time and hydrophytic vegetation is able to establish seasonally. Seasonal wetlands are typically annual in nature and are colonized by opportunistic vegetation. Evidence of these features may not be visible after late spring or early summer and features may not persist from year to year, depending on climatic conditions. Pickleweed (*Salicornia* spp.) and brass buttons (*Cotula coronopifolia*) are common in saline seasonal wetlands; pickleweed and alkali bulrush (*Scirpus maritimus*) are common in brackish seasonal wetlands; and rushes and sedges are common in freshwater seasonal wetlands. Seasonal wetlands support a variety of invertebrates and amphibians that in turn provide food for other wildlife species.

### Rivers, Creeks and Ponds

The action area encompasses portions of the Petaluma River watershed, the Sonoma Creek watershed, and the Napa River watershed, involving major and minor creeks, sloughs and rivers. Total potential crossings number 194 and include Petaluma River, Sonoma Creek, Napa River, Nathanson Creek, Calabazas Creek, Carriger Creek, Fowler Creek, Rodgers Creek, Novato Creek, Miller Creek, Huichica Creek, and Felder Creek, most of which are designated critical habitat for steelhead (*Oncorhynchus mykiss*), a listed species. Varying amounts of overhanging riparian vegetation regulate stream temperatures and provide a steady source of invertebrate forage for fish and other wildlife. With a diversity of pool, riffle, and run habitats, some stream reaches also support California freshwater shrimp (*Syncaris pacifica*), Pacific lamprey (*Lampetra tridentata*), Sacramento splittail (*Pogonichthys macrolepidotus*), California brackish-water snail (*Tryonia imitator*) and other listed or special-status aquatic species.

Resident fish typical of streams in the region include Pacific lamprey, prickly sculpin (*Cottus asper*), Sacramento sucker (*Catostomus occidentalis*), Sacramento pikeminnow (*Ptychocheilus*

*grandis*), and California roach (*Hesperoleucus symmetricus*). The identified roach-sucker-pikeminnow fish association is typical of lower California stream reaches that are characterized by relatively warm, low-gradient conditions. This presents the expectation that steelhead rearing habitat may be comparatively infrequent in lower creek reaches, but habitat improves in quality in fast-moving upstream areas and relatively cooler tributaries.

Vineyard and agricultural ponds throughout Sonoma and Napa valleys in the general project vicinity number in the tens to hundreds. In the LGVSD recycled water service area, the Partially Connected System pipeline borders two ponds along San Pedro Road. In the Novato SD recycled water service area, ponds occur near Phase 1 pipelines along Redwood Dr., Lea Road, and Olive Road; near the Basic System pipelines at the Black Point/Day Island area; near the Partially Connected System pipelines along the off-road alignment north of Hamilton Road, south of the off-road alignment near Ignacio Blvd., and along Lakeville Highway; and near the Fully Connected System pipeline along Highway 121 at Sears Point. In the SVCSD recycled water service area, numerous ponds occur along the Phase 1 off-road alignment extending to the Napa Salt Marsh; adjacent to the Partially Connected System in-road alignment along Highway 121 south of Sonoma; and along the Fully Connected System alignments along Arnold Drive and near Norrbom Rd. In the Napa SD recycled water service area, ponds occur near Phase 1 alignments along Hagen and Imola Roads; near the Basic System alignments along Cuttings Wharf, Duhib, Las Amigas, Stanley and Stanley Crossover Roads and Highway 121; and near the Partially Connected System alignments along Henry, Dealy, Old Sonoma, Buhman and Congress Valley Roads in western Napa and along Atlas Peak Rd. in north Napa. Additionally, wastewater treatment plant ponds in the action area offer varying levels of aquatic habitat.

Common wildlife species typically found in this habitat include pacific chorus frog, western toad, garter snake, and bird species adapted to riparian environments such as snowy egret (*Egretta thula*), great blue heron (*Ardea herodias*), and black phoebe (*Sayornis nigricans*).

### **Salt and Brackish Marsh**

Salt and brackish water marshes are found along the margins of San Pablo Bay. Salt-tolerant vegetation thrives in these marshes; salinity can vary annually in relation to rainfall patterns and stream flow, and successful vegetation must also tolerate water level fluctuations. Common vegetative species include pickleweed, alkali bulrush, California cord grass (*Spartina foliosa*), California tule (*Scirpus californicus*), fleshy jaumea (*Jaumea carnosa*), Baltic rush, saltmarsh dodder (*Cuscuta salina*), frankenia (*Frankenia salina*), fat hen (*Atriplex triangularis*), arrow grass (*Triglochin maritima*), curly dock (*Rumex crispus*), brass buttons, gumplant (*Grindelia stricta* var. *angustifolia*), yarrow (*Achillea borealis*), asters (*Aster* spp.), and sedges (*Carex* spp.). Nonnative invasives include pepperweed (*Lepidium latifolium*), smooth cord grass (*Spartina alternifolia*), and fennel (*Foeniculum vulgare*).

Tidal marshes support a variety of special-status species, including salt marsh harvest mouse (*Reithrodontomy raviventris*), California clapper rail (*Rallus longirostris obsoletus*), California black rail (*Laterallus jamaicensis coturniculus*), salt marsh shrews (*Sorex* spp.), and bird's beak (*Cordylanthus* spp.).

While levees and flood-control features prevent tidal influence in many areas, expanses of high-quality tidal marshes persist in the North Bay. Salt and brackish marshes occur extensively along San Pedro Road in the LGVSD recycled water service area; they occur near Hamilton Field, Bel Marin Keys, Sears Point and the Petaluma River mouth in the Novato SD recycled water service area; and they occur at the terminus of the Napa Salt Marsh pipeline served by the SVCSD recycled water service area.

### **Salt Ponds**

Salt ponds are found throughout the San Francisco Bay Area, and in the action area are found at the Napa Salt Marsh Restoration Area, specifically salt pond 7A. Vegetation along the northern reach of the salt pond alignment consists of basically no vegetation in the levee access roadway, to ruderal species growing in roughly a two-foot-wide margin on each side of the roadway, further giving way to saltgrass and pickleweed on the slopes. Other common vegetation occurring on the roadside or the levee banks, increasing in abundance as the route heads south, includes annual grasses, coyote brush (*Baccharis pilularis*), milk thistle (*Silybum* sp.), fennel, curly dock, mustard, radish, yarrow, peppergrass, and iceplant (*Carpobrotus edulis*). A windrow of eucalyptus occurs midway between the parking lot and the mixing chamber to the east of the access levee. The northwestern levee of salt pond 7A and marsh islands east of the access levee are known to provide nesting habitat for western snowy plover (*Charadrius alexandrinus nivosus*), a listed species.

### **Open Water Estuary**

The San Pablo Bay watershed drains into the northern reaches of San Francisco Bay and is a major drainage basin for Marin, Sonoma, Napa, Solano, and Contra Costa Counties. San Pablo Bay supports abundant saltwater aquatic life and provides shelter for large numbers of waterbirds, especially during heavy winter storms when open coastal waters become rough. All anadromous fish species entering the Napa River and Sacramento River drainages pass through San Pablo Bay. In addition, San Pablo Bay provides nursery and rearing habitat for several fish species.

Most of the fish occurring in the San Francisco Bay estuary do so on a seasonal basis, taking advantage of favorable conditions to complete their life cycles. The fluctuating and intermediate salinity typical of estuarine habitats is the factor that limits the penetration of both marine and freshwater species into the mixed waters in the interior of the estuary. Accordingly, the specific area of San Pablo Bay in which a species is found is determined largely by the species' salinity tolerances. San Pablo Bay contains a productive and diverse fish community. The considerable inflow of the Sacramento-San Joaquin River system into San Pablo Bay provides a rich source of nutrients to support organic production. In addition, nutrient and organic input from the Napa River, Sonoma Creek, and the Petaluma River further enhances the region's ecological productivity. The freshwater input of all these river systems creates the large spatial and temporal variations in salinity and temperature that characterize San Pablo Bay (Jones & Stokes, 2003).

CDFG conducts annual fish surveys in San Pablo Bay. Northern anchovy (*Engraulis mordax*), longfin smelt (*Spirinichus thaleichthys*), English sole (*Parophrys vetulus*), white croaker (*Genyonemus lineatus*), and bay goby (*Lepidogobius lepidus*), were the species most frequently

caught in the CDFG surveys from 1980-1995 (Jones & Stokes, 2003). More recently, however, abundances of some native species San Francisco Bay estuary, including longfin smelt, have been declining drastically in what has come known to be known as the Pelagic Organism Decline (Sommer et al., 2007).

The benthic invertebrate community of the project vicinity is expected to be composed of various annelids, mysid shrimp, copepods, amphipods, shrimp, crabs and other macroinvertebrates. All of these organisms provide important food sources for estuary fish and birds species.

### **Urban**

The majority of pipeline alignments will be installed within existing roadways and urban corridors to avoid or minimize potential environmental impacts. Urban neighborhoods dominate the Novato SD recycled water service area landscape west of Highway 101. While not as densely populated as Novato, the urban cores of Sonoma and Napa are served by Phase 1 and the Basic System pipelines. In the LGVSD recycled water service area, the first half of San Pedro Road is heavily built on the north side, with a dense single row of houses separating the roadway from oak woodlands to the south.

### **Special-status Species**

Species known to occur on or in the project vicinity are considered “special-status” because of their recognized rarity or vulnerability to habitat loss or population decline. Some of these species receive specific protection from federal or state endangered species legislation. Other species have been designated as “sensitive” on the basis of the following: adopted policies and expertise of state resource agencies; organizations with acknowledged expertise; or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives.

A focused database and literature search identified 41 special-status plants and 50 special-status wildlife species with known occurrences in the recycled water service areas. **Table 3.5-1** lists these species, their potential habitat, and the potential for occurrence within 40 feet of the alignment. For alignments coincident with existing roadways, a distance of 40 feet is measured on each side of the road from the edge of pavement; the total widths for off-road alignments are not precisely defined but a buffer area of approximately 50 feet on each side of the centerline was evaluated. No focused or protocol-level wildlife surveys were conducted in support of the proposed project. However, suitable habitat for several species occurs within the action area. These species are discussed in Species Accounts.

### **Special-status Plants**

A species list from the U.S. Fish and Wildlife Service (USFWS) was obtained for the action area, and the California Natural Diversity Data Base (CNDDDB)(CDFG, 2008) and California Native Plant Society (CNPS) electronic database (CNPS, 2008) were searched to compile a list of potentially-occurring special-status plant species. Previously prepared environmental reports were

**TABLE 3.5-1  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVS	Novato SD	SVCS	Napa SD
<b>FEDERAL AND STATE LISTED SPECIES OR PROPOSED FOR LISTING</b>								
<b>ANIMALS</b>								
<b>Invertebrates</b>								
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT/--	Central valley grasslands, Central Coast mountains, South Coast mountains in rain-fed pools.	<b>Absent.</b> Known only from one location in Napa County at the airport, outside the action area. Next nearest occurrence is in Solano County.	<b>Phase 1</b>				
				<b>Alt 1</b>				
				<b>Alt 2</b>				
				<b>Alt 3</b>				
Myrtle's silverspot butterfly <i>Speyeria zerene myrtilae</i>	E/--	Historically known to occur in San Mateo County north to the mouth of the Russian River in Sonoma County.	<b>Low.</b> Inhabits coastal prairies, coastal scrub, and grassland habitats where <i>Viola</i> sp. occurs as a larval host plant. Extant 1991 population in South Petaluma/Sears Point area is 0.25 mile from Alt. 2 pipeline. Habitat not expected in ROW.	<b>Phase 1</b>				
				<b>Alt 1</b>				
				<b>Alt 2</b>			x	
				<b>Alt 3</b>			x	
California freshwater shrimp <i>Syncaris pacifica</i>	FE/CE	Found in low-elevation, low gradient perennial freshwater streams in Sonoma, Marin and Napa Counties where banks are structurally diverse with undercut banks, exposed roots, or overhanging woody debris or vegetation.	<b>Presumed present.</b> Known to occur in project vicinity with habitat in Sonoma Creek, Huichica Creek and larger tributaries. Habitat potentially present in Schell Creek and Fowler Creek.	<b>Phase 1</b>			x	
				<b>Alt 1</b>			x	
				<b>Alt 2</b>				x
				<b>Alt 3</b>				x
<b>Fish</b>								
Tidewater goby <i>Eucyclogobius newberryi</i>	FE/CSC	Shallow waters of bays and estuaries.	<b>Absent.</b> Historical records from Novato Creek, but the species is now believed to be extirpated from San Francisco Bay drainages, including San Pablo Bay.	<b>Phase 1</b>				
				<b>Alt 1</b>				
				<b>Alt 2</b>				
				<b>Alt 3</b>				
Delta smelt <i>Hypomesus transpacificus</i>	FT/ST	Found in large, main channels and open areas of the Bay. Occur from tidal freshwater reaches of the Delta west to eastern San Pablo Bay.	<b>Present.</b> Found in San Pablo Bay during high outflows but not thought to establish permanent populations. Have been recorded in Napa River during dry years, but are not believed to persist there (Leidy, 2007).	<b>Phase 1</b>				
				<b>Alt 1</b>				
				<b>Alt 2</b>				x
				<b>Alt 3</b>				

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCS	Napa SD
FEDERAL AND STATE LISTED SPECIES OR PROPOSED FOR LISTING (cont.)								
Fish (cont.) Coho salmon, Central California Coast ESU <i>Oncorhynchus kisutch</i>	FE/CE	Central and northern Calif. coastal rivers and drainages.	<b>Absent.</b> Believed to be extirpated from San Francisco bay drainages.	Phase 1				
				Alt 1				
				Alt 2				
				Alt 3				
Steelhead, Central California Coast DPS <i>Oncorhynchus mykiss</i>	FT/CSC	Drainages of San Francisco and San Pablo bays, central Calif. Coastal rivers.	<b>Present.</b> Steelhead spawn in upper watershed portions of Sonoma Creek and larger tributaries including Schell Creek, Fowler Creek, Carriger Creek, and Rodgers Creek. Juvenile rearing habitat present in various lower stream reaches.	Phase 1		x	x	x
				Alt 1		x	x	x
				Alt 2		x	x	x
				Alt 3			x	
Steelhead, Central Valley DPS <i>Oncorhynchus mykiss</i>	FT/CSC	Spawns in the Sacramento and San Joaquin Rivers and their tributaries.	<b>Present.</b> Steelhead migrate through San Pablo Bay to upstream spawning grounds in the Sacramento and San Joaquin River basins.	Phase 1				
				Alt 1				
				Alt 2				
				Alt 3				
Chinook salmon, Sacramento River winter-run <i>Oncorhynchus tshawytscha</i>	FE/CE	Mostly confined to the Sacramento River where it spawns in the upper reaches of the mainstem.	<b>Present.</b> Migrates through San Pablo Bay to upstream spawning grounds in the Sacramento River.	Phase 1				
				Alt 1				
				Alt 2				
				Alt 3				
Chinook salmon, Central Valley spring-run <i>Oncorhynchus tshawytscha</i>	FT/CT	Mostly confined to the Sacramento River where it spawns in the upper reaches of the mainstem.	<b>Present.</b> Migrates through San Pablo Bay to upstream spawning grounds in the Sacramento River.	Phase 1				
				Alt 1				
				Alt 2				
				Alt 3				

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCS D	Napa SD
<b>FEDERAL AND STATE LISTED SPECIES OR PROPOSED FOR LISTING (cont.)</b>								
<b>Fish (cont.)</b>								
Green sturgeon, southern DPS <i>Acipenser medirostris</i>	FT/CSC	Adults spawn in freshwater and then return to estuarine or marine environments. Preferred spawning habitat occurs in the lower reaches of large rivers with swift currents and large cobble.	<b>Present.</b> Known to occur in San Pablo Bay. Sacramento River is the only known spawning site for the southern DPS.	Phase 1				
				Alt 1				
				Alt 2				
				Alt 3				
<b>Amphibians</b>								
California tiger salamander <i>Ambystoma californiense</i>	FT/CSC	Wintering sites occur in grasslands occupied by burrowing mammals; breed in ponds, vernal pools, and slow-moving or receding streams.	<b>Absent.</b> The action area is beyond this species' known range.	Phase 1				
				Alt 1				
				Alt 2				
				Alt 3				
California red-legged frog <i>Rana draytonii</i>	FT/CSC	Breed in stock ponds, pools, and slow-moving streams.	<b>Presumed present.</b> Potential habitat occurs in lower Fowler Creek and Rodgers Creek in Sonoma; unlikely in Napa; present at Sears Point in area ponds and drainages; present at roadside drainages along Lakeville Highway.	Phase 1				
				Alt 1				
				Alt 2			x	
				Alt 3			x	
<b>Birds</b>								
Swainson's hawk <i>Buteo swainsoni</i>	--/ST	Breeds in grasslands with scattered trees, riparian areas, savannahs.	<b>High.</b> Single Napa Valley nest in 2005 in oak tree within 200 feet of alignment, approx. 850 feet from Highway 29; a second pair may have nested nearby.	Phase 1				
				Alt 1				
				Alt 2				x
				Alt 3				
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT/CSC	Nests inland on salt pond levees and other open areas with sandy substrate and sparse vegetation.	<b>Present.</b> Nests on levees at Salt Pond 7A and Fly Bay in the action area.	Phase 1			x	
				Alt 1				
				Alt 2				
				Alt 3				

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCSD	Napa SD
<b>FEDERAL AND STATE LISTED SPECIES OR PROPOSED FOR LISTING (cont.)</b>								
<b>Birds (cont.)</b>								
Willow flycatcher <i>Empidonax traillii</i>	FSC/SE	Inhabits willow thickets bordering wet meadows, ponds and backwaters, from 2000-8000 feet elevation.	Low. Potential habitat available in Sonoma Valley; breeding not identified in action area.	Phase 1				X
				Alt 1				X
				Alt 2				X
				Alt 3				
California black rail <i>Laterallus jamaicensis coturniculus</i>	--/ST	Occurs in salt and brackish marshes, also freshwater marshes at low elevations.	High. Known to occur in tidal marshes of San Pablo Bay and larger tributary drainages in the Novato, Sonoma, Las Gallinas Valley, and Napa service areas.	Phase 1		X		X
				Alt 1			X	
				Alt 2	X	X		
				Alt 3			X	
California clapper rail <i>Rallus longirostris obsoletus</i>	FE/SE	Occurs in salt marshes and tidal sloughs. Requires tidal mudflats for foraging habitat. Prefers cordgrass for cover and nesting, but can be occasionally found in bulrush and cattails.	Present. Present in Novato Creek near Highway 101. Known to occur in tidal marshes of San Pablo Bay and larger tributary drainages in the Novato, Sonoma, Las Gallinas Valley, and Napa service areas.	Phase 1		X		X
				Alt 1			X	
				Alt 2	X	X		X
				Alt 3			X	
<b>Mammals</b>								
Salt marsh harvest mouse <i>Reithrodontomys raviventris</i>	FE/SE	Tidally-influenced salt marshes with dense pickleweed and upland transitional vegetation.	High. Known or expected in emergent pickleweed salt marshes in the Napa, Sonoma, Las Gallinas Valley, and Novato service areas. Small habitat impacts possible at Napa Salt Marsh Restoration Area.	Phase 1				X
				Alt 1			X	
				Alt 2	X	X		X
				Alt 3			X	
<b>Plants</b>								
Sonoma sunshine <i>Blennosperma bakeri</i>	FE/SE	Mesic grasslands, vernal pools, intermittent swales.	Present. 1990s extant population mapped on both sides of Bonneau Rd. in Sonoma (CDFG, 2008), an area not surveyed for rare plants for the SVRWP EIR.	Phase 1				
				Alt 1				
				Alt 2				X
				Alt 3				

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCS	Napa SD
FEDERAL AND STATE LISTED SPECIES OR PROPOSED FOR LISTING (cont.)								
Plants (cont.)								
Tiburon matiposa lily <i>Calochortus tiburonensis</i>	FT/ST	Open, rocky slopes in serpentine soils of valley and foothill grassland.	<b>Unlikely.</b> Known to occur in a single location in Marin County, at the Ring Mountain Preserve at the north end of the Tiburon Peninsula, nearly 6 miles from the action area.	Phase 1				
				Alt 1				
				Alt 2				
				Alt 3				
Tiburon Indian paintbrush <i>Castilleja affinis</i> ssp. <i>neglecta</i>	FE/ST	Valley and foothill grassland in serpentine soils.	<b>Unlikely.</b> Nearest known populations are about 5 miles southeast from the Napa SD action area.	Phase 1				
				Alt 1				
				Alt 2				
				Alt 3				
Sonoma spineflower <i>Chorizanthe valida</i>	FE/SE	Sandy soils of coastal prairies.	<b>Unlikely.</b> Possibly extirpated population in Petaluma. In Marin County, known only from Drakes Bay, nearly 20 miles from the action area.	Phase 1				
				Alt 1				
				Alt 2				
				Alt 3				
Soft bird's beak <i>Cordylanthus mollis</i> ssp. <i>mollis</i>	FE/--	Found in coastal salt marsh on north shores of San Francisco Bay.	<b>Low.</b> Possible Fly Bay population not expected to be impacted by the project. Historical population near Huichica Creek is believed extirpated.	Phase 1				x
				Alt 1				
				Alt 2				
				Alt 3				
Golden larkspur <i>Delphinium luteum</i>	FE/--	North-facing rocky slopes of chaparral, coastal scrub, and coastal prairies.	<b>Unlikely.</b> Within the project vicinity, the nearest occurrence is in Petaluma, greater than 6 miles from the nearest project element.	Phase 1				
				Alt 1				
				Alt 2				
				Alt 3				
Marin western flax <i>Hesperolinon congestum</i>	FT/ST	Found on dry slopes in serpentine soils in coastal scrub and grasslands.	<b>Unlikely.</b> Extant population at Mt. Burdell beyond action area; LGVSD occurrence is 2 miles from proposed pipeline.	Phase 1				
				Alt 1				
				Alt 2		x		x
				Alt 3				

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCSD	Napa SD
<b>FEDERAL AND STATE LISTED SPECIES OR PROPOSED FOR LISTING (cont.)</b>								
Plants (cont.)								
Santa Cruz tarplant <i>Holocarpha macradenia</i>	FT/SE	Occurs in heavy soils on grassy coastal flats. Known to occur in Marin, Alameda and Santa Cruz counties.	<b>Unlikely.</b> Nearest known occurrence is a possibly extirpated population in the vicinity of Ross Valley, roughly 3 miles from the proposed project.	Phase 1 Alt 1 Alt 2 Alt 3	x			
Contra Costa goldfields <i>Lasthenia conjugens</i>	FE/--	Found in low-elevation sunny flats and drying borders of vernal pools in dry, inner Coast Range valleys.	<b>Low.</b> 2005 extant occurrence 0.12 mile north of Napa SD proposed pipelines. Two possibly extirpated populations north of the extant population.	Phase 1 Alt 1 Alt 2 Alt 3				x x
White-rayed pentachaeta <i>Pentachaeta bellidiflora</i>	FE/SE	Dry, rocky slopes and grassy areas in serpentine soils of valley and foothill grassland.	<b>Unlikely.</b> The nearest occurrence is over 3 miles southwest of the LGVSD Alt 2 pipeline.	Phase 1 Alt 1 Alt 2 Alt 3	x			
Tiburon jewelflower <i>Streptanthus niger</i>	FE/SE	Shallow, rocky serpentine slopes of valley and foothill grassland.	<b>Unlikely.</b> Known only from Marin County on the Tiburon peninsula, the nearest occurrence is greater than 7.5 miles south of the LGVSD Alt 2 pipeline.	Phase 1 Alt 1 Alt 2 Alt 3	x			
Two-fork clover <i>Trifolium amoenum</i>	FE/--	Valley and foothill grassland, coastal bluff scrub.	<b>Low.</b> Possibly extirpated population at Fly Bay; not expected to be impacted by project.	Phase 1 Alt 1 Alt 2 Alt 3			x	x

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCS	Napa SD
<b>FEDERAL AND STATE SPECIES OF SPECIAL CONCERN</b>								
<b>ANIMALS</b>								
<b>Invertebrates</b>								
Opler's longhorn moth <i>Adeia oplerella</i>	SC/--	Marin County, inner Coast Ranges south to Santa Clara County.	Low. Identified population at Sears Point roughly 1 mile east of project ROW.	Phase 1 Alt 1 Alt 2 Alt 3		x x		
Marin blind harvestman <i>Calicina diminua</i>	--/--	Known only from serpentine area of Mt. Burdell in Marin County.	Unlikely. This species is present at Mt. Burdell open space and mapped along San Marin Dr., which is now a built-up residential neighborhood along the proposed alignment.	Phase 1 Alt 1 Alt 2 Alt 3		x		
Monarch butterfly (wintering sites) <i>Danaus plexippus</i>		Throughout California. Overwinters in coastal Monterey pine, Monterey cypress, and eucalyptus groves in California.	Seasonally present. Found in China Camp State Park from late winter to early spring. Roosting tree at Sears Point is greater than 0.25 mile from pipeline. No impacts are expected.	Phase 1 Alt 1 Alt 2 Alt 3		x		
Ricksecker's water scavenger beetle <i>Hydrochara rickseckeri</i>	FSC/--	Found in freshwater ponds, shallow water of streams marshes and lakes of San Francisco Bay area.	Unknown. Potential habitat may occur in slow moving tributaries to Sonoma Creek, Napa River and agricultural reservoirs.	Phase 1 Alt 1 Alt 2 Alt 3		x	x x x	
Ubick's gnaphosid spider <i>Talanites ubicki</i>	--/--	Known only from serpentine areas of Mt. Burdell in Marin County.	Unlikely. This species is present at Mt. Burdell open space and mapped along San Marin Dr., which is now a built-up residential neighborhood along the proposed alignment.	Phase 1 Alt 1 Alt 2 Alt 3		x		

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCSD	Napa SD	
<b>FEDERAL AND STATE SPECIES OF SPECIAL CONCERN (cont.)</b>									
<b>Invertebrates (cont.)</b>									
California brackishwater snail <i>Tryonia imitator = mimic tryonia</i>	--/--	Coastal lagoons, estuaries and salt marshes from Sonoma County to San Diego County. Found only in permanently submerged areas.	<b>Presumed present</b> in tidal marshlands associated with Petaluma River, Napa River and Novato Creek.	<b>Phase 1</b>			<b>x</b>		
				<b>Alt 1</b>		<b>x</b>			<b>x</b>
				<b>Alt 2</b>			<b>x</b>		
				<b>Alt 3</b>					
<b>Fish</b>									
Central Valley Chinook salmon, fall/late fall run <i>Oncorhynchus tshawytscha</i>	FC/CSC	Spawns in the Sacramento and San Joaquin Rivers and their tributaries.	<b>Present.</b> Infrequently observed in Sonoma and Carriger Creeks, Napa River, Novato and Miller Creeks. Migrate through San Pablo Bay to upstream spawning grounds in the Sacramento and San Joaquin River basins.	<b>Phase 1</b>		<b>x</b>	<b>x</b>	<b>x</b>	
				<b>Alt 1</b>			<b>x</b>	<b>x</b>	<b>x</b>
				<b>Alt 2</b>			<b>x</b>	<b>x</b>	<b>x</b>
				<b>Alt 3</b>				<b>x</b>	
Pacific lamprey <i>Lampetra tridentate</i>	FSC/CSC	Adults inhabit estuaries and nearby ocean areas with spawning in upstream freshwater gravel beds.	<b>Presumed present.</b> Adult lampreys seasonally breed in Sonoma Creek; juveniles are present year-round. Possibly in Petaluma, Napa and Novato Creeks.	<b>Phase 1</b>			<b>x</b>		
				<b>Alt 1</b>		<b>x</b>		<b>x</b>	
				<b>Alt 2</b>			<b>x</b>	<b>x</b>	
				<b>Alt 3</b>				<b>x</b>	
Longfin smelt <i>Spirinchus thaleichthys</i>	--/CSC	California populations of the species occur in estuaries and near-coastal waters from Monterey Bay to the Smith River	<b>Present.</b> This species is known to occur in San Pablo Bay, tidal reaches of the Napa river and associated marshes, and historically in the lower Petaluma River.	<b>Phase 1</b>					
				<b>Alt 1</b>		<b>x</b>		<b>x</b>	
				<b>Alt 2</b>			<b>x</b>	<b>x</b>	
				<b>Alt 3</b>					
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	FSC/CSC	Endemic to Central Valley. Within the San Francisco Bay Estuary, splittail are found in the open-water floodplains and vegetated tidal channels, sloughs and backwaters of larger watersheds, and smaller tidal tributaries to these streams	<b>Present.</b> This species is known to occur in the Napa and Petaluma river estuaries.	<b>Phase 1</b>					
				<b>Alt 1</b>			<b>x</b>	<b>x</b>	
				<b>Alt 2</b>			<b>x</b>	<b>x</b>	
				<b>Alt 3</b>					

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVS	Novato SD	SVCSD	Napa SD
<b>FEDERAL AND STATE SPECIES OF SPECIAL CONCERN (cont.)</b>								
<b>Amphibians</b>								
Foothill yellow-legged frog <i>Rana boylei</i>	FSC/CSC	A year-round resident of cobble-lined streams; breeds in spring months after high water subsides.	Unlikely. Identified in montane streams, though not identified in action area.	Phase 1				
				Alt 1				
				Alt 2				X
				Alt 3				X
<b>Reptiles</b>								
Western pond turtle <i>Actinemys marmorata</i>	FSC/CSC	Lakes, ponds, reservoirs, and slow-moving streams and rivers, primarily in foothills and lowlands.	Presumed present. Known to occur in Napa, Sonoma and Marin County major creeks, tributary drainages, and agricultural ponds.	Phase 1		X	X	X
				Alt 1		X	X	
				Alt 2	X	X	X	X
				Alt 3		X	X	X
<b>Birds</b>								
Sharp-shinned hawk <i>Accipiter striatus</i>	--/CSC	Nests in riparian growths of deciduous trees and live oaks.	Moderate. Nesting sites are available throughout wooded riparian margins within parts of the Sonoma, Napa, Novato and Las Gallinas Valley service areas. No documented nesting sites near alignment.	Phase 1		X	X	X
				Alt 1		X	X	X
				Alt 2	X	X	X	X
				Alt 3		X	X	X
Cooper's hawk <i>Accipiter cooperii</i>	--/CSC	Nests in riparian growths of deciduous trees and live oak woodlands.	Moderate. Nesting sites are available throughout wooded riparian margins within parts of the Sonoma, Napa, Novato and Las Gallinas Valley service areas. No documented nesting sites near alignment.	Phase 1		X	X	X
				Alt 1		X	X	X
				Alt 2	X	X	X	X
				Alt 3		X	X	X
Tricolored blackbird <i>Agelaius tricolor</i>	FSC/CSC	Scattered breeding locations in Sonoma county. Found among red-winged blackbird colonies. Nests in tall freshwater emergent marsh or weedy vegetation, brambles. Requires large foraging areas.	Moderate. 1997 record of nesting population at Sears Point, within 900 feet of proposed pipeline. Habitat not expected in ROW.	Phase 1		X	X	X
				Alt 1		X	X	X
				Alt 2		X	X	X
				Alt 3		X	X	X

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCSD	Napa SD
<b>FEDERAL AND STATE SPECIES OF SPECIAL CONCERN (cont.)</b>								
<b>Birds (cont.)</b>								
Bell's sage sparrow <i>Amphispiza belli belli</i>	FSC/CSC	Nests and forages in chaparral in the inner Coast Range.	<b>Low to moderate.</b> Scrub habitat on the fringes of Sonoma Creek, Novato Creek, and the east side of the Napa River and other drainages provide potential nesting habitat.	Phase 1			x	x
				Alt 1				
				Alt 2	x		x	x
				Alt 3			x	
Golden eagle <i>Aquila chrysaetos</i>	--/-- fully protected	Large trees in open areas and cliff-walled canyons provide nesting habitat. Forages in rolling foothills, mountain areas, flats and deserts.	<b>Moderate.</b> A single 2003 nesting site in a large eucalyptus tree within 200 feet of Alt 1 pipeline.	Phase 1				
				Alt 1				x
				Alt 2				
				Alt 3				
Great blue heron (rookery) <i>Ardea herodias</i>	--/--	West coast of California; Salton Sea and Colorado River area.	<b>Moderate.</b> 1982 record of long-term rookery on private land within 0.3 miles of Alt 2 pipeline in LGVSD.	Phase 1				
				Alt 1				
				Alt 2			x	
				Alt 3				
Burrowing owl <i>Athene cucularia</i>	FSC/CSC	Nests and forages in low-growing grasslands that support burrowing mammals.	<b>High.</b> Recent occurrences at Sears Point within 0.4 miles of proposed Alt 2 pipeline; and southeastern Napa within 1.0 mile of Alt 2 pipeline and 0.2 miles of Hwy. 12; 1984 occurrence in Phase 1 pipeline route in south Novato; 1990s occurrences just south of Napa Salt Marsh proposed pipeline.	Phase 1		x	x	
				Alt 1		x		x
				Alt 2		x		x
				Alt 3		x		
Northern harrier <i>Circus cyaneus</i>	--/CSC	Nests in coastal freshwater and saltwater marshes, nest and forages in grasslands.	<b>Moderate.</b> Nesting sites are potentially present at proposed storage reservoirs, booster stations, and in or near cross-country pipelines routes. 2004 nesting location within 0.6 mile of Napa Salt Marsh pipeline.	Phase 1			x	
				Alt 1				x
				Alt 2		x		x
				Alt 3		x		

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCS D	Napa SD
<b>FEDERAL AND STATE SPECIES OF SPECIAL CONCERN (cont.)</b>								
<b>Birds (cont.)</b>								
California yellow warbler <i>Dendroica petechia brewsteri</i>	--/CSC	Nests in riparian areas dominated by willows, cottonwoods, sycamores, alders, or mature chaparral; may use urban areas near waterways.	<b>Low to moderate.</b> Potential breeding sites at stream crossing sites and marshy riparian habitat in Napa, Sonoma, and Novato service areas.	Phase 1		x	x	
				Alt 1		x	x	x
				Alt 2		x	x	x
				Alt 3		x	x	x
White-tailed kite (nesting) <i>Elanus leucurus</i>	CDFG fully protected	Nests near wet meadows and open grasslands dense oak, willow or other large tree stands.	<b>Moderate.</b> Nesting sites are available in large oak and eucalyptus trees located throughout the action area.	Phase 1		x	x	x
				Alt 1		x	x	x
				Alt 2	x	x	x	x
				Alt 3		x	x	x
California horned lark <i>Eremophila alpestris</i>	--/CSC	Occurs from Sonoma County south to the Mexican border.	<b>Moderate.</b> Habitat is present in grasslands in the Novato, Sonoma, and Napa service areas.	Phase 1				x
				Alt 1				x
				Alt 2		x	x	x
				Alt 3		x		
Salt marsh common yellowthroat <i>Geothlypis trichas sinuosa</i>	FSC/CSC	Freshwater, salt and brackish marshes of San Francisco Bay only. Uses willows, tules, and tall grasses for nesting and cover.	<b>High.</b> Occurs in salt marshes throughout the action area.	Phase 1		x		x
				Alt 1		x		x
				Alt 2	x	x	x	x
				Alt 3		x		
Loggerhead shrike <i>Lanius ludovicianus</i>	FSC/CSC	Scrub, open woodlands, and grasslands.	<b>Moderate.</b> Shrike nesting sites may occur at proposed storage reservoir and booster station sites, and in or near cross-country pipelines routes.	Phase 1			x	x
				Alt 1				x
				Alt 2		x		
				Alt 3				
San Pablo song sparrow <i>Melospiza melodia samuelis</i>	FSC/CSC	Tidal marshes. Forages over mudflats. Nests in gumweed, fennel and other tall vegetation.	<b>Present.</b> San Pablo song sparrow is present in tidal marshes in the Novato, Las Gallinas Valley, Napa and Sonoma service areas.	Phase 1		x	x	
				Alt 1		x		x
				Alt 2	x	x	x	x
				Alt 3		x		

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVS	Novato SD	SVCSD	Napa SD
<b>FEDERAL AND STATE SPECIES OF SPECIAL CONCERN (cont.)</b>								
<b>Birds (cont.)</b>								
California thrasher <i>Toxostoma redivivum</i>	--/CSC	Cismontane foothills and lowlands; moderate to dense chaparral and uncommonly in open valley foothill riparian habitat.	<b>Low to moderate.</b> Though unlikely, this species could breed in brushy edges that border riparian habitat near site drainages.	Phase 1		x		x
				Alt 1				x
				Alt 2				x
				Alt 3				
<b>Mammals</b>								
Pallid bat <i>Antrozous pallidus</i>	--/CSC	Day roosts are mainly in caves, crevices and mines; also found in buildings and under bark. Forages in open lowland areas.	<b>Present.</b> Roosting habitat available in large diameter oaks and under bridges. Known roosts are present within the pipeline route at Sonoma Creek Bridge; within 0.4 mile at Riverside Dr. Bridge; within 0.8 mile at Santsbury Winery.	Phase 1				x
				Alt 1				x
				Alt 2				x
				Alt 3				
Pacific western "Townsend's" big-eared bat <i>Corynorhinus townsendii</i>	FSC/CSC	Forages in a variety of habitats; prefers mesic sites. Roosts in caves, mines, tunnels and buildings.	<b>Low to moderate.</b> Roosting habitat available in large diameter oaks and under bridges. Possible nursery roost within 2.5 miles from Phase 1 and Alt 2 pipelines in Novato.	Phase 1				x
				Alt 1				x
				Alt 2				x
				Alt 3				
Greater western mastiff bat <i>Eumops perotis californicus</i>	FSC/CSC	Needs rock crevices, grassland, coastal scrub; may use urban areas.	<b>Low to moderate.</b> Roosting habitat available in large diameter oaks and under bridges.	Phase 1				x
				Alt 1				x
				Alt 2				x
				Alt 3				
Long-eared myotis <i>Myotis evotis</i>	FSC/--	Roosts in buildings, crevices, under bark, snags, and in forests. Caves are the primary night roost.	<b>Low to moderate.</b> Roosting habitat available in large diameter oaks and under bridges.	Phase 1				x
				Alt 1				x
				Alt 2				x
				Alt 3				

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCSD	Napa SD	
<b>FEDERAL AND STATE SPECIES OF SPECIAL CONCERN (cont.)</b>									
<b>Mammals (cont.)</b>									
Fringed myotis <i>Myotis thysanodes</i>	FSC/--	Roosts in caves, old buildings and under bark.	<b>Low to moderate.</b> Roosting habitat available in large diameter oaks and under bridges.	<b>Phase 1</b>					
				<b>Alt 1</b>				x	
				<b>Alt 2</b>					x
Long-legged myotis <i>Myotis volans</i>	FSC/--	Roosts in rock crevices, buildings, tree bark, snags, mines and caves. Trees are perhaps the most important daytime roosts for this species.	<b>Low to moderate.</b> Roosting habitat available in large diameter oaks and under bridges.	<b>Alt 3</b>					
				<b>Phase 1</b>				x	
				<b>Alt 1</b>					x
Yuma myotis <i>Myotis yumanensis</i>	FSC/CSC	Roosts in caves, old buildings and under bark. Forms maternity colony in the spring.	<b>Low to moderate.</b> Roosting habitat available in large diameter oaks and under bridges.	<b>Alt 2</b>					
				<b>Alt 3</b>					
				<b>Phase 1</b>					x
Suisun ornate shrew <i>Sorex ornatus sinuosus</i>	FSC/CSC	Upper edges of tidal marshes within northern shores of San Pablo and Suisun Bays.	<b>Moderate.</b> Within the action area, known to occur in Sears Point within 0.54 mile from Alt 2 and 3 pipelines.	<b>Alt 1</b>					
				<b>Alt 2</b>				x	
				<b>Alt 3</b>					
American badger <i>Taxidea taxus</i>	--/--/CSC	Prefers dry, open areas with friable soils.	<b>Low.</b> Grassland habitat present at Sears Point and north of railroad tracks between Sonoma and Napa; historical occurrences in Napa.	<b>Phase 1</b>					
				<b>Alt 1</b>					x
				<b>Alt 2</b>				x	
<b>Plants</b> Franciscan onion <i>Allium peninsulare</i> var. <i>franciscanum</i>	--/--/List 1B	Cismontane woodland, valley and foothill grassland.	<b>Present.</b> Known population occurs in the Sonoma Alt 3 pipeline route on either side of Norrburn Road.	<b>Alt 3</b>					
				<b>Phase 1</b>					
				<b>Alt 1</b>					
				<b>Alt 2</b>					
				<b>Alt 3</b>				x	

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/ CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCSD	Napa SD
FEDERAL AND STATE SPECIES OF SPECIAL CONCERN (cont.)								
Plants (cont.)								
Napa false indigo <i>Amorpha californica</i> var. <i>napensis</i>	FSC/--/ List 1B	Openings in broadleaved forest, chaparral, cismontane woodland.	<b>Present.</b> Known population occurs in the Sonoma Alt 3 pipeline route on either side of Norrburn Road.	Phase 1 Alt 1 Alt 2 Alt 3				
Bent-flowered fiddleneck <i>Amsinckia lunaris</i>	--/--/List 1B	Cismontane woodland, valley and foothill grassland.	<b>Unlikely.</b> Known to occur in Marin and Contra Costa Counties; 2 records from Marin. Nearest known population is over 3 miles from Novato Alt 2 pipeline.	Phase 1 Alt 1 Alt 2 Alt 3		x		
Sonoma canescent manzanita <i>Arctostaphylos canescens</i> ssp. <i>sonomensis</i>	--/--/List 1B	Chaparral, lower montane coniferous forest.	<b>Unlikely.</b> Known to occur in 1 record, a 1968 occurrence 1.5 miles from Alt 3 pipeline in north Sonoma.	Phase 1 Alt 1 Alt 2 Alt 3			x	
Mt. Tamalpais manzanita <i>Arctostaphylos hookeri</i> ssp. <i>montana</i>	--/--/List 1B	Chaparral, valley and foothill grassland.	<b>Low to Moderate.</b> Based on CNDDDB records. Entire Novato area is mapped as an undated record for this species; also LGVSD area. Habitat is present.	Phase 1 Alt 1 Alt 2 Alt 3		x		
Alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	FSC/--/ List 1B		<b>Unlikely.</b> Populations within 4.0 miles of the action area have been extirpated. Occurrences in Solano County and Petaluma vicinity are greater than 4 miles from the action area.	Phase 1 Alt 1 Alt 2 Alt 3				x x
San Joaquin spearscale <i>Atriplex joaquiniana</i>	FSC/--/ List 1B	Valley and foothill grassland, alkali meadow, chenopod scrub.	<b>Unlikely.</b> Two populations occur across the Napa River 0.8 mile from the Phase 1 pipeline.	Phase 1 Alt 1 Alt 2 Alt 3				

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCS D	Napa SD
<b>FEDERAL AND STATE SPECIES OF SPECIAL CONCERN (cont.)</b>								
<b>Plants (cont.)</b>								
Big-scale balsamroot <i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	--/--/List 1B	Valley and foothill grassland, cismontane woodland.	<b>Low.</b> Known populations are greater than 4.0 miles from Phase 1, Alt 1 and Alt 2 pipelines southeast of Napa service area.	Phase 1				X
				Alt 1				X
				Alt 2				X
				Alt 3				
Narrow-anthered California brodiaea <i>Brodiaea californica</i> var. <i>leptandra</i>	FSLC/--/ List 1B	Openings in broadleafed forest, chaparral, lower montane coniferous forest.	<b>Low.</b> An undated record occurs within 0.8 miles from Phase 1 pipeline in east Sonoma; a 1984 population occurs within 1.5 miles of Alt 3 pipeline in north Sonoma; several populations occur within 1.5 miles of Phase 1 and Alt 2 pipelines in northeast Napa, on preserves owned by the Sonoma Land Trust.	Phase 1			X	X
				Alt 1				X
				Alt 2				X
				Alt 3			X	
Holly-leaved ceanothus <i>Ceanothus purpureus</i>	--/--/List 1B	Chaparral, rocky volcanic slopes.	<b>Unlikely.</b> Known to occur in Napa and Solano Counties. Occurs on hilly slopes about 0.8 miles upslope from the Napa service area Phase 1 and Alt 2 proposed pipelines.	Phase 1				X
				Alt 1				
				Alt 2				X
				Alt 3				
Sonoma ceanothus <i>Ceanothus sonomensis</i>	--/--/List 1B	Chaparral; sandy, serpentine or volcanic soils.	<b>Unlikely.</b> Known to occur in Sonoma and Napa Counties. Occurs on slopes outside of action area. An historical population occurs within 0.3 miles of Alt 3 pipeline in north Sonoma; other populations occur greater than 2 miles from Sonoma Alt 3 pipelines.	Phase 1				
				Alt 1				
				Alt 2				
				Alt 3			X	
Pappose tarplant <i>Centromadia parryi</i> spp. <i>parryi</i>	--/--/List 1B	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland.	<b>Unlikely.</b> A 1933 occurrence is mapped in the Novato Alt 2 pipeline alignment extending south from Sonoma to Sears Point.	Phase 1				
				Alt 1				
				Alt 2			X	
				Alt 3				

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/ CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVS	Novato SD	SVCS	Napa SD
<b>FEDERAL AND STATE SPECIES OF SPECIAL CONCERN (cont.)</b>								
Plants (cont.)								
Point Reyes bird's beak <i>Cordylanthus maritimus</i> spp. <i>palustris</i>	FSC/--/ List 1B	Coastal salt marsh.	<b>High.</b> Known to occur in Marin and Sonoma counties. Within the action area there is a 1990s extant population in LGVS within 0.1 mile of the Alt 2 pipeline.	Phase 1 Alt 1 Alt 2 Alt 3				
Dwarf downingia <i>Downingia pusilla</i>	--/--/ List 2	Mesic grasslands, vernal pools. Known to occur in Napa, Sonoma and Solano counties.	<b>Low.</b> Historical records in Phase 1 Sonoma area; SVRWP EIR rare plant surveys were negative. Population in Sonoma Valley Regional Park 0.7 miles outside the Sonoma Alt 3 action area; undated CNDDB record within 0.3 mile of Napa Alt 2 pipeline; 1960s occurrence in the Alt 2 pipeline alignment from south Sonoma heading to Sears Point.	Phase 1 Alt 1 Alt 2 Alt 3			x	
Greene's narrow-leaved daisy <i>Erigeron greenei</i>	--/--/List 1B	Found in serpentine soils on dry slopes among chaparral.	<b>Unlikely.</b> Known to occur in several occurrences in Sonoma and Napa counties outside the action area; nearest occurrence is historical, greater than 1 mile from Alt 2 pipeline in north Napa.	Phase 1 Alt 1 Alt 2 Alt 3				x
Tiburon buckwheat <i>Eriogonum luteolum</i> var. <i>caninum</i>	--/--/List 1B	Found in sandy or gravelly serpentine soils of chaparral, coastal prairie, dismontane woodland, valley and foothill grasslands.	<b>Unlikely.</b> A historical occurrence is within 1 mile southeast of the LGVS Alt 2 pipeline. An undated record occurs is within 2 miles southwest of the south Novato Phase 1 and Alt 2 pipelines.	Phase 1 Alt 1 Alt 2 Alt 3		x		
Fragrant fritillary <i>Fritillaria liliacea</i>	FSC/--/ List 1B	Found in loamy clay soils of open grassland; rocky soils; coastal scrub. Often associated with vernal pools and mima mounds.	<b>Unlikely.</b> This species is present at Mt. Burdell open space. Action area along San Marin Dr. is a built-up residential neighborhood.	Phase 1 Alt 1 Alt 2 Alt 3				x

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCS	Napa SD
<b>FEDERAL AND STATE SPECIES OF SPECIAL CONCERN (cont.)</b>								
Plants (cont.)								
Brewer's western flax <i>Hesperolinon Breweri</i>	--/--/List 1B	Found in grassy or brushy slopes with serpentine soils along the inner Coast Ranges. Associated with chaparral; prefers shade.	<b>Unlikely.</b> Nearest record is an 1891 occurrence 5 miles east of Napa Phase 1 pipelines.	Phase 1 Alt 1 Alt 2 Alt 3				<b>x</b>
Napa western flax <i>Hesperolinon</i> sp. nov. <i>serpentinum</i>	--/--/List 1B	Chaparral, usually in serpentine soils.	<b>Low.</b> Nearest occurrence is 0.8 miles northeast of north Napa Phase 1 pipelines.	Phase 1 Alt 1 Alt 2 Alt 3				<b>x</b>
Delta tulle pea <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	FSC/--/List 1B	Found in the freshwater marshes of Suisun and San Pablo Bays.	<b>High.</b> Known to occur in Napa county. Extant population where Napa Salt Marsh pipeline crosses Huichica Creek; several known extant populations in vicinity of Napa Salt Marsh pipeline and Napa SD Phase 1, Alt 1, and Alt 2 pipelines.	Phase 1 Alt 1 Alt 2 Alt 3			<b>x</b>	<b>x</b>
Legenere <i>Legenere limosa</i>	--/--/List 1B	Vernal pools.	<b>Low to Moderate.</b> Extant population within 0.4 miles of Napa Alt 2 pipeline. Habitat not expected in ROW.	Phase 1 Alt 1 Alt 2 Alt 3				<b>x</b>
Jepson's leptosiphon = Jepson's linanthus <i>Leptosiphon</i> <i>jepsonii</i> = <i>Linanthus</i> <i>jepsonii</i>	FSLC/--/List 1B	Openings in chaparral, cismontane woodland (usually volcanic or periphery of serpentine).	<b>Unlikely.</b> Nearest record is 6 miles west of Sonoma Alt 3 pipelines.	Phase 1 Alt 1 Alt 2 Alt 3				
Mason's lilaeopsis <i>Lilaeopsis masonii</i>	FSC/--/List 1B	Freshwater marshes, brackish flats, and coastal salt marshes. From North San Pablo Bay south to Baja California.	<b>Moderate.</b> Known occurrences along Napa River; habitat present where Alt 1 and 2 pipelines cross Napa River.	Phase 1 Alt 1 Alt 2 Alt 3			<b>x</b>	<b>x</b>

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name Scientific Name	Listing Status USFWS/CD FG/CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCSD	Napa SD
<b>FEDERAL AND STATE SPECIES OF SPECIAL CONCERN (cont.)</b>								
Plants (cont.)								
Baker's navaretia <i>Navaretia leucocephala</i> spp. <i>bakeri</i>	--/--/List 1B	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest.	<b>Unlikely.</b> This species is present at Mt. Burdell open space. Action area along San Marin Dr. is a built-up residential neighborhood.	Phase 1 Alt 1 Alt 2 Alt 3		x		
California beaked-rush <i>Rhynchospora californica</i>	--/--/List 1B	Lower montane coniferous forest, in meadows, seeps, bogs, marshes, and swamps.	<b>Unlikely.</b> Nearest occurrence is on Mt. George in a spring-fed area 1 mile northeast of north Napa Phase 1 and Alt 2 pipelines.	Phase 1 Alt 1 Alt 2 Alt 3				x
Point Reyes checkerbloom <i>Sidacea calycosa</i> ssp. <i>rhizomata</i>	--/--/List 1B	Marshes and swamps, usually in coastal slopes and coastal prairies.	<b>Unlikely.</b> Nearest occurrences are: Marin County greater than 6 miles west from LGVSD Alt 2 pipelines; 1.8 miles east of north Napa Phase 1 and Alt 2 pipelines.	Phase 1 Alt 1 Alt 2 Alt 3	x			x
Mt. Tamalpais bristly jewel-flower <i>Streptanthus glandulosus</i> spp. <i>pulchellus</i>	--/--/List 1B	Chaparral, valley and foothill grasslands, endemic to Marin County.	<b>Unlikely.</b> Closest known occurrence is from 1945 on private land 1.2 miles southwest of Novato Alt 2 pipeline, 2-3 miles west of Hamilton Air Base.	Phase 1 Alt 1 Alt 2 Alt 3		x		
Suisun marsh aster <i>Symphotrichum lentum</i>	--/--/List 1B	Brackish and freshwater marshes and swamps.	<b>Moderate.</b> Habitat is present in marshes throughout the eastern action area. Known populations occur within 1.5 miles of Napa Phase 1, Alt 1 and Alt 2 pipelines.	Phase 1 Alt 1 Alt 2 Alt 3			x	x
Saline clover <i>Trifolium depauperatum</i> var. <i>hydrophilum</i>	--/--/List 1B	Valley and foothill grassland, marshes and swamps, vernal pools.	<b>Low.</b> An extant population occurs within 0.3 mile of SVCSD Alt 2 pipelines in southern Sonoma. An extirpated population occurred within 0.7 mile of the southern Napa Alt 2 pipeline.	Phase 1 Alt 1 Alt 2 Alt 3			x	x

**TABLE 3.5-1 (Continued)  
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CD FG/ CNPS	General Habitat Requirements	Potential for Species Occurrence Within the Action area	Project Phase	LGVSD	Novato SD	SVCSD	Napa SD
FEDERAL AND STATE SPECIES OF SPECIAL CONCERN (cont.)								
Plants (cont.)								
Oval-leaved viburnum <i>Viburnum ellipticum</i>	--/--/ List 2	Openings in chaparral, cismontane woodland, lower montane coniferous forest.	Low. Historical records in immediate vicinity of Sonoma Phase 1 And Alt 3 pipelines; rare plant surveys for Phase 1 were negative. Populations presently occurs greater than 2.5 miles east of Napa Phase 1 pipelines.	Phase 1 Alt 1 Alt 2 Alt 3			x	

**STATUS CODES:**

FEDERAL: (U.S. Fish and Wildlife Service)

FE = Listed as Endangered (in danger of extinction) by the Federal Government.

FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government.

FC = Candidate to become a *proposed* species.

FSC = Federal Species of Concern. May be Endangered or Threatened, but not enough biological information has been gathered to support listing at this time.

STATE: (California Department of Fish and Game)

CE = Listed as Endangered by the State of California

CT = Listed as Threatened by the State of California

CSC = California Species of Special Concern

\* = Special Animals

Shaded areas= no pipelines proposed for the service area

x = species present or potentially present

blank = No CNDDDB occurrences reported in action area.

SOURCE: CNPS, 2008; CDFG, 2008; USFWS, 2008.

also consulted (Jones and Stokes 2003; ESA, 2005; ESA, 2006). Based on search results, a total of 41 special-status plant species have potential to occur in the action area. Of these 41 species, twenty-four are unlikely to occur in the action area; eight have low potential to occur in the action area; five have moderate potential to occur in the action area; two have high potential to occur in the action area; and the following three are present based on known distribution: federal and state endangered Sonoma sunshine, California List 1B franciscan onion (*Allium peninsulare* var. *franciscanum*), and California List 1B Napa false indigo (*Amorpha californica* var. *napensis*). The exact distribution of these species in the project ROW is unknown, and they may not occur on the road shoulder or in the road right-of-way. It is also unknown whether pipelines in these areas would be installed in the roadway or whether project disturbance would extend to the road shoulder or the road right-of-way. Subsequent project-level analyses and focused plant surveys would be required for Alternatives 1, 2 and 3 except for SVCS D recycled water service area Basic System pipelines as described below.

The Sonoma Valley Recycled Water Project (SVRWP) EIR was a project-level analysis of pipeline alignments coincident with Phase 1 and Basic System pipeline alignments evaluated in this EIR, excepting the pipeline extending to the Napa Salt Marsh Restoration Area. Rare plant surveys were conducted along the SVRWP alignments for Napa false indigo (*Amorpha californica* var. *napensis*), Sonoma sunshine (*Blennosperma bakeri*), narrow-anthered California brodiaea (*Brodiaea californica* var. *leptandra*), dwarf downingia (*Downingia pusilla*), largeleaf filaree (*Erodium macrophyllum*), legenere (*Legenere limosa*), Jepson's leptosiphon (*Leptosiphon jepsonii*=*Linanthus jepsonii*), Mt. Diablo cottonweed (*Micropus amphibolus*), and oval-leaved viburnum (*Viburnum ellipticum*). None of the target species were observed in the SVRWP action area during appropriately-timed botanical surveys. The disturbed nature of undeveloped portions of the project site in combination with the presence of non-native annual grasses that favor disturbed areas likely prohibits the establishment of target special-status plant species.

Focused plant surveys have not been performed for project alignments in the LGVSD, Novato SD, or Napa SD recycled water service areas.

### **Special-status Wildlife**

An initial list of special-status wildlife species known to occur in the general project region and potentially occurring within the action area was compiled on the basis of the following: an analysis of previous studies conducted in the project region concerning special-status wildlife (Jones and Stokes, 2003; ESA, 2005; ESA, 2006); data from the CNDDDB (CDFG, 2008) and USFWS (USFWS, 2009); review of pertinent scientific literature about the sensitive species of concern; review of the most recent Notice of Review for federally-listed and candidate animals; review of the CDFG's most recent list of special animals and plants (which also includes federally-listed and candidate plants); review of the CNPS database ; and ESA biologists' familiarity with local wildlife resources.

Reconnaissance surveys were conducted in 2008 on January 9 and 10; February 25; April 16, 22, 25, and 29; May 5, 16, and 22; and June 11; and in 2009 on January 13th to assess available habitat in the action area. ESA considered factors such as available habitat, habitat quality, and

species distribution in evaluating the likelihood of special-status species occurrence in the action area.

Potential habitat was identified for 50 special-status species, of which several are present or presumed present in or near the action area: seven threatened or endangered species (California freshwater shrimp, steelhead, California red-legged frog, western snowy plover, California black rail, California clapper rail, and salt marsh harvest mouse) and 6 non-listed special-status species (Ricksecker's water scavenger beetle, California brackish water snail; Pacific lamprey; Sacramento splittail; western pond turtle, and pallid bat). On the basis of this biological resources analysis, it was determined that habitat for threatened, endangered, and otherwise special-status wildlife species near the proposed project alignment is generally restricted to within stream corridors, ponds, freshwater marshes, grasslands, salt pond levees, salt marshes, and areas in the immediate vicinity of such features that are crossed by the proposed pipeline or adjacent to proposed alignments within existing roadways. Public road rights-of-way are not particularly sensitive relative to special-status species.

Focused protocol-level surveys were not conducted for special-status wildlife species. As a result, this report describes those areas that have been identified to support sensitive wildlife species (CDFG, 2008), and those capable of supporting such species based on the field assessment. The general ecology for special-status species identified as having the greatest potential to occur in or near the proposed project are described below.

### ***Special-status Fish***

An initial list of special-status fish species known to occur in the general project region and potentially occurring within the action area was compiled on the basis of the following: an analysis of previous studies conducted in the project region concerning special-status fish species presence (ESA, 2005; ESA, 2006; Jones and Stokes, 2003); data from the CNDDDB (2008) and USFWS (2009); review of pertinent scientific literature about the sensitive species of concern (e.g., Moyle, 2002; Leidy, 2007); review of the most recent Federal Register notices for federally-listed and candidate species; and ESA biologist's familiarity with local fisheries resources. Focused fish surveys were not performed for the purposes of this Draft EIR.

Based on the results of the review, a total of nine special-status fish species have potential to occur in the action area, including San Pablo Bay. Of these nine species, two are unlikely to occur in the action area due to their presumed extirpation from San Francisco Bay drainages (coho salmon, tidewater goby); four are known to occur in San Pablo Bay and may occur in the lower tidal reaches of action area drainages, but are not expected to occur within the upper freshwater portions of action area streams and rivers (delta smelt, green sturgeon, longfin smelt, Sacramento splittail); and three have a high potential to occur both in San Pablo Bay and in action area drainages (steelhead, Chinook salmon, Pacific lamprey).

## **Special-status Vegetation Communities**

### **Northern Coastal Salt Marsh**

Northern coastal salt marsh is usually found along sheltered inland margins of estuaries, lagoons and bays that are subject to regular tidal influence. Vegetation changes with the salinity gradient but always consists of salt-tolerant plants, usually perennials that form a moderate to dense land cover. Vegetation characteristic of northern coastal salt marsh includes pickleweed, saltgrass (*Distichlis spicata*), alkali heath (*Frankenia grandifolia*), marsh gumplant (*Grindelia stricta*), and California cordgrass. Adjacent communities include valley grassland and freshwater marsh. Northern coastal salt marsh occurs where Alternatives 1 and 2 pipelines approach and cross the Petaluma River; where the Fully Connected System pipeline crosses Sears Point; along off-road portions of the Partially Connected System pipeline near the Novato WWTP and west of Hamilton Field; and along the north side of San Pedro Road at Peacock Gap in the LGVSD. Northern coastal salt marsh could be impacted by the project at the stated off-road locations, and where it occurs in the road right-of-way.

### **Coastal Brackish Marsh**

Coastal brackish marsh communities are similar to coastal salt marsh communities but receive freshwater from area creeks and drainages. Salinity levels fluctuate with rainfall and drainage patterns, and with tidal variations. Brackish marshes usually intergrade with coastal salt marshes along coastal or bay fringes and with freshwater marshes at upstream drainages. Vegetation is usually dense and dominated by tall, perennial monocots that can reach six feet in height. Typical vegetation includes sedges (*Carex* spp.), rushes (*Juncus* spp.), bulrush (*Scirpus* spp.), and cattails (*Typha* spp.). Coastal brackish marsh occurs at several locations along the Phase 1 pipeline extending from Sonoma to the Napa Salt Marsh Restoration Area, and where the Basic System and Alternative 2 pipelines approach and cross the Napa River. This vegetation community could be impacted at the Petaluma River crossing and along the Phase 1 pipeline.

### **Northern Vernal Pool**

Northern vernal pools occur in Mediterranean-climate regions with heavy winter rains and long, dry summers. Vernal pools form in intermediate depressions underlain by an impermeable soil layer. Water is retained during the winter rainy season for a length of time sufficient to prevent terrestrial plants from growing; specialized vernal pool vegetations tend to grow in a pattern of concentric rings as the pools dry. Vernal pool plants include brass buttons (*Cotula coronopifolia*), downingia (*Downingia* spp.), and spikerush (*Eleocharis macrostachya*). Goldfields (*Lasthenia* spp.) and owl's-clover (*Castilleja* spp.) are also associated with vernal pools. Vernal pool communities are most common in open grassland, and a community is present in the southern SVCSD action area southeast of the junction of Highway 116 and Bonness Road. This land parcel adjacent to Highway 116 on the east appears to be uncultivated open grassland, and vernal pools could be present in the road right-of-way.

## Species Accounts

### Listed Species – Plants

#### Sonoma Sunshine (*Blennosperma bakeri*)

Sonoma sunshine is a federal and state-listed endangered species. Sonoma sunshine is a California endemic, restricted to vernal pools, shallow depressions, and intermittent swales within mesic valley and foothill grasslands on the Santa Rosa Plain and the adjacent Sonoma Valley in Sonoma County. Its blooming period is March through May. This species is threatened by urbanization, irrigation with wastewater effluent, and conversion of habitat to agricultural lands, as well as possibly threatened by non-native plants, foot traffic and road maintenance. Sonoma sunshine is present in the recycled water service area along Bonneau Road. Focused surveys are needed to determine presence or absence in the project ROW.

#### Soft Bird's Beak (*Cordylanthus mollis* spp. *mollis*)

Soft bird's beak is a federal endangered species, and is listed by the California Native Plant Society (CNPS) as rare and endangered (CNPS List 1B). Soft bird's beak is found in coastal salt marshes at elevations of 0-3 meters with a blooming period of July through November. Soft bird's-beak is endemic to the San Pablo Bay and Suisun Bay area. This listed subspecies was historically found in high tidal marshes along the Petaluma and Napa Rivers through the Carquinez Strait to Suisun Bay and the San Joaquin-Sacramento River Delta spanning Marin, Sonoma, Napa, Solano, Contra Costa, and Sacramento Counties. Soft bird's beak is presently known to occur in fewer than 15 populations limited to the edges of San Pablo Bay, Suisun Marsh, and the Petaluma River. The species is threatened by non-native plants, erosion, trampling, and marsh drainage. Soft bird's beak is present at Fly Bay near the Napa Salt Marsh Restoration Area; focused surveys are needed to determine presence or absence in the project ROW. A population near the proposed Huichica Creek crossing is believed to be extirpated.

#### Contra Costa Goldfields (*Lasthenia conjugens*)

Contra Costa goldfields is a federal endangered species and a CNPS List 1B species. Contra Costa goldfields grows in vernal pools within open grassy areas in woodlands and valley grasslands. Its blooming period is March through June. This species has been extirpated from Santa Barbara and Santa Clara counties by agricultural land conversion, urbanization and creek channelization. Nearly all of the remaining populations are imminently threatened by urban development or agricultural land conversion. Currently, 22 populations are believed to be extant in Mendocino, Napa, Marin, Contra Costa, Alameda, Solano and Monterey counties. An extant population occurs 0.12 mile north of alignments in the Napa SD recycled water service area, but this species is not known to occur in the project ROW.

#### Two-fork Clover (*Trifolium amoenum*)

Two-fork clover is a federal endangered species and a CNPS List 1B species. Historically, two-fork clover ranged from Mendocino County south to Sonoma, Marin, Alameda and Santa Clara counties, and east to Napa and Solano counties. The species was found in a variety of habitats including low, wet swales, grasslands and grassy hillsides. It typically grows in moist, heavy soils

below 100 meters (328 feet) altitude with a blooming period of April through June. Historical habitat has been lost to urbanization and agriculture. A population historically occurred at Fly Bay, but may be extirpated.

### **Listed Species – Fish**

#### **Winter-run, Fall-run, and Spring-run Chinook Salmon (*Oncorhynchus tshawytscha*)**

The population of Chinook salmon in San Francisco Bay is comprised of four races: fall-run, late fall-run, spring-run, and winter-run. These races are distinguished by the seasonal differences in adult upstream migration, spawning, and juvenile downstream migration. Chinook salmon are anadromous fish, spending three to five years at sea before returning to freshwater to spawn. Chinook salmon generally require cool, clean, and well-oxygenated water in streams and rivers that contain adequately sized spawning gravels, instream cover, and riparian shading. Migration barriers in the form of dams, grade control structures, culverts, or water diversion structures significantly limit Chinook salmon access to historical habitat throughout their range. These fish pass through San Francisco Bay waters, including San Pablo Bay, to reach their upstream spawning grounds. In addition, juvenile salmon migrate through the Bay en route to the Pacific Ocean.

The Central Valley (Sacramento) winter-run Chinook salmon, listed as both State and federally endangered, migrate through San Francisco Bay from December through July with a peak in March. Spawning is confined to the mainstem Sacramento River and occurs from mid-April through August. Juveniles emerge between July and October, and are resident in their natal stream for 5 to 10 months followed by an indeterminate residency period in estuarine habitats.

The State and federal-listed threatened Central Valley spring-run Chinook salmon migrate to the Sacramento River from March to September with a peak spawning period between late August and October. Juvenile salmon emerge between November and March, and are resident in streams for a period of 3 to 15 months before migrating to downstream habitats.

The Central Valley fall-run and late fall-run Chinook salmon are federal candidates for listing, and California Species of Special Concern. These salmon enter freshwater from June through December and spawn from October through December, with a peak in November.

#### **Central California Coast and Central Valley Steelhead (*Oncorhynchus mykiss*)**

Central Valley and Central Coast steelhead, like Chinook salmon, are anadromous. Adult steelhead spawn in freshwater and the juveniles migrate to the Pacific Ocean where they reside for a period of years before returning to the river system to spawn. Adult steelhead migrate upstream during the fall and winter (September through approximately February) with Central Valley steelhead migration into the upper Sacramento River typically occurring during the fall and adults migrating into lower tributaries typically during the late fall and winter. Steelhead spawn in areas characterized by clean spawning gravels, cold-water temperatures, and moderately high velocity. Spawning typically occurs during the winter and spring (December – April) with the majority of spawning activity occurring during January and March. Unlike Chinook salmon

that die after spawning, adult steelhead may migrate downstream after spawning and return to spawn in subsequent years. Juvenile steelhead rear within the stream system for one or more years before migrating to the ocean. Downstream migration of juvenile steelhead typically occurs during the late winter and early spring (January – May). The seasonal timing of downstream migration of Central Valley and Central Coast steelhead may vary in response to a variety of environmental and physiological factors including changes in water temperature, changes in stream flow, and increased turbidity resulting from stormwater runoff. The juvenile steelhead rear within the coastal marine waters for approximately 2 to 3 years before returning to their natal stream as spawning adults.

#### **Delta smelt (*Hypomesus transpacificus*)**

The delta smelt, a federal and State listed threatened species, is a small, slender-bodied fish which is able to tolerate a wide salinity range and is native to the Sacramento-San Joaquin estuary. The fish live in schools and primarily feed on planktonic crustaceans, small insect larvae and mysid shrimp. This species, which has a one-year life span, live primarily along the freshwater edge of the saltwater-freshwater interface of the Sacramento-San Joaquin Delta. Prior to spawning, Delta smelt migrate upstream from the brackish-water habitat to river channels and tidally influenced backwater sloughs to spawn. Migration and spawning occur between December and June. They are found seasonally throughout Suisun Bay and in small numbers in larger sloughs and channels of the western Delta (e.g., Lindsey Slough) when spawning. During high outflow periods, they may be washed into San Pablo Bay, but they do not establish permanent populations there (Moyle, 2002). However, Delta smelt have been recorded in the Napa River and marshes during dry and critically dry years, suggesting that populations there may be resident, although there is evidence that populations in the Napa River may not persist (Leidy, 2007).

In May 2006, an emergency petition seeking to re-list delta smelt as endangered was submitted to the USFWS.

#### **Green sturgeon (*Acipenser medirostris*)**

The southern DPS of green sturgeon is a federal threatened species. This anadromous fish is the most widely distributed member of the sturgeon family and the most marine-oriented of the sturgeon species. Green sturgeons range in the nearshore waters from Mexico to the Bering Sea and are common occupants of bays and estuaries along the western coast of the United States. Adults in the San Joaquin Delta are reported to feed on benthic invertebrates including shrimp, amphipods and occasionally small fish while juveniles have been reported to feed on opossum shrimp and amphipods. Adult green sturgeons migrate into freshwater beginning in late February with spawning occurring in March through July, with peak activity in April and June. After spawning, juveniles remain in fresh and estuarine waters for 1-4 years and then begin to migrate out to the sea. The upper Sacramento River has been identified as the only known spawning habitat for green sturgeon in the southern DPS.

### **Listed Species - Animals**

#### **Myrtle's Silverspot Butterfly (*Speyeria zerene myrtle*)**

Myrtle's silverspot butterfly, a federally-endangered species, is known from foggy coastal praries and mixed grassland/scrub areas in Sonoma, Marin and San Mateo counties at elevations ranging from sea level to 1,000 feet. Critical factors in the distribution of Myrtle's silverspot include the presence of the presumed larval host plant, *Viola adunca* (western violet), and availability of nectar sources for adults. Temperatures are moderated by fog, which keeps summers relatively cool and winters relatively warm compared to inland habitats. In the recycled water service areas, Myrtle's silverspot butterfly is known to occur in hills northwest of Sears Point. Habitat is not expected in the project ROW.

#### **California Freshwater Shrimp (*Syncaris pacifica*)**

The California freshwater shrimp is a federal- and state-listed endangered species. This species is endemic to 17 coastal streams in Marin, Sonoma, and Napa counties north of San Francisco Bay. Streams that support California freshwater shrimp present a broad range of stream and water temperature conditions that are characteristic of coastal streams. They have been found in low elevation (less than 380 feet) and low gradient (generally less than one percent) perennial coastal streams.

California freshwater shrimp are generally found in stream reaches where banks are structurally diverse with undercut banks, exposed roots, overhanging woody debris, or overhanging vegetation. Optimal habitat conditions for the shrimp occur under stream conditions with 12 to 35 inches in depth with exposed live roots (e.g., alder and willow trees) along undercut banks (greater than 6 inches) with overhanging stream vegetation and vines. Such areas provide cover from swift currents as well as some protection from high sediment concentrations associated with high stream flows. Adults reach sexual maturity by the end of their second summer of growth. Thereafter, they breed once a year in the fall. Females produce about 50 to 120 eggs, which remain attached to their mother throughout the winter.

Though endemic to Marin, Sonoma and Napa county streams, within the recycled water service area stream crossings, only Sonoma Creek is known to support California freshwater shrimp. They are presumed present.

#### **California Red-legged Frog (*Rana draytonii*)**

The California red-legged frog is a federally-listed threatened species and a California species of special concern. This ranid species is principally a pond frog that can be found in quiet permanent waters of ponds, pools, streams, springs, marshes, and lakes. Moist woodlands, forest clearings, and grasslands also provide suitable habitat for this species in the non-breeding season. Adult frogs seek waters with dense shoreline vegetation, such as cattails, that provide good cover, but may be found in unvegetated waters as well.

Red-legged frogs breed from January to May. Eggs are attached to vegetation in shallow water and are deposited in irregular clusters. Tadpoles grow to three inches before metamorphosing.

Red-legged frogs are active year-round along the coast but inland populations may aestivate from late summer to early winter. Adults consume insects such as beetles, caterpillars and isopods, while tadpoles forage on algae and detritus.

California red-legged frog is present in roadside drainages along Lakeville Highway in south Petaluma. This species also occurs in upslope ponds near Sears Point Raceway and agricultural ponds in south Sonoma.

#### **Swainson's Hawk (*Buteo swainsonii*)**

Swainson's hawk is a state-listed threatened species. These medium-sized opportunistic predators feed on rodents, rabbits, bats, large arthropods, amphibians, reptiles, birds, and, rarely, fish. This species arrives in California in late February and departs for wintering grounds in early September. Eggs are typically laid in April and early May. Swainson's hawks reside in a wide variety of open habitats, including prairies, grasslands, and intensively farmed areas. Nests are usually constructed in riparian corridors adjacent to agricultural fields or pastures. Swainson's hawks were historically distributed throughout the lowlands of California, absent only from the Sierra Nevada, north Coast Ranges and Klamath Mountains, and portions of the southern California deserts. The highest density currently is in the Central Valley, between Sacramento and Modesto, and in the northern San Joaquin Valley.

Swainson's hawk is present in the Napa SD recycled water service area. A single nest, recorded in 2005, is located in a riparian oak tree approximately 200 feet from the alignment. A second pair may have nested nearby (CDFG, 2008).

#### **Western Snowy Plover (*Charadrius alexandrinus nivosus*)**

The western snowy plover is a federally-listed threatened species and a state Species of Concern. The western snowy plover is a small, 6-inch migratory shorebird found on sandy marine and estuarine shores and at some inland nesting locations. Small numbers are year-round inhabitants at salt ponds on the San Francisco Bay. The threatened Pacific Coast population is defined as those nesting adjacent to the tidal waters of the Pacific Ocean, known to breed from Washington to Baja California. This species gleans insects and amphipods from the dry sand of upper beaches, but occasionally forages in kelp or in wet sand for young sand crabs. They also feed on brine flies at salt ponds. Western snowy plovers rely on camouflage for cover, crouching motionless when danger is suspected.

For nesting they require friable soil, usually sand or gravel, above the high tide line, preferring to nest on coastal beaches, beaches at creek and river mouths, and salt pans at lagoons and estuaries. They are uncommon nesters at dry salt ponds and salt pond levees, but such nesting has become more common in response to human disturbances. Nests are shallow depressions sometimes lined with pebbles, gravel, or fragments of glass. They are frequently located near or under driftwood, rocks, or defoliated bushes. The breeding season is March 1 through September 30, clutches average 3 eggs, and parents share incubation duties. Western snowy plovers are polyandrous and the female often abandons the brood, leaving the male to raise the precocial chicks while she mates again for a second clutch. Chicks usually fledge within 31 days.

Western snowy plovers are predated at all life stages by gulls, ravens, coyotes, and skunks. The encroachment of non-native European beachgrass (*Ammophila arenaria*) has also reduced available nesting habitat. The greatest threats are human disturbance, with the breeding season coinciding with the warmest summer months and peak human recreation at sandy beaches.

Western snowy plover nest on salt pond levees at Fly Bay and Salt Pond 7A in the Napa Salt Marsh Restoration Area.

### **California Black Rail (*Laterallus jamaicensis*)**

The California black rail is a state-listed threatened species. The sparrow-sized California black rail is a year-round resident of saline, brackish and freshwater emergent wetlands in the San Francisco Bay Area, the Sacramento-San Joaquin Delta, and a few other locations, including small, isolated populations in southeastern California and western Arizona (CWHR, 2005). This species is found in tidal wetlands dominated by pickleweed, in brackish marshes dominated by pickleweed and bulrush, and in freshwater marshes with bulrush, cattails, and saltgrass (*Distichlis spicata*) as dominant vegetation. Heard but rarely seen, black rail live and breed in the high wetland zone, an area with minimal water-level fluctuation. They pick isopods, atropods and insects from the mud or from vegetation. Breeding season is from March through June, and the majority of breeding in northern California is thought to occur in San Pablo Bay. They make deep, loose cup nests at ground level or slightly elevated in pickleweed or other dense vegetation, with an average clutch size of six eggs in California.

Black rails are predated by raptors, large wading birds, and domestic cats. In areas where transitional vegetation between the high wetland zone and the upland zone is absent, predation can be intense (Evens et. al., 1991). Habitat loss is the greatest threat to this species, and the loss of higher wetlands and transitional wetlands throughout San Francisco Bay is thought to be responsible for eliminating breeding populations in the southern parts of the Bay (CWHR, 2005).

California black rail is present in tidal marshes at Novato SD, SVCSD, and LGVSD recycled water service areas.

### **California Clapper Rail (*Rallus longirostris obsoletus*)**

The California clapper rail is a federal- and state-listed endangered species, federally listed on October 13, 1970 (35 FR 16047). California clapper rails can be found year-round in coastal wetlands and brackish areas around San Francisco and Monterey Bays. These medium-sized birds require emergent wetlands and mud flats for survival, preferring salt marshes dominated by Pacific cordgrass (*Spartina foliosa*) and pickleweed (*Salicornia pacifica*). They can also be found in brackish or freshwater marshes where dense bulrush or cattails grow. Clapper rails will forage in higher marsh vegetation along the mudflat interface and in tidal creeks, feeding on crabs, mussels, clams, snails, insects, spiders, worms, and even mice and dead fish. Clapper rails nest in lower tidal zones where cordgrass grows abundantly and tidal sloughs are nearby, building a nesting platform concealed by a canopy of woven cordgrass, pickleweed, or marsh gumplant (*Grindelia stricta*), or of cattail (*Typha spp.*) or bulrush (*Scirpus spp.*) in fresh and brackish

waters. In the Bay Area, the breeding season varies but is typically described from February 1 through August 31, with an average clutch size of 7.6 with 38% hatching success.

Adult California clapper rails are preyed upon by raptors and mammals, while rats predate on eggs and young. In northern California, populations may fluctuate according to rainfall patterns. Agricultural and urban development, accompanied by the filling and diking of wetlands, has led to the destruction of emergent wetland habitat and particularly cordgrass marshes.

California clapper rail is present in tidal marshes at Novato SD, SVCSD, and LGVSD recycled water service areas.

#### **Salt Marsh Harvest Mouse (*Reithrodontomys raviventris halicoetes*)**

The salt marsh harvest mouse is a federal- and state-listed endangered species. The salt marsh harvest mouse is found only in a few northern California locations. There are two subspecies, the northern salt marsh harvest mouse (*R. r. halicoetes*) found in the salt marshes of San Pablo and Suisun Bays, and the southern salt marsh harvest mouse (*R. r. raviventris*) found in salt marshes of San Francisco Bay and a few locations in Corte Madera and Richmond. The Collinsville-Antioch area is the eastern limit of distribution, and movement among marshes is infrequent if it occurs at all. This species is critically dependent on dense cover, preferring pickleweed, and is seldom found in cordgrass or alkali bulrush (*Scirpus maritimus*). The value of pickleweed increases with depth, density and the degree of intermixing with fat hen (*Chenopodium spp.*) and alkali heath (*Frankenia grandifolia*). Transitional upper tide zones with peripheral halophytes are used to escape high tides, and even adjoining grasslands are used during the highest winter tides.

The salt marsh harvest mouse eats grass, leaves, seeds, and stems of plants, including pickleweed and saltgrass. Fresh water is required, but both subspecies can drink brackish or salty water for short periods. They are primarily nocturnal, but some afternoon activity does occur. Breeding takes place between March and November, and there are 1 to 2 litters per year with an average litter size of four. This species does not burrow. The northern subspecies makes a minimal nest of grass and sedge, often built over an old bird's nest.

Salt marsh harvest mice are predated by owls, hawks, gulls, weasels, and other mammals. Their greatest threat is habitat reduction and degradation. Historically, tidal marshes and open mudflats surrounding San Pablo Bay neared 80,000 acres. There has been an 82% reduction in North Bay wetlands since the 1800s, with most of it diked, drained and claimed for agricultural use. The resulting changes in salinity and vegetation support only small, disconnected salt marsh harvest mouse populations. Small, fragmented habitats that are completely submerged during high tides and lack transitional upper tidal zones likely result in breeding failures and increased predation.

Salt marsh harvest mouse is present in salt marshes at SVCSD, Novato SD and LGVSD recycled water service areas but is not expected in the project ROW.

### **Non-listed Special-status Species - Plants**

Species accounts are provided for non-listed special-status plants that are present or have at least a moderate potential to occur in the recycled water service areas.

#### **Franciscan Onion (*Allium peninsular* var. *franciscanum*)**

A California List 1B plant, the Napa False Indigo grows on dry, open or wooded slopes at elevations below 3,000 feet. In the North Bay, the inner coast ranges provide foothills woodlands and valley grasslands that support this species. A known population occurs in the Alternative 3 action area in southern Sonoma.

#### **Mt. Tamalpais Manzanita (*Arctostaphylos canescens* ssp. *sonomensis*)**

A California List 1B plant, the Mount Tamalpais manzanita occurs on serpentine flats and slopes. It grows as a low spreading, bushy perennial, often rooting where its branches touch the ground. The species produces small, whitish flowers from February to April, and is known from fewer than 20 occurrences near Mt. Tamalpais in Marin County. Mt. Tamalpais manzanita has a low potential to occur along off-road pipelines in the Novato SD recycled water service area, but is not expected in the project ROW along roadways.

#### **Pt. Reyes Bird's Beak (*Cordylanthus maritimus* ssp. *palustris*)**

A California List 1B plant, Pt. Reyes bird's beak is known from coastal salt marshes in Marin and Sonoma counties. While not expected in the project ROW, this species occurs in salt marshes adjacent to the LGVSD recycled water service area alignment.

#### **Delta Tule Pea (*Lathyrus jepsonii* var. *jepsonii*)**

This List 1B species occurs in freshwater sloughs and rivers in eastern San Pablo Bay and the Sacramento Delta. The tule pea has lavender to reddish-purple flowers and is difficult to distinguish from its upland variety; taxonomic designations are based on habitat. Levee construction has resulted in loss of habitat. Delta tule pea has a high potential to occur in the SVCSD recycled water service area at the Huichica Creek crossing, and several populations are known in the vicinity of proposed Napa SD recycled water service area pipelines.

#### **Legenere (*Legenere limosa*)**

A California List 1B plant, legenere is a small annual that grows in valley grasslands within the dried beds of vernal pools. Its blooming period is May through June. A known population occurs in Napa, but this species is not expected in the action area.

#### **Mason's Lilaepsis (*Lilaeopsis masonii*)**

Mason's lilaepsis is a small, perennial fresh or brackishwater plant known from river banks along the Sacramento, San Joaquin and Napa rivers and along sloughs in the Delta. This rare member of the celery family (*Apiaceae*) is a List 1B species. The species bears three or four small white flowers in an umbel at the top of a quarter to half inch tall flower stalk; leaves are hollow linear and reed-like, round in cross section with walls at intervals dividing the interior of the

leaves into chambers. Mason's lilaeopsis is threatened by loss of habitat due to levee building and repair in the Delta. Habitat is present where Napa SD recycled water service area pipelines would cross the Napa River, but this species is not known to occur along the alignment.

#### **Suisun Marsh Aster (*Symphotrichum lentum*)**

This List 1B species occurs along rivers levees and sloughs in Suisun and Napa marshes and around Delta islands. The plant is a tall perennial with large ray flowers; the blooming period is between August and November. Suisun marsh aster is generally threatened by habitat loss, but habitat is present in brackish marshes in the southeastern Napa SD recycled water service area. This species occurs along the lower Napa River but is not known to occur along the alignment.

### ***Non-listed Special-status Species – Fish***

#### ***Pacific Lamprey (*Lampetra tridentata*)***

Pacific lamprey, a California species of special concern, is an anadromous fish with a widespread distribution in Bay Area streams.

Pacific lampreys enter streams from July to October with spawning occurring in the following spring months, between April and July. Spawning takes place in low gradient sections of streams with gravel and sandy bottoms. Upon spawning, adults die. Following a three-week incubation period, larval lampreys emerge and reside in the stream mud or sand substrate for a period of three to five years before metamorphosing into juveniles. Juveniles migrate downstream in late fall through spring and reside in estuaries before swimming to the ocean. After two to three years in the ocean, Pacific lampreys return to freshwater to spawn.

Pacific lamprey are present in Sonoma Creek, the Napa River and the Petaluma River, and they are presumed present in all tributaries that support steelhead trout.

#### ***Longfin smelt (*Spirinchus thaleichthys*)***

Longfin smelt is a small schooling fish that inhabits the freshwater section of the lower Delta and has been observed from south San Francisco Bay to the Delta, with the bulk of the San Francisco Bay population occupying the region between the Carquinez Strait and the Delta. In the fall, adults from San Francisco and San Pablo Bays migrate to fresher water in the Delta to spawn. The spawning habits of longfin smelt are similar to the Delta Smelt and both species are known to school together. Longfin Smelt are harvested commercially and sold in local markets.

The longfin smelt is a California species of special concern. However, the U.S. Fish and Wildlife Service (USFWS) was petitioned to list longfin smelt as an endangered species on August 8, 2007. On May 6, 2008, the USFWS found that the listing may be warranted and initiated a status review to determine if listing this species is in fact warranted. Likewise, on August 14, 2007, CDFG received a petition to list longfin smelt as an endangered species under the California Endangered Species Act (CESA). As such, longfin smelt may become both a federal and State listed protected species by the time the proposed project is implemented.

Longfin smelt is known to occur in San Pablo Bay, in the lower tidal marshes and reaches of the Napa River, and historically occurred in the lower reaches of the Petaluma River.

#### **Sacramento splittail (*Pogonichthys macrolepidotus*)**

Sacramento splittail, a state species of special concern, are primarily freshwater fish, but are tolerant of moderate salinity of up to 10-18 parts per thousand (ppt). In the 1950s, they were commonly caught by striped bass anglers in Suisun Bay, and prior to 1985, they were also common San Pablo Bay. During the past 20 years, however, they have been found mostly in slow-moving sections of rivers and in sloughs and have been most abundant in the Suisun Bay and Marsh region. Nevertheless, there is evidence of successful splittail reproduction in the Napa and Petaluma rivers (Leidy, 2007). Adults migrate upstream from brackish areas to spawn in freshwater. Spawning begins by late January and early February and continues through July, with most spawning taking place from February through April. Splittail spawn on submerged vegetation in temporarily flooded upland and riparian habitat. Typically, terrestrial shrubs and herbs are preferred over emergent wetland vegetation such as cattails and tules. Spawning occurs in the lower reaches of rivers, bypasses used for flood management, dead-end sloughs and in the larger sloughs such as Montezuma Slough. Larvae remain in the shallow, weedy areas inshore near the spawning sites and move into the deeper offshore habitat as they mature.

Sacramento splittail are known to occur in the Napa and Petaluma River estuaries.

#### ***Non-listed Special-status Species – Animals***

Species accounts are provided for non-listed special-status invertebrates, reptiles, and mammals that are present or have at least a moderate potential to occur in the recycled water service area and for non-listed special-status birds that are known to nest in the general project vicinity.

#### **Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*)**

Ricksecker's water scavenger beetle has no official status with the State of California but is considered rare. This beetle inhabits permanent or semi-permanent water sources which are required for it to survive and reproduce. Specific details of the life history of this species are unknown. This species has been found from January through July in areas capable of ponding water, including freshwater seeps, springs, farm ponds, and slow-moving streams. Related species in the genus are aquatic scavengers as adults, while larvae feed as predators on soft bodied aquatic invertebrates (Arnold, prior ESA communication). Larvae are usually found in relatively calm, shallow water of ponds, streams, marshes or lakes.

The beetle's range is thought to extend generally around the Bay Area, with collections having been made in Sonoma County.

#### **California brackish water snail (*Tryonia imitator*)**

The California brackishwater snail has no official status with the State of California but is considered rare. Native to the United States, the brackishwater snail occupies coastal lagoons,

estuaries and salt marshes from Sonoma to San Diego counties. It is found only in permanently submerged areas, but tolerates a wide range of salinities.

This snail is known to occur in the Petaluma River, and could potentially be present in the Napa River.

#### **Western Pond Turtle (*Actinemys marmorata*)**

The western pond turtle is a California species of special concern. This species occurs from the Pacific Northwest through the Central Valley, southern Coast Ranges, and northern Baja California. The Central Valley and Bay Area are areas of intergradation between the northwestern (*E. m. marmorata*) and southwestern pond turtle (*E. m. pallida*) subspecies. Pond turtles inhabit ponds, marshes, streams, and ditches that typically have a rocky or muddy substrate and support emergent vegetation. Threats to the turtle include a large number of natural and introduced predators that prey on eggs, hatchlings, and juveniles while the greatest threat to the western pond turtle is human interference, primarily by habitat destruction.

Turtles are typically alert and secretive, and retreat to the cover of water when disturbed, diving beneath the surface and hiding in vegetation or beneath submerged rocks and debris. Western pond turtles are omnivorous scavengers. This species hibernates during the winter, emerging in March to feed and reproduce. Reproduction generally takes place between May and August followed by the deposition of five to eleven eggs which are buried in nests in sunny areas near the water.

Western pond turtle is known from freshwater drainages and ponds throughout Marin, Sonoma and Napa counties. This species has also been observed in brackishwater habitats.

#### **Tri-colored Blackbird (*Agelaius tricolor*)**

Tricolored blackbirds are a colonial species that nest in dense vegetation in and around freshwater wetlands. When nesting, tricolored blackbirds generally require freshwater wetland areas large enough to support colonies of 50 pairs or more. They prefer freshwater emergent wetlands with tall, dense cattails or tules for nesting, but will also breed in thickets of willow, blackberry, wild rose, or tall herbs. During the nonbreeding season, flocks are highly mobile and forage in grasslands, croplands, and wetlands (Zeiner et al., 1988–1990).

Tricolored blackbirds are locally common throughout the Central Valley and coastal areas south of Sonoma County. Breeding colonies in the North Bay include the Napa Salt Marsh Restoration Area, wetlands east of Napa airport, Sears Point, and Pope Valley. Historic breeding colonies were observed along Copeland Creek near Sonoma State University and along the Sonoma/Marin county line east of Valley Ford.

#### **Golden Eagle (*Aquila chrysaetos*)**

The golden eagle is a CDFG fully-protected species. It is a very large bird with a wingspan of approximately seven feet. It is typically dark brown but may show slight signs of white on the wings and on the tail. Juvenile eagles usually show white patches on the wings and tail but the tail

patch may be absent. Golden eagles are found throughout California with a range extending from sea level to approximately 11,500 feet.

Golden eagles feed mostly on rodents and rabbits but will take other mammals, birds, reptiles and some carrion. Golden eagles require open woodland or grassland for foraging and tall trees or steep cliffs for breeding. It can also be found in open, rolling country grasslands or savannahs, farms, chaparral, and at the desert edge.

Golden eagles nest on cliffs or tall trees. Large platform nests are constructed from sticks, twigs, and greenery. Breeding season occurs in late January through August but typically between March through July. Golden eagle are single brooded and typically lay 1 or 2 eggs, but rarely 3. Incubation usually performed by female alone, but sometimes by male and female for approximately 43-45 days. Young are semi-altricial and downy and the nestling period is approximately 30 days. The female feeds the young food brought to the nest by the male until young are approximately 40 days old and then both parents feed for the remainder of the fledging period, typically 65-75 days. Fledglings practice pouncing while remaining in the nest and can fly for short periods at 63-70 days but typically remain at or close to the nest for another 21 days.

Nests have been observed in Napa County (CDFG, 2008), with only one noted in the project vicinity. Recorded in 2003, this nest was built in a large eucalyptus tree approximately 200 feet from a proposed Basic System pipeline in the Los Carneros area of southern Napa County.

#### **Great Blue Heron (*Ardea herodias*)**

The great blue heron has no official status with the State of California but rookeries- nesting colonies and habitat, usually a large tree- are protected. The great blue heron is a large bird measuring 46 inches in body length and possessing a wingspan of 72 inches. This species is a year-round resident over much of the United States, including coastal California.

This species inhabits freshwater and brackish marshes, swamps, lakes, and rivers. Herons are opportunistic feeders, usually feeding on fish but also taking aquatic invertebrates, human food scraps, small amphibians, nestlings and small mammals.

Great blue heron nests in colonies, usually in very tall deciduous or semi-deciduous trees but occasionally in shrubs, on rock ledges, and coastal cliffs, and even as a solitary nester. The nest is large and flat, made of interwoven sticks and lined with twigs and leaves. Nests are often repaired with green needles. A monogamous bird, the great blue heron has 1 brood and lays just one egg. Both sexes incubate the egg and care for the chick, which is born semialtricial and in need of more extensive parental care than precocial chicks.

Rookeries are known from Marin and Sonoma counties. A long-term rookery occurs on private land within 0.3 mile of a proposed Alternative 2 pipeline in the LGVSD (CDFG, 2008).

### **Burrowing Owl (*Athene cunicularia*)**

The burrowing owl is a California species of special concern. Burrowing owls are year-round California residents of open, dry grassland and desert habitats. They are frequently found in low, open grasslands where large rodent burrows are available for nesting. Breeding takes place from March through August, with a peak in April and May. The young emerge from the burrow at about two weeks of age, and can fly at four weeks. Nesting requires existing burrows (these owls have been reported to make their own burrows, but if these reports are accurate the behavior is rare). Ground squirrel colonies provide a potential source of burrows for this owl. The burrows are often lined with grass, debris, and feathers.

Hunting occurs both day and night. Prey species are primarily insects, but also include small mammals, reptiles, birds, and carrion. Burrowing owls may hunt by hovering, diving from above, or pursuing their prey on the ground. However, they often hunt from a perch, and also use perches to thermoregulate. Although burrowing owls in northern California are thought to migrate, owls within central and southern California are predominantly non-migratory.

Burrowing owl is known from scattered locations throughout Marin, Sonoma and Napa counties. Two possibly-extirpated populations occur near proposed pipelines in the LGVSD and Novato service areas.

### **Northern Harrier (*Circus cyaneus*)**

The northern harrier is a California species of special concern. This species is present throughout the central valley and surrounding areas and is a resident in the Bay Area in open grasslands and near wetland areas. Female harriers are a large raptor, typically dark brown throughout and an obvious white patch at the base of its tail. Male harriers are slightly smaller than females and mostly gray or mottled grays and an obvious white patch at the base of its tail.

Harriers breed from April to September with peak breeding activity occurring during June through July. Harriers are ground nesters and nests are a mound of sticks and leaves on moist ground, hidden by shrubby vegetation, tall grasses, and forbs in wetlands, and in wetland/upland borders in tidal marshes, freshwater marshes, and annual grasslands habitats. The nestling period is approximately 53 days and harriers typically brood 2-3 young. All fledglings are brown with the white tail patch until males begin to mature and display sexual dimorphism. Breeding pairs and juveniles may roost annually in late fall and winter. Forage areas consist of open ground and grasslands, where harriers hunt for prey items including small mammals, birds, reptiles and amphibians.

Northern harrier is known to breed 0.6 mile south of the Napa Salt Marsh pipeline. Breeding habitat is available throughout Marin, Sonoma and Napa counties and its conspicuous presence indicates that most breeding locations are unrecorded.

### **Salt Marsh Common Yellowthroat (*Geothlypis trichas sinuosa*)**

This species is a California species of special concern. The saltmarsh common yellowthroat breeds and winters in wet meadows, riparian corridors, fresh and saline water emergent habitats, and occasionally grasslands. Forage items primarily include terrestrial invertebrates, but seeds are

taken as well. Salt marsh common yellowthroat is known from scattered locations throughout the North Bay, including Tolay Creek and the mouth of the Petaluma river within the action area.

### **San Pablo Song Sparrow (*Melospiza melodia samuelis*)**

This species is a California species of special concern. A year round resident to riparian corridors, fresh and saline emergent wetland, and wet meadow habitats. This species is largely granivorous but takes insects as well. San Pablo song sparrow is known from scattered locations throughout the North Bay, including Sears Point, Peacock Gap, and the Napa Salt Marsh Restoration Area. This species historically occurred at numerous locations throughout the Novato and SVCSD service areas.

### **Breeding Birds**

Fish and Game Code Sections 3503 and 3503.5, and the Migratory Bird Treaty Act protect raptors and passerines and their eggs and nests from incidental “take.” These protections apply to special-status birds identified in Table 1 and other birds that may occur in the project alignment.

### **Bat Species**

Eight sensitive bat species have a low to moderate potential to occur in the general project vicinity, though pallid bat (*Antrozous pallidus*), a California species of concern, may be the only species that roosts locally. Other species that have not been identified from the area, but for which the Proposed Project is within their described range include pacific western big-eared bat (*Corynorhinus townsendii townsendii*), greater western mastiff bat (*Eumops perotis californicus*), long-eared myotis (*Myotis evotis*), fringed myotis (*M. thysanodes*), long-legged myotis (*M. volans*), Yuma myotis (*M. yumanensis*), and Townsend’s big-eared bat (*Plecotis townsendii*). The status of these species is presented in Table 3.5-1.

Though specific habitats vary among species, the above bats generally inhabit woodlands and forests and roost in buildings, mines, caves, crevices, cliff faces, tunnels, bridges, or beneath tree bark. Bats are nocturnal feeders on insects in flight. Prey includes moths, flies, beetles, and other insects. Most bats require a nearby water source.

Large trees within extensive riparian woodlands and older bridges may provide roosting habitat for common and special-status bats including Townsend’s western big-eared bat (*Corynorhinus townsendii townsendii*), long-legged myotis bat (*Myotis volans*), and Yuma myotis bat (*Myotis yumanensis*), among others. Pallid bats have been identified at two locations near the project alignment: in 1999 at the Watmaugh Creek bridge over Sonoma Creek and in 2000 roughly 1/4-mile west of the intersection of Arnold Drive and Felder Road (CNDDB, 2005). Bat roosts may occur in older bridges or in large oak trees that occur sporadically along major roads in the project vicinity.

### **Suisun Ornate Shrew (*Sorex ornatus sinuosus*)**

Ornate shrews occur in California from the Bay Area south to the northern tip of Baja. One of nine subspecies, the Suisun ornate shrew is known only from islands and tidal marshlands of San

Pablo and Suisun Bays, California, where it occurs mostly in brackish-water marshes near sea level. It is the most widely distributed subspecies, reported from dry, chaparral-covered slopes and able to tolerate an absence of drinking water. Their presence is associated with vegetative structure rather than species composition, and they prefer low, dense vegetation. Such habitat provides adequate cover, nesting places, and invertebrates for food. The reproductive period extends from February through October. Breeding occurs in spring by shrews born the previous year; they rarely live more than 16 months.

Within the project Suisun ornate shrew is known from saltwater or brackish marshes of southern Sonoma and Napa counties, generally in the same habitat as salt marsh harvest mouse and rails. The nearest known population occurs at Sears Point, but would not be affected by the proposed project.

#### **American Badger (*Taxidea taxus*)**

In California, American badgers occupy a diversity of habitats. Grasslands, savannas, and mountain meadows near the timberline are preferred, though they can be found in deserts as well. The principal requirements seem to be sufficient food, friable soils, and relatively open, uncultivated ground.

In California, badgers range throughout the state, except for the humid coastal forests of northwestern California in Del Norte County and the northwestern portion of Humboldt County. This species could occur in very low densities in project-area grassland habitats.

### ***Critical Habitat for Listed Fish and Wildlife Species***

#### **Delta Smelt**

Critical habitat for delta smelt has been designated within the Sacramento-San Joaquin River Delta system eastward from the Carquinez Straits and thus does not include the project vicinity.

#### **Central California Coast and Central Valley Steelhead**

Critical habitat for central California coast and central valley steelhead was designated by the National Marine Fisheries Service (NMFS) in September 2005 and became effective on January 2, 2006. Within the action area, the critical habitat designation for central valley steelhead only includes the waters of San Pablo Bay. For the central California coast steelhead DPS, the critical habitat designation includes streams throughout the Novato SD, SVCSD, and Napa SD areas.

**LGVSD.** No designated critical habitat streams are within the LGVSD area.

**Novato SD.** Designated critical habitat for central California coast steelhead includes the Petaluma River in the Petaluma River Hydrologic Subbasin (NMFS, 2005). No other drainages on or near the project site are included in the federal critical habitat designation.

**SVCSD.** Designated critical habitat for central California coast steelhead includes the following project-area streams in the Sonoma Creek Hydrologic Subbasin: Sonoma Creek, Nathanson Creek, Calabazas Creek, Carriger Creek, Fowler Creek, Rodgers Creek, Schell Creek, (NMFS,

2005). The SVCSD action area includes the Napa Salt Marsh pipeline which crosses Huichica Creek, a designated critical habitat stream within the Napa River Hydrologic Subbasin. No other drainages on or near the project site are included in the federal critical habitat designation.

**Napa SD.** Designated critical habitat for central California coast steelhead includes the following project-area streams in the Napa River Hydrologic Subbasin: Napa River, Miliken Creek, Sarco Creek, Murphy Creek, Spencer Creek, Suscol Creek, and Carneros Creek (NMFS, 2005). No other drainages on or near the project site are included in the federal critical habitat designation.

#### **Sacramento River Winter-run and Central Valley Spring-run Chinook Salmon**

Critical habitat for Sacramento River winter-run chinook salmon and central valley spring-run chinook salmon was designated in 1993 and 2005, respectively, and includes the waters of San Pablo Bay.

#### **Green Sturgeon**

Critical habitat for the southern DPS of green sturgeon was proposed for designation on September 8, 2008 and, if finalized as proposed, would include the waters of San Pablo Bay.

#### **California Red-legged Frog**

Critical habitat for California red-legged frog does not include the project vicinity (Federal Register, 2006).

#### **Western snowy plover**

Critical habitat for western snowy plover does not include the project vicinity (Federal Register, 2005).

#### **Contra Costa Goldfields**

Critical habitat for Contra Costa goldfields does not include the action area (Federal Register, 2003). The nearest critical habitat designation is 0.5 mile south of Napa SD Phase 1 pipelines and would not be affected by the project.

### **3.5.2 Regulatory Framework**

Federal and State laws regulate wetlands, surface water features, and vulnerable plant and animal species and their habitats. The jurisdiction, resource management approaches, and enforcement activities of federal and State regulatory agencies vary depending on the specific vulnerable resource. Wetlands and endangered or threatened plants and animals receive the highest protection. Other non-listed plant and animal species may still be vulnerable enough to be recognized as special-status species.

## Federal

### ***Special-status Species***

USFWS administers the Federal Endangered Species Act (FESA), the Migratory Bird Treaty Act (MBTA), and the Bald Eagle Protection Act (BEPA), among other programs. The USFWS also creates the list of threatened or endangered (T&E) species protected under the FESA.

### ***Federal Endangered Species Act (FESA)***

The FESA prohibits the “take” of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery. The FESA also requires issuance of an incidental take permit prior to taking any public or private action that could harm, harass, injure, kill, capture, collect, or otherwise hurt any individual of a T&E species. Permit issuance requires preparation and implementation of a habitat conservation plan providing specific measures to offset impacts to these species.

### ***Critical Habitat***

The USFWS designates critical habitat for federal T&E species listed under the FESA. Critical habitat areas are occupied by the species and are located within a specific geographic region determined to be critical for survival. A discussion of critical habitat occurring in Marin, Sonoma, and Napa counties is included above following Special-status Species.

### ***Federal Essential Fish Habitat***

Although the concept of EFH is similar to that of critical habitat under the FESA, measures recommended to protect EFH by NMFS are advisory, not proscriptive. The Sustainable Fisheries Act of 1996 (Public Law 104-297), amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to establish new requirements for Essential Fish Habitat (EFH) descriptions in federal Fisheries Management Plans (FMPs) and to require federal agencies to consult with NMFS on activities that may adversely affect EFH. The Magnuson-Stevens Act requires all fishery management councils to amend their FMPs to describe and identify EFH for each managed fishery. The Act also requires consultation for all federal agency actions that may adversely affect EFH (i.e., direct versus indirect effects); it does not distinguish between actions in EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside of EFH, such as upstream and upslope activities that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by federal agencies undertaking, permitting, or funding activities that may adversely affect EFH, regardless of the activity’s location. Under section 305(b)(4) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation and enhancement recommendations to federal and state agencies for actions that adversely affect EFH. However, state agencies and private parties are not required to consult with NMFS unless state or private actions require a federal permit or receive federal funding.

NMFS strongly encourages efforts to streamline EFH consultation and other federal consultation processes. EFH consultation can be consolidated, where appropriate, with interagency

consultation, coordination and environmental review procedures required by other statutes such as the National Environmental Policy Act (NEPA), Fish and Wildlife Coordination Act, Clean Water Act, FESA, and Federal Power Act. EFH consultation requirements can be satisfied using existing review procedures if they provide NMFS timely notification of actions that may adversely affect EFH and the notification meets requirements for EFH Assessments (i.e., a description of the proposed action, an analysis of the effects, and the Federal agency's views regarding the effects of the action on EFH and proposed mitigation, if applicable).

### ***Migratory Bird Protection Act (MBTA)***

The MBTA prohibits the killing, possessing, or trading of migratory birds, bird parts, eggs and nests. Executive Order 13186 of the MBTA instructs federal agencies to coordinate with USFWS in developing a Memorandum of Understanding to conserve migratory bird populations when taking actions that would likely have a negative impact.

### ***Bald and Golden Eagle Protection Act***

Under the BEPA, it is illegal to import, export, molest, disturb, sell, purchase or barter any bald eagle or golden eagle or part thereof.

### ***Wetlands***

#### ***Clean Water Act (CWA)***

The CWA regulates discharges to waters of the U.S. and is the principal federal law protecting the nation's surface waters, including seas, lakes, rivers, streams, wetlands, natural ponds, mud flats, sand flats, sloughs, and wet meadows. Section 401 requires projects that could affect state water quality, and that have a federal component, to obtain state certification. Section 402 of the CWA regulates construction-related stormwater discharges through the National Pollutant Discharge Elimination System (NPDES) program. Administered by the USEPA, in California the State Water Resources Control Board (SWRCB) is authorized to oversee the NPDES program. The USACE administers Section 404 of the CWA and coordinates with the U.S. Environmental Protection Agency (USEPA) to regulate the discharge of dredged and fill materials into waters of the U.S. via a permitting process.

### ***State***

#### ***Special-status Species***

The CDFG administers several laws and programs designed to protect biological resources, and designates state threatened, endangered, and other special-status species occurring in California.

#### ***California Endangered Species Act (CESA)***

The CESA regulates the listing and "take" of state-listed T&E species. CDFG may allow take of a listed species through special permit issuance, except for fully protected species.

### ***Fully Protected Species***

CDFG code sections 3511, 4700, 5050 and 5515 designate fully protected species and protection measures. Fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except when collecting these species is necessary for scientific research and relocation of bird species is necessary for livestock protection.

### ***Protection of Nesting Birds***

Nesting birds are protected under CDFG code sections 3503 and 3503.5, which make it (1) unlawful to take, possess, or destroy the nests or eggs of any such bird of prey (i.e., species in the order Falconiformes and Strigiformes) except as otherwise provided by the code; and (2) protect the active nests of all other birds (except English sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*)). Disturbance that causes nest abandonment and/or reproductive failure is considered a take. No take permits are issued under these statutes.

### ***Species of Special Concern (CSC)***

The CDFG designates species of special concern, which are species with limited distribution, diminishing habitat, and declining populations, or species that otherwise possess unusual scientific, recreational, or educational value. The Species of Special Concern list is intended to be a land-use management tool.

### ***Native Plant Protection Act (NPPA)***

CDFG code sections 1900-1913 comprise the NPPA and seek to preserve, protect, and enhance rare or endangered California plants. The agency is responsible for establishing criteria to determine what native plants are rare or endangered, and for governing the take, possession, propagation or sale of such plants. The California Native Plant Society (CNPS) also identifies rare or endangered plants and lists them as 1A, 1B, 2, 3, and 4 species. Plants appearing on CNPS List 1A, 1B, or 2 meet CEQA significance criteria and CDFG sections 1901, 2062 and 2067 criteria as rare or endangered species.

### ***Wetlands***

#### **CDFG §1602**

Activities that would interfere with the natural flow of, or substantially alter the channel, bed or bank of, a lake, river, or stream are regulated under CDFG Section 1602.

### ***Porter-Cologne Water Quality Control Act***

The Porter-Cologne Water Quality Act transfers oversight authority of the Clean Water Act NPDES program from the federal USEPA to the state California State Water Resources Control Board (SWRCB). The state of California oversees this federal program within and throughout the state via Regional Water Quality Control Boards (RWQCB).

## Local

The local regulations are provided in Appendix 3.5.

### 3.5.3 Environmental Consequences/ Impacts

#### Significance Criteria under CEQA

Based on the Appendix G of the *CEQA Guidelines*, project implementation would have significant impacts and environmental consequences on biological resources if it would:

- Substantially diminish habitat for fish, wildlife, or plants species;
- Result in a fish or wildlife population to drop below self-sustaining levels;
- Threaten elimination of a plant or animal community;
- Substantially affect an endangered, rare, or threatened species of animal or plant or the habitat of the species;
- Decrease the number of or diminish the range of an endangered, rare, or threatened species;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species; impede use of native wildlife nursery sites;
- Substantially degrade the quality of the environment, including but not limited to:
  - the substantial adverse effect on or loss of federally protected wetlands,
  - the substantial degradation or loss of habitat, sensitive natural communities, or other resources identified in local or regional plans, policies, regulations or by lists compiled by CDFG or USFWS; or
- Conflict with any local policies or ordinances protecting biological resources or with provisions of an adopted habitat conservation plan; natural community conservation plan; or other local, regional, or state habitat conservation plan.

CEQA Section 15380 further provides that a plant or animal species may be treated as “rare or endangered” even if it is not on one of the official lists if, for example, the species is likely to become endangered in the foreseeable future.

#### Environmental Consequences/Impact Analysis

Impacts to sensitive biological resources resulting from construction and operation of the proposed project are evaluated herein at the project level for Phase 1 and at the program level for Alternatives 1 through 3. Evaluations are based on previous biological resource studies, database records, agency communications, and field reconnaissance surveys. The impacts are considered for all project components, including both short-term construction phases and long-term operation. Impacts are summarized in **Table 3.5-6**.

**Impact 3.5.1: Impacts on Wetlands, Streams and Riparian Habitats. Construction of the Proposed Project could result in impacts to jurisdictional wetlands and other waters of the United States, as well as impacts to riparian habitat. (Less than Significant with Mitigation)**

Potential impacts could involve temporary and permanent discharge of fill material into jurisdictional wetlands and other waters of the U.S. to accommodate construction activities. Wetlands or drainages could be affected by pipeline trenching activities, bore and jack installation under streams, and other construction activities, and temporary filling of seasonal wetlands in work areas.

Potential impacts to riparian habitat include temporary and permanent disturbance of stream channels during construction activities, including removal or disturbance to riparian vegetation, and alteration of bed and banks of drainages due to trenching.

***No Project Alternative***

The proposed project would not be implemented under the No Project Alternative, therefore no impacts would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

***No Action Alternative***

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.5-1, No Action** and **Figure 2-9, No Action Alternative**).

Under future baseline (2020) conditions, the wetlands, streams, and riparian habitats within the region would likely continue to be protected under existing or new regulations. A discussion of individual Member Agencies is provided below.

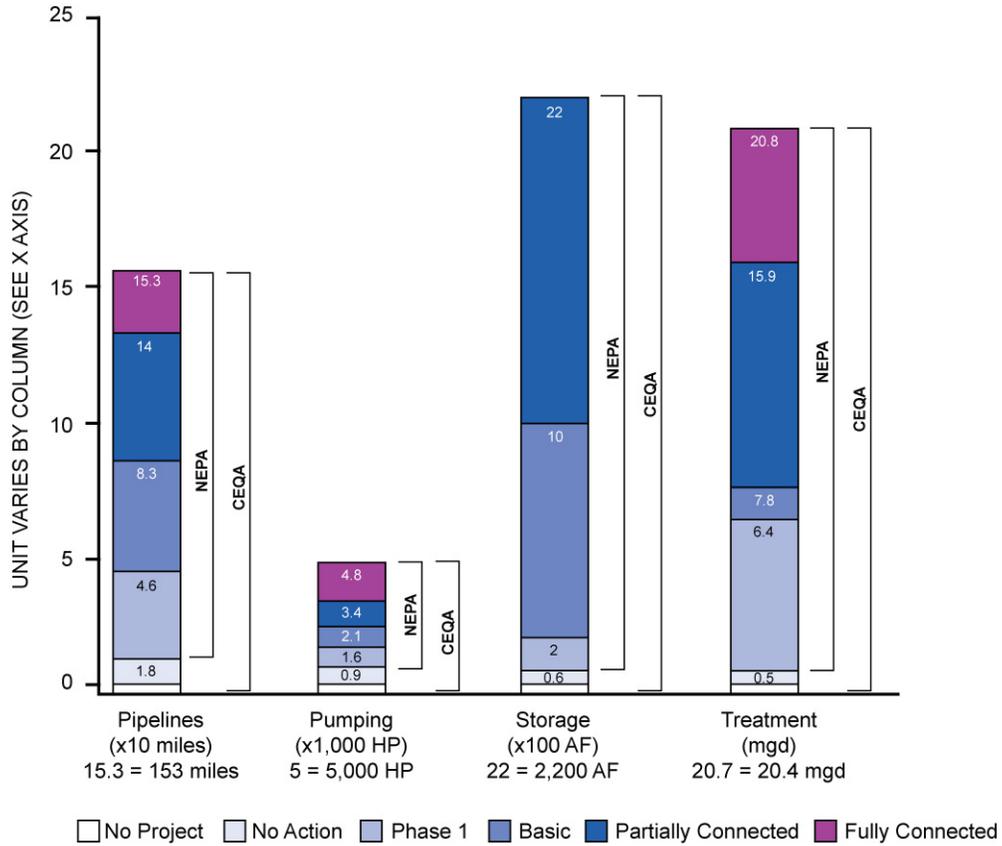
**LGVS/NMWD**

No project facilities would be constructed in this recycled water service area under the No Action Alternative, therefore no impacts would occur to wetlands, streams or riparian habitats.

**Novato SD/NMWD**

Under the No Action Alternative, recycled water facilities would be constructed in the Novato North Service Area (see 2.7.1 Project Description, Phase 1 Implementation Plan, Novato Sanitary District, Novato North Service Area). Pipelines would be installed within existing roadways, but if installed in the road shoulder or in the road ROW then pipelines constructed under the No Action Alternative could impact wetlands and other jurisdictional waters adjacent to roadways, especially along rural portions of Atherton and Olive Avenues.

**CHART 3.5-1  
COMPARISON OF NEPA AND CEQA BASELINES FOR PROPOSED FACILITIES, BY ALTERNATIVE**



SOURCE: CDM, 2009

**SVCS D**

Under the No Action Alternative, Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP) would be implemented. As discussed in the SVRWP EIR (ESA, 2006), which included Alignment 1A in a larger pipeline analysis, construction of these facilities would result in temporary impacts to wetland/water features and drainages/associated riparian vegetation near project components, but identified that those impacts could be avoided with the implementation of standard construction best management practices or other protective measures.

The No Action Alternative would also include construction of water delivery project components analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (the Sonoma Pipeline) (JSA, 2003). Approximately 4.0 miles of pipeline would be installed parallel to an existing pipe that extends between SVCS D WWTP and the SVCS D storage ponds, located near the intersection of Northwestern Pacific Railroad and Ramal Road. A pump station would be installed at the pond site. From the ponds, an additional 4.5 miles of new pipeline would be

constructed along the NWPRRA railroad tracks to convey water to the salt pond mixing chamber (Option A). Two Alternative Routes (Option B and Option C) consist of a pipeline that would traverse north from the existing reservoirs to Ramal Road, extend east along Ramal Road and then south along Buchli Station Road toward the salt ponds. Option C deviates south from Ramal Road to feed an existing winery reservoir before joining Buchli Station Road.

Approximately five wetland areas occur near or within the construction corridor for the alignment extending from Sonoma to the Napa Salt Marsh and could be impacted by implementation of the No Action Alternative. The Napa Salt Marsh Restoration Plan EIR also identified direct impacts on coastal salt marsh from construction of a proposed outfall structure, but a site assessment based on recent pipeline specifications indicates that only approximately 0.06 acre of degraded levee habitat would be impacted. **Table 3.5-2** below summarizes potential impacts to wetlands and other waters of the U.S., assuming a 25-foot-wide buffer from edge of pavement on each side of the road, and **Table 3.5-3** below identifies action area streams and tributaries that would be crossed by No Action pipelines.

**TABLE 3.5-2  
NO ACTION ALTERNATIVE WETLAND IMPACTS**

Agency with Jurisdiction	Acreage
Army Corps of Engineers	1.88
CDFG	.68

**TABLE 3.5-3  
NO ACTION ALTERNATIVE STREAM IMPACTS**

Service Area	Stream/Tributary	Crossings
Novato SD	Novato Creek	1
SVCSD Alignment 1A	Unnamed streams	6
	Felder Creek	X
	Carriger Creek	X
	Fowler Creek	X
	Rodgers Creek	X
SVCSD Napa Salt Marsh*	Champlin Creek	X
	Schell Creek	1
	Huichica Creek	1
	Unnamed tributaries	15

\* This table assumes Napa Salt Marsh Option A, which has the largest number of stream crossings.

SOURCE: ESA, 2009.

### Napa SD

No project facilities would be constructed under the No Action Alternative, therefore no impacts would occur to wetlands, streams or riparian habitats.

### **Phase 1 (Project level)**

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to wetlands and riparian habitat from the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

For Phase 1, the project would directly impact a total of 68 drainages in all four service areas. Of these 68 drainages, 44 are unnamed tributaries, most of which are likely to be ephemeral drainages that are dry most of the year. Major creeks and perennial drainages would be crossed by trenchless methods including jack and bore and pipeline suspension, where feasible<sup>2</sup>.

**Table 3.5-4** below summarizes potential Phase 1 impacts to wetlands and other waters of the U.S., assuming a 25-foot-wide buffer from edge of pavement.

**TABLE 3.5-4  
PHASE 1 WETLAND IMPACTS**

<b>Agency with Jurisdiction</b>	<b>Acreage</b>
Army Corps of Engineers	2.1
CDFG	1.6

Impacts related to Phase 1 would be significant prior to mitigation, but would be reduced to less-than-significant through implementation of **Mitigation Measure 3.5.1**, which provides measures to avoid and minimize impacts to jurisdictional wetlands and other waters of the U.S., and provides compensation for impacts through wetland restoration and enhancement. A detailed analysis of impacts on wetlands, riparian habitats and stream crossings by member agency appears below.

### **LGVSD/NMWD**

Phase 1 pipelines would cross up to 14 drainages in the LGVSD service area, depending on which Option is chosen for the pipeline route. Option A would involve 10 stream crossings; Option B would involve 8 stream crossings; and Option C would involve 2 stream crossings. Three unnamed tributaries would be crossed in the service area regardless of, and unaffected by, which Option is chosen. Of these three crossings, one near the wastewater treatment plant is shared in common by Options A through C. Options B and C share in common the crossings of five additional unnamed tributaries. Option C then crosses an additional four unnamed tributaries and Option B then crosses an additional two unnamed tributaries. Option A crosses one additional

<sup>2</sup> Major creeks and perennial stream crossings that support threatened and endangered species would be crossed by trenchless methods.

tributary- Miller Creek. **Table 3.5-5** below identifies action area streams and tributaries that would be crossed by Phase 1 pipelines.

**TABLE 3.5-5  
PHASE 1 STREAM IMPACTS IN THE LGVSD AREA**

Stream/Tributary	Crossings
Miller Creek	1
Unnamed tributaries	13

### Novato SD/NMWD

Phase 1 pipelines would cross two streams and five unnamed tributaries and channels in the Novato SD area. The NSDWFP EIR identified seasonal wetlands along the eastern edge of the Novato WWTP and significant wetlands along the NWPRR drainage canal. Novato Creek at the NWPRR ROW would likely be crossed via a suspended pipeline to avoid impacts to the creek bed. **Table 3.5-6** below identifies action area streams and tributaries that would be crossed by Phase 1 pipelines.

**TABLE 3.5-6  
PHASE 1 STREAM IMPACTS IN THE NOVATO SD AREA**

Stream/Tributary	Crossings
Novato Creek	1
Arroyo Avichi	1
Unnamed tributaries	5

### SVCSO

Phase 1 pipelines would cross 25 streams and and/or unnamed tributaries and channels (some more than once) in the SVCSO area, assuming Napa Salt Marsh Pipeline Option C, which represents the most conservative number. Realistically, only one Option would be chosen and at least 15 of the potential stream crossings would be eliminated from possibility. Option A would cross 17 drainages, including Huichica Creek and 16 unnamed tributaries. Option B would cross 14 drainages, including Huichica Creek and 14 unnamed tributaries. Option C is a slight deviation from Option B and would not result in any additional stream crossings.

Five seasonal wetlands occur partially within the construction corridor at the Watmaugh Road/ 5th Street segment. The SCVRWP EIR identified a wetland swale on the eastern side of the property north of the SVCSO WWTP that would be impacted by construction of the proposed operational facility, capacity-storage reservoir and associated pump station. Impacts related to the Napa Salt Marsh Restoration Project will be equivalent to those under the No Action Alternative. **Table 3.5-7** below identifies action area streams and tributaries that would be crossed by Phase 1 pipelines.

**TABLE 3.5-7  
PHASE 1 STREAM IMPACTS IN THE SVCSD AREA**

<b>Stream/Tributary</b>	<b>Crossings</b>
Felder Creek	2
Fowler Creek	1
Huichica Creek	2
Rodgers Creek	2
Champlin Creek	1
Carriger Creek	1
Schell Creek	1
Unnamed tributaries	15

SOURCE: ESA, 2009.

### **Napa SD**

Phase 1 pipelines cross 3 streams and 29 unnamed tributaries and drainages in the Napa SD area. The wetland features identified during site reconnaissance would be impacted by the project if they extend into the pipeline ROW. **Table 5.3.8** below identifies action area streams and tributaries that would be crossed by Phase 1 pipelines.

**TABLE 3.5.8  
PHASE 1 STREAM IMPACTS IN THE NAPA SD AREA**

<b>Stream/Tributary</b>	<b>Crossings</b>
Tulucay Creek	1
Kreuse Creek	1
Murphy Creek	1
Unnamed tributaries	29

SOURCE: ESA, 2009.

### ***Alternative 1: Basic System (Program level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to wetlands and riparian habitat from proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative.

For the Basic System, the project would directly impact fifty-two additional streams or drainages. Impacts related to the Basic System would be significant prior to mitigation, but would be reduced to less-than-significant through implementation of **Mitigation Measure 3.5.1**, which provides measures to avoid and minimize impacts to jurisdictional wetlands and other waters of the U.S., and provides compensation for impacts through wetland restoration and enhancement. A brief discussion of impacts by member agency is discussed below.

#### **LGVSD/NMWD**

No additional pipelines are proposed under the Basic System beyond those identified in Phase 1.

#### **Novato SD/NMWD**

In addition to the No Action and Phase 1 stream crossings previously identified, the Basic System pipelines would involve five additional crossings including Novato Creek and four unnamed tributaries. Wetland features could be present along off-road pipeline alignments or in the construction ROW.

#### **SVCS**

In addition to the No Action and Phase 1 stream crossings previously identified, the Basic System pipelines involve thirty-one additional stream crossings at Dowdall, Carriger, Nathanson and Sonoma Creeks<sup>3</sup> and at other unnamed tributaries. Wetland features could be present along off-road pipeline alignments or in the construction right-of-way.

#### **Napa SD**

In addition to the Phase 1 stream crossings previously identified, the Basic System pipelines involve 11 additional stream crossings at Carneros Creek, the Napa River and unnamed tributaries. Wetland features could be present along off-road pipeline alignments or in the construction right-of-way.

#### ***Alternative 2: Partially Connected System (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to wetlands and riparian habitat from proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative.

<sup>3</sup> Program-level analyses for Alternatives 1, 2, and 3 relied on high-resolution stream data supplied by the National Hydrology Dataset published by the Department of Water Resources. The information was not verified by field surveys and stream crossings may occur at more locations than portrayed in the dataset or may not exist where portrayed.

For the Partially Connected System, the project would directly impact a total of 80 additional streams or drainages, which represents an additional 28 more compared to the Basic Alternative. Impacts related to Alternative would be significant prior to mitigation, but would be reduced to less-than-significant through implementation of **Mitigation Measure 3.5.1**, which provides compensation for impacts through wetland restoration and enhancement. A brief discussion of impacts by Member Agency is discussed below.

#### **LGVSD/NMWD**

In addition to Phase 1 pipelines previously identified, the Partially Connected System pipeline in the LGVSD would involve two additional crossings at unnamed tributaries, and could result in potential impacts on approximately a 0.5 mile length of wetlands adjacent to the roadway, if present in the project right-of-way.

#### **Novato SD/NMWD**

In addition to No Action, Phase 1, and Basic System stream crossings previously identified, the Partially Connected System pipelines involve forty-two additional stream crossings including the Petaluma River, Novato Creek, Arroyo Jan Jose, and numerous unnamed tributaries.

#### **SVCS**

In addition to No Action, Phase 1 and the Basic System stream crossings previously identified, the Partially Connected System pipelines involve seventeen additional stream crossings at unnamed tributaries.

#### **Napa SD**

In addition to Phase 1 and the Basic System stream crossings previously identified, the Partially Connected System pipelines involve nineteen additional stream crossings at the Napa River, Sarco Creek, Milliken Creek, Suscol Creek, and numerous unnamed tributaries.

#### ***Alternative 3: Fully Connected System (Program level)***

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to wetlands and riparian habitat from the proposed facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative.

For the Fully Connected System, the project would directly impact twenty-three additional streams or drainages. **Table 3.5-9** below summarizes the incremental stream crossings that would occur as project alternatives are introduced. A combined total of 113 stream crossings in the four recycled water service areas would occur under the Fully Connected System. Impacts related to

**TABLE 3.5-9  
STREAM CROSSINGS BY ALTERNATIVE**

Pipeline	No Project Alternative	No Action Alternative	Phase 1	Basic System	Partially Connected System	Fully Connected System
<b>LGVSD</b>						
Peacock Gap	0	0	0	0	2	0
NMWD URWP (South)			2			
Option A	--	--	10	--	--	--
Option B	--	--	8	--	--	--
Option C	--	--	2	--	--	--
<b>LGVSD Total</b>	<b>0</b>	<b>0</b>	<b>4<sup>1</sup></b>	<b>0</b>	<b>2</b>	<b>0</b>
<b>Novato SD</b>						
NMWD URWP (North)	0	7	7	5	24	0
Sears Point	0	0	0	0	18	0
<b>Novato SD Total</b>	<b>0</b>	<b>7</b>	<b>7</b>	<b>5</b>	<b>42</b>	<b>0</b>
<b>SVCS</b>						
Southern Sonoma Valley	0	0	0	0	11	0
Central Sonoma	0	0	0	0	0	22
Sonoma Valley Recycled Water Project	0	8	8	31	1	0
Sears Point	0	0	0	0	0	1
Napa Salt Marsh	0	17	17 <sup>2</sup>	5	5	0
Option A	--	--	17	--	--	--
Option B	--	--	14	--	--	--
Option C	--	--	14	--	--	--
<b>SVCS Total</b>	<b>0</b>	<b>25</b>	<b>25</b>	<b>36</b>	<b>17</b>	<b>23</b>
<b>Napa SD</b>						
Napa MST	0	0	32	0	4	0
Carneros East	0	0	0	11	15	0
<b>Napa SD Total</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>11</b>	<b>19</b>	<b>0</b>
<b>Increase by Alt</b>	<b>0</b>	<b>32</b>	<b>68</b>	<b>52</b>	<b>80</b>	<b>23</b>
<b>Alternative Total</b>	<b>--</b>	<b>--</b>	<b>68</b>	<b>120</b>	<b>200</b>	<b>223</b>

<sup>1</sup> Assumes Novato Option C

<sup>2</sup> Assumes Napa Option A

-- = no pipelines are proposed for this project phase/alternative in this Recycled Water Service Area

SOURCE: ESA, 2009

the Fully Connected System would be significant prior to mitigation, but would be reduced to less-than-significant through implementation of **Mitigation Measure 3.5.1**, which provides compensation for impacts through wetland restoration and enhancement. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD**

No Fully Connected System pipelines are proposed for the LGVSD area; impacts would be limited to those incurred under the Partially Connected System.

#### **Novato SD/NMWD**

No Fully Connected System pipelines are proposed for the Novato SD area; impacts would be limited to those incurred under the Partially Connected System.

#### **SVCS**

In addition to No Action, Phase 1, Basic System, and the Partially Connected System stream crossings previously identified, the Fully Connected System pipelines involve twenty-three additional stream crossings, including Wilson Creek, Sonoma Creek, Agua Caliente Creek, Nathanson Creek, Arroyo Seco and unnamed tributaries.

#### **Napa SD**

No Fully Connected System pipelines are proposed for the Napa SD area; impacts would be limited to those incurred under the Partially Connected System.

### ***Mitigation Measures***

**Mitigation Measure 3.5.1:** Implement the following measures to avoid, minimize and compensate for impacts to jurisdictional wetlands and other waters of the U.S. and impacts to riparian habitat.

Construction activities resulting in the introduction of fill or other disturbance to jurisdictional wetlands and other waters of the U.S. will require permit approval from the U.S. Army Corps of Engineers and water quality certification from the Regional Water Quality Control Board, pursuant to Section 401 of the Clean Water Act. The Proposed Project will most likely be authorized under Nationwide Permit #12 (Utility Lines) pursuant to Section 404 of the Clean Water Act. The CDFG has jurisdiction in the action area over riparian habitat, including stream bed and banks, pursuant to Sections 1600-1616 of the Fish and Game Code. Pipeline construction resulting in alteration to channel bed or banks, extending to the outer dripline of trees forming the riparian corridor, is subject to CDFG jurisdiction. The project proponent will be required to obtain a Streambed Alteration Agreement (SAA) from the CDFG. Terms of these permits and SAA will likely include, but will not necessarily be limited to, the mitigation measures listed below.

- 1) Specific locations of pipeline segments, storage reservoirs, and pump stations shall be configured, wherever feasible, to avoid and minimize direct and indirect impacts to wetlands and stream drainage channels. Consideration taken in finalizing configuration placement shall include:

- Reducing number and area of stream channel and wetland crossings where feasible. Crossings shall be oriented as close to perpendicular (90 degree angle) to the drainage or wetland as feasible.
  - Placement of project components as distant as feasible from channels and wetlands.
  - For pipeline construction activities in the vicinity of wetland and stream drainage areas, the construction work area boundaries shall have a minimum 20-foot setback from jurisdictional features<sup>4</sup>. Pipeline construction activities in proximity to jurisdictional features include: 1) entrance and exit pits for directional drilling and bore and jack operations; and 2) portions of pipeline segments listed as “parallel” to wetland/water features.
- 2) Sites identified as potential staging areas will be examined by a qualified biologist prior to construction. If potentially jurisdictional features are found that could be impacted by staging activities, the site will not be used.
  - 3) Construction methods for channel crossing shall be designed to avoid and minimize direct and indirect impacts to channels to the greatest extent feasible. Use of trenchless methods including suspension of pipeline from existing bridges, directional drilling, and bore and jack tunneling will be used when feasible. Trenchless methods are required for all perennial drainage crossings (i.e., Sonoma Creek). Construction occurring in the vicinity of riparian areas shall be delimited with a minimum 20-foot setback to avoid intrusion of construction activities into sensitive habitat.

The following additional measures shall apply to channel crossings in which the trenching construction method is used:

- Limiting of construction activities in drainage channel crossings to low-flow periods: approximately April 15 to October 15.
- At in-road drainage crossings where drainages pass beneath the road in existing culverts, and where there is sufficient cover between the culvert and road surface, the new pipeline will be installed above the existing culvert without removing or disturbing it. If the pipeline must be installed below the existing culvert, then the culvert will be cut and temporarily removed to allow pipeline installation.
- At off-road drainage crossings, the construction corridor width will be minimized to the greatest extent feasible at the crossing and at least 20 additional feet to either side of the drainage at the crossing.
- If disturbance of the existing culvert is required, sediment curtains upstream and downstream of the construction zone shall be placed to prevent sediment disturbed during trenching activities from being transported and deposited outside of the construction zone.

<sup>4</sup> Setbacks of channels with associated riparian vegetation will be from the outer dripline edge of the riparian corridor canopies and/or the upper bank edge, or per City or County code, whichever is greater.

- 4) Implement BMPs required in **Mitigation Measure 3.4.1** to reduce risk of sediment transport into all construction areas in proximity of drainages.
- 5) For channels or wetlands for which soil removal is necessary (off-road crossings or wetlands to be trenched or otherwise directly disturbed), the top layer of the drainage or wetland bottom shall be stockpiled and preserved during construction. After the pipeline has been installed, the stockpiled material shall be placed back into the drainage or wetland feature to return the beds to approximately their original composition.
- 6) To offset temporary and permanent impacts to wetlands and other waters of the U.S., and impacts to riparian habitat, compensatory mitigation will be provided as required by regulatory permits and SAAs.

**Impact Significance after Mitigation:** Less than Significant.

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**Impact 3.5.2: Construction Impacts on Special-status Fish and California Freshwater Shrimp. Construction of Proposed Project facilities could affect special-status invertebrate or fish species including central California coast steelhead, Chinook salmon, California freshwater shrimp, Pacific lamprey, and Sacramento splittail, or designated critical habitat for steelhead. (Less than Significant with Mitigation)**

Trenchless crossing methods (e.g., suspending pipes from bridges or directional drilling) would be employed at major project-area streams that support, or are presumed to support, threatened or endangered species (i.e., Sonoma Creek, Nathanson Creek, Calabazas Creek, Carriger Creek, Fowler Creek, Rodgers Creek, Schell Creek, Novato Creek, Miller Creek, Petaluma River, Napa River). During the course of construction activities both near and at stream crossings, the potential exists for accidental spills of drilling muds such as bentonite, gasoline, oil, or other toxic substances. During directional drilling activities, drill head lubricants sometimes escape through soil fractures to the surface, termed a “frac-out,” and spill into upland or aquatic environments. The release of such materials into streams can be deleterious to fish and otherwise damaging to aquatic environs depending upon the sensitivity of receiving waters, timing of the spill, magnitude of the release and the scale of cleanup activities. In the event of a materials spill, impacts could be experienced during site cleanup activities. Such impacts could include direct mortality by escaped materials or cleanup equipment, and temporary degradation of habitat.

***No Project Alternative***

The proposed project would not be implemented under the No Project Alternative, therefore no impacts would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

***No Action Alternative***

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an

individual basis, without the benefit of regional coordination or federal funding. Future baseline conditions (2020) for erosion and sedimentation are assumed to be equivalent to current conditions.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.5-1, No Action, and Figure 2-9, No Action Alternative**).

Under future baseline (2020) conditions, the special-status species in the region would likely be continued to be protected under existing or new regulations. Construction of the proposed facilities could affect special-status fish and freshwater shrimp, however implementation of **Mitigation Measure 3.5.2**, which includes measures to reduce any impacts to the special-status species, would reduce the impact to less-than-significant-level. A discussion of individual Member Agencies is provided below.

Under the No Action Alternative, impacts to special-status fish and California freshwater shrimp identified in the SVRWP EIR would still occur but would be less-than-significant with the implementation of mitigation measures. No additional project elements proposed in the other service areas would directly or indirectly impact special-status fish or California freshwater shrimp. A brief discussion of impacts by member agency is discussed below.

#### **LGVSD/NMWD**

No project facilities would be constructed under the No Action Alternative, therefore no impact would occur to special-status fish. California freshwater shrimp are not known within this service area.

#### **Novato SD/NMWD**

Under the No Action Alternative, recycled water facilities would be constructed in the Novato North Service Area (see 2.7.1 Project Description, Phase 1 Implementation Plan, Novato Sanitary District, Novato North Service Area). Pipelines would be installed within existing roadways and would cross only one unnamed and unsubstantial tributary not known or expected to support special-status fish. California freshwater shrimp are not known from this service area.

#### **SVCS**

Under the No Action Alternative, Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP) would be implemented. As discussed in the SVRWP EIR (ESA, 2006), which included Alignment 1A in a larger pipeline analysis, construction of these facilities could result in impacts on special-status fish and California freshwater shrimp.

Under the No Action Alternative, the Napa Salt Marsh Restoration Project would include construction of approximately 8.5 miles of pipeline that would cross Huichica Creek and several unnamed tributaries. No impacts on special-status fish or California freshwater shrimp were identified in that EIR. California freshwater shrimp are not known from this lower reach of

Huichica Creek, but special-status fish could potentially be present at Huichica Creek and impacted by implementation of the No Action Alternative.

### **Napa SD**

No project facilities would be constructed under the No Action Alternative, therefore no impact would occur.

### **Phase 1 (Project level)**

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The construction impact to special-status fish and freshwater shrimp from Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities under this alternative.

Under Phase 1, the project would directly impact 102 streams. However, only ten of these are perennial and provide the necessary habitat to support special-status fish and/or California freshwater shrimp: Carriger Creek, Nathanson Creek, Rodgers Creek, Schell Creek, Sonoma Creek, Huichica Creek, Tulucay Creek, Murphy Creek, Novato Creek and Miller Creek. Major creeks and perennial drainages that support or are presumed to support threatened or endangered species would be crossed by trenchless methods including jack and bore and pipeline suspension. Impacts related to Phase 1 would be significant prior to mitigation, but would be reduced to less-than-significant through implementation of **Mitigation Measure 3.5.2**, which provides protection for aquatic habitats. A discussion of impacts by Member Agency is provided below.

### **LGVSD/NMWD**

Phase 1 pipelines would cross up to 15 drainages in the LGVSD service area, but only Miller Creek is known to support special-status fish. Miller Creek would be crossed by Option C. Significant impacts would be reduced to a less-than-significant level through implementation of **Mitigation Measure 3.5.2**.

### **Novato SD/NMWD**

Phase 1 pipelines would involve stream crossings at Novato Creek and Arroyo Avichi. Steelhead are known to occur in upper Novato Creek (Leidy, 2005); though surveys were not performed at this downstream crossing, presumably they seasonally pass to and from the Bay. Arroyo Avichi has not been adequately surveyed for steelhead; an overall assessment of the Novato Watershed concluded that, while not adequately surveyed, the watershed has historically supported and continues to support anadromous steelhead populations (Leidy, 2005).

Chinook salmon, believed to be central valley fall run, have been observed over multiple years in the vicinity of Highway 101; it is unknown whether they spawn in Novato Creek (NMFS, 2000a). Juvenile chinook are known to occur in Miller Creek in small numbers, and both adults and juveniles have been noted in portions of Miller Creek upstream from the action area as recently as 2003 (NMFS, 2008).

Pacific lamprey had a widespread historical distribution, occurring in coastal streams from California to Baja, and including San Francisco Bay, Carquinez Strait, and San Pablo Bay. In the north San Pablo Bay, Pacific lamprey are known to occur in the Sonoma Creek and Napa River watersheds. Recent surveys have not found Pacific lamprey in the Novato Creek watershed, but their widespread historical distribution and low detectability suggest they could be present (Leidy, 2007). This species could be potentially impacted by the project.

Sacramento splittail are present in the Petaluma River and an historic presence is documented from the area parallel to Highway 101 between the cities of Petaluma and Novato (Leidy, 2007). California freshwater shrimp are not documented from the Novato Watershed and would not be present in Novato stream crossings. No impacts to this species would occur. Construction of the proposed facilities could affect special-status fish and freshwater shrimp, however implementation of **Mitigation Measure 3.5.2**, which includes measures to reduce any impacts to the special-status species, would reduce the impact to less-than-significant-level.

### **SVCS**

In addition to No Action pipelines, Phase 1 pipelines would involve a total of nine stream crossings at Carriger Creek, Felder Creek, Fowler Creek, Rodgers Creek, Sonoma Creek, Arroyo Seco, Schell Creek, Nathanson Creek, Huichica Creek and more crossings at unnamed tributaries. High quality fisheries habitat in the action area is associated with stream crossings at Carriger, Felder, Fowler, Sonoma, and Rodgers Creeks; Schell Creek offers low quality habitat. Arroyo Seco is not identified as habitat for any special-status fish or California freshwater shrimp.

The Sonoma Creek watershed was extensively surveyed in the 1960s with later surveys performed along assorted streams at various points, confirming steelhead presence in Sonoma Creek, Fowler Creek, Rodgers Creek, Carriger Creek, and Nathanson Creek (Leidy, 2005). Fish surveys were not performed in support of the proposed project; however, based on prior surveys adult steelhead and smolts are seasonally present in both ephemeral and perennial action area streams. It is presumed that adult and/or juvenile steelhead could be present within each of these streams during appropriate times of the year and they could be impacted by the project. This is principally during winter and spring migrations between December and May for adult steelhead. Juvenile steelhead may be present year-round in larger streams (e.g., Sonoma Creek) or seasonally during flows in ephemeral streams. Designated critical habitat occurs in the following project-area streams: Sonoma Creek, Nathanson Creek, Carriger Creek, Fowler Creek, Rodgers Creek, and Schell Creek (NMFS, 2005), and these streams have historically supported or presently support steelhead (Leidy, 2005).

The historic use of Sonoma Creek by Chinook salmon was likely by small and/or sporadic runs; when present, principal spawning areas are expected to be in the upper watershed but the lower portion of this stream is apparently used for spawning in drier years. It remains unknown whether chinook use any of the tributary streams (NMFS, 1998a). Chinook salmon has the potential to be impacted by the project.

Pacific lampreys are documented in Sonoma Creek as far upstream as the Lawndale Avenue Bridge in Kenwood (ESA, 2006) and could be impacted by the project. Post-spawning adult lamprey have been observed in Sonoma Creek habitat immediately upstream from the Madrone Road bridge in the town of Glen Ellen (ESA, 2006). There are no physical barriers in Sonoma Creek that prevent adult lamprey migration to upper watershed spawning grounds.

Sacramento splittail are regularly known to occur in tidal reaches of the Napa River and its marsh complex (Leidy, 2007); it is unknown whether they are present in Huichica Creek at the pipeline crossing and project impacts to this species are not known.

California freshwater shrimp has been identified in Sonoma Creek near Maxwell Park and further upstream (CDFG, 2008) and likely occurs in downstream reaches as well. This species could be impacted by the proposed project. A 1999 habitat assessment for this species identified 38-linear feet of suitable shrimp habitat within 75 feet of the Watmaugh Road Bridge (Stabler, 1999). Potential habitat presumably occurs at the two other Sonoma Creek crossing sites. Habitat is considered marginal at Schell Creek adjacent to the SVCSD wastewater treatment facility, and along Fowler Creek at three locations (Leveroni Road, Watmaugh Road, and the Hwy 116 to SVCSD wastewater treatment facility route) because flows cease at some point during the year and often go subsurface. California freshwater shrimp is also present in Huichica Creek upstream from the action area, but the reach crossed by Phase 1 pipelines near the Napa Salt Marsh Restoration Area is too saline to support this species. Construction of the proposed facilities could affect special-status fish and freshwater shrimp, however implementation of **Mitigation Measure 3.5.2**, which includes measures to reduce any impacts to the special-status species, would reduce the impact to less-than-significant-level.

### **Napa SD**

Phase 1 pipelines would involve stream crossings at Murphy, Tulucay and Kreuse Creeks. Fish sampling data was not available for Kreuse Creek, but steelhead are documented from Murphy and Tulucay Creeks (NMFS, 2008).

It is unknown whether Chinook use any of the tributary streams to the Napa River (NMFS, 1998a), and whether they are present in Murphy, Tulucay and Kreuse Creeks. The historic use of the Napa River by Chinook salmon was likely by small and/or sporadic runs. Chinook, believed to be Central valley fall run, have been observed in the Napa River as recently as 1997 and occasional spawning has been noted, possibly by strays. This species has the potential to be impacted by the project.

It is unknown whether Pacific lamprey are present in Murphy, Tulucay and Kreuse Creeks. They are known to occur in the Napa River and Huichica Creek (Leidy, 2007), and at least one unnamed tributary within the Napa Watershed. Their widespread historical distribution and low detectability suggest they could be present (Leidy, 2007).

Sacramento splittail are known to occur in the mouth of Tulucay Creek and from both the mainstem and the tidal reaches of the Napa River. Phase 1 pipelines cross Tulucay Creek over two miles upstream from its confluence with the Napa River; splittail spawn in freshwater upstream reaches, but their upstream distribution in Tulucay Creek is unknown. Tulucay Creek is designated critical habitat for steelhead, so upstream reaches could provide spawning habitat for splittail as well.

Within the Napa Watershed, California freshwater shrimp are known only from upper reaches of Huichica Creek and the Napa River and would not be impacted by the project. Construction of the proposed facilities could affect special-status fish and freshwater shrimp, however implementation of **Mitigation Measure 3.5.2**, which includes measures to reduce any impacts to the special-status species, would reduce the impact to less-than-significant-level.

### ***Alternative 1: Basic System (Program level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The construction impacts to special-status fish and freshwater shrimp from the project facilities under the Basic System would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

Under the Basic System, the potential for project impacts on special-status fish and California fairy shrimp is presumed to increase with the number of stream crossings.<sup>5</sup> The Basic System pipelines would directly impact nine additional streams or drainages: Dowdall, Carriger, Sonoma, and Carneros Creeks; the Napa River; and four unnamed tributaries. Major creeks and perennial drainages would be crossed by trenchless methods including jack and bore and pipeline suspension. Impacts related to the Basic System would be significant prior to mitigation, but would be reduced to less-than-significant through implementation of **Mitigation Measure 3.5.2**, which provides protection for aquatic habitats. A discussion of impacts by Member Agency is provided below.

<sup>5</sup> Unnamed tributaries are probably ephemeral. However, fish surveys in the area (Leidy, 1998; Leidy, 2007) indicate the presence of special-status fish in surveyed unnamed tributaries. Neither field surveys nor fish surveys were performed in support of Alternatives 1 through 3 program-level analyses. Therefore, unnamed tributaries are included as potentially perennial crossings that could provide habitat for special-status aquatic species.

**LGVSD/NMWD**

No additional pipelines are proposed under the Basic System beyond those identified in Phase 1.

**Novato SD/NMWD**

In addition to the No Action and Phase 1 stream crossings previously identified, the Basic System pipelines would involve another crossing of Novato Creek, and crossings at unnamed tributaries. Novato Creek is known to support special-status fish. Unnamed tributaries are often ephemeral and wouldn't support special-status fish, but if perennial, the tributary could potentially support steelhead, Chinook, Pacific lamprey, or Sacramento splittail. California freshwater shrimp are not known from this service area.

**SVCS**

In addition to the No Action and Phase 1 stream crossings previously identified, the Basic System pipelines involve additional stream crossings at Dowdall, Carriger and Sonoma Creeks. Carriger and Sonoma Creeks are designed critical habitat for steelhead, and Chinook salmon, Pacific lamprey, and California freshwater shrimp are known to occur in Sonoma Creek as previously identified.

**Napa SD**

In addition to Phase 1 pipelines, the Basic System pipelines involve stream crossings at Carneros Creek, the Napa River and unnamed tributaries. The Napa River supports steelhead and is designated critical habitat for this species; chinook salmon, Pacific lamprey, and Sacramento splittail are present as previously identified. California freshwater shrimp are not known to occur in the lower Napa Watershed.

***Alternative 2: Partially Connected System (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The construction impacts to special-status fish and freshwater shrimp under the Partially Connected System would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

Under the Partially Connected System, the potential for project impacts on special-status fish is presumed to increase with the number of stream crossings; additional impacts on California freshwater shrimp are not expected. The Partially Connected System pipelines would directly impact 24 additional streams or drainages including the Petaluma River, Novato Creek, Sarco Creek, Milliken Creek, Suscol Creek and unnamed tributaries. Major creeks and perennial drainages that support or are presumed to support threatened or endangered species would be crossed by trenchless methods, including jack and bore and pipeline suspension. Impacts related

to the Partially Connected System would be significant prior to mitigation, but would be reduced to less-than-significant through implementation of **Mitigation Measure 3.5.2**, which provides protection for aquatic habitats. A discussion of impacts by Member Agency is provided below.

### **LGVSD/NMWD**

In addition to Phase 1 pipelines previously identified, the Partially Connected System pipeline in the LGVSD would involve six additional crossings at unnamed tributaries. Unnamed tributaries are often ephemeral and are not likely to support special-status fish. California freshwater shrimp are not known to occur in this service area.

### **Novato SD/NMWD**

In addition to No Action, Phase 1, and Basic System stream crossings previously identified, the Partially Connected System pipelines involve forty additional stream crossings including the Petaluma River, Novato Creek, Arroyo Jan Jose, and numerous unnamed tributaries. The Petaluma River is designated critical habitat for steelhead. Steelhead are also known to occur in upper Novato Creek and could be more widely distributed in the Novato Watershed, as previously stated.

### **SVCS**

In addition to No Action, Phase 1 and the Basic System stream crossings previously identified, the Partially Connected System pipelines involve twelve additional stream crossings at unnamed tributaries. Unnamed tributaries are often ephemeral and wouldn't support special-status fish or California freshwater shrimp. If perennial, the tributary could potentially support these species.

### **Napa SD**

In addition to Phase 1 and the Basic System stream crossings previously identified, the Partially Connected System pipelines involve twenty-four additional stream crossings at the Napa River, Sarco Creek, Milliken Creek, Suscol Creek, and numerous unnamed tributaries. The Napa River and Sarco, Milliken, and Suscol Creek are designated critical habitat for steelhead, with fairly recent observations in all (Leidy, 1999). Chinook salmon, Pacific lamprey, and Sacramento splittail are present in the watershed and could potentially be present at stream crossings. California freshwater shrimp is not known to occur in the lower Napa Watershed as previously stated.

### ***Alternative 3: Fully Connected System (Program level)***

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The construction impacts to special-status fish and freshwater shrimp to proposed facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

Under the Fully Connected System, the potential for impacts on special-status fish and California freshwater shrimp is presumed to increase with the number of stream crossings. The Fully Connected System pipelines would directly impact twenty-three additional streams or drainages: Wilson Creek, Sonoma Creek, Agua Caliente Creek, Nathanson Creek, Arroyo Seco, Tolay Creek and unnamed tributaries. Major creeks and perennial drainages would be crossed by trenchless methods including jack and bore and pipeline suspension. Impacts related to the Fully Connected System would be significant prior to mitigation, but would be reduced to less-than-significant through implementation of **Mitigation Measure 3.5.2**, which provides protection for aquatic habitats. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD**

No Fully Connected System pipelines are proposed for the LGVSD area; impacts would be limited to those incurred under the Partially Connected System.

#### **Novato SD/NMWD**

No Fully Connected System pipelines are proposed for the Novato SD area; impacts would be limited to those incurred under the Partially Connected System.

#### **SVCS**

In addition to No Action, Phase 1, Basic System, and the Partially Connected System stream crossings previously identified, the Fully Connected System pipelines involve twenty-three additional stream crossings, including Wilson Creek, Sonoma Creek, Agua Caliente Creek, Nathanson Creek, Arroyo Seco and unnamed tributaries. Sonoma Creek and Nathanson Creek support steelhead populations and are designated critical habitat. Chinook salmon, Pacific lamprey, and California freshwater shrimp are known to occur in Sonoma Creek.

#### **Napa SD**

No Fully Connected System pipelines are proposed for the Napa SD area; impacts would be limited to those incurred under the Partially Connected System.

### ***Mitigation Measures***

**Mitigation Measure 3.5.2:** Specific measures shall be implemented to protect aquatic habitats potentially inhabited by special-status fish and California freshwater shrimp.

Sensitive fisheries and other aquatic resources shall be protected by minimizing in-stream and near-stream habitat impacts during project design, informally consulting with resource agencies (NMFS, USFWS, CDFG, and USACOE), and implementing protective measures. For Sonoma Creek, Petaluma River, Napa River, and other perennial drainages, special-status fish are presumed present. California freshwater shrimp are presumed present in Sonoma Creek. Because of the sensitivity of seasonal and ephemeral drainages, the following measures will be required to avoid and minimize impacts to aquatic habitat:

- 1) Project designs shall be reconfigured, whenever feasible, to avoid direct impacts to sensitive wetland areas and minimize disturbances to wetland and riparian corridors. Ground disturbance and construction footprints in these areas shall be minimized to the greatest degree feasible.
- 2) If trenching or directional boring stream crossing methods are used, the construction schedule of such activities shall be implemented according to conditions of the SAAs.
- 3) In-stream construction shall be avoided at all locations that are known, or presumed, to support threatened or endangered species, if at the time of construction such locations contain flowing or standing water.
- 4) In the event that equipment shall operate in any watercourse with flowing or standing water, the project proponent will ensure that they have the appropriate permit authorizations.
- 5) Prior to construction, a qualified biologist shall install fencing to establish a minimum 20-foot setback from sensitive habitat.
- 6) For work sites located adjacent to sensitive aquatic sites, a biological resource education program shall be provided by a qualified biologist, as per conditions of the SAAs.

**Impact Significance after Mitigation:** Less than Significant.

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**Impact 3.5.3: Long term impacts on Special-status Fish. Operation of the proposed project has the potential to affect special-status fish species due to reduced discharges from the WWTPs. (Less than Significant)**

Each of the proposed project alternatives will increase the use of recycled water within the action area for agricultural uses (vineyard irrigation, dairy/pasture, tree and row crops) and urban irrigation (including golf courses, parks, and general landscaping (medians and office parks). The increased use of recycled water under each of the project alternatives will result in a reduction in discharge from each Authority member's WWTP to tributaries of San Pablo Bay. Reduced discharge from the WWTPs when compared to the two baselines would have a less than significant impact on special-status fish species.

***No Project Alternative***

The proposed project would not be implemented under the No Project Alternative, therefore no impacts would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

### **No Action Alternative**

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding. Under future baseline (2020) conditions, the special-status species in the region would likely be continued to be protected under existing or new regulations.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.5-1, No Action**). This would provide 1,067 AFY of recycled water, and would reduce the amount of discharge to tributaries of San Pablo Bay. A discussion of individual Member Agencies is provided below.

#### **LGVSD/NMWD**

The No Action Alternative would not include any new recycled water facilities by LGVSD; however, future conditions would include development within the LGVSD service area consistent with approved General Plans, with corresponding increases in treated effluent discharge. Discharge to Miller Creek, and eventually San Pablo Bay, under future 2020 discharge conditions would increase by 862 acre-feet per year (AFY). Under the No Action Alternative, which considers implementation of a subset of recycled water projects, 2020 discharge conditions would increase by an estimated 511 AFY. This represents the future baseline discharge conditions, and no impacts would occur as a result from the NBWRP.

#### **Novato SD/NMWD**

Under the No Action Alternative, Novato SD would deliver 193 AFY of tertiary treated recycled water to the Novato North Service Area. Future conditions would include development within the Novato SD service area consistent with approved General Plans, with corresponding increases in treated effluent discharge. Discharge under future 2020 discharge conditions would increase by an estimated 3,139 AFY. Under the No Action Alternative, which considers implementation of a subset of recycled water projects, 2020 discharge conditions would increase by an estimated 1,832 AFY. This represents the future baseline discharge conditions, and no impacts would occur as a result from the NBWRP.

#### **SVCSD**

Under the No Action Alternative, SVCSD would deliver 874 AFY of tertiary treated recycled water to the Sonoma Valley Recycled Water Project. Future conditions would include development within the SVCSD service area consistent with approved General Plans, with corresponding increases in treated effluent discharge. Discharge under future 2020 discharge conditions would increase by an estimated 1,529 AFY. Under the No Action Alternative, which considers implementation of a subset of recycled water projects, 2020 discharge conditions would increase by an estimated 1,452 AFY. This represents the future baseline discharge conditions, and no impacts would occur as a result from the NBWRP.

## **Napa SD**

The No Action Alternative, would not include any new recycled water deliveries by Napa. Future conditions would include development within the service area consistent with approved General Plans, with corresponding increases in treated effluent discharge. Discharge under future 2020 discharge conditions would increase by an estimated 1,887 AFY. Under the No Action Alternative, which considers implementation of a subset of recycled water projects, 2020 discharge conditions would increase by an estimated 1,062 AFY. This represents the future baseline discharge conditions, and no impacts would occur as a result from the NBWRP.

### ***Phase 1***

Compared to existing conditions (CEQA Baseline), Phase 1 projects would include 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 4.3 mgd of tertiary capacity, and 65 AF of storage to provide 3,755 AFY of recycled water. This would result in a corresponding reduction in discharge. Analysis of Phase 1 recycled water use and corresponding changes in estimated discharge assumed 2020 inflow and discharge conditions for the WWTP, which include increased inflow over time. Implementation of Phase 1 projects would have an estimated 2020 discharge reduction of 6,121 AFY for all the WWTPs combined.

Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 2,688 AFY of recycled water, 28.9 miles of new pipeline, 961 HP of pumping capacity, treatment facilities providing 3.8 mgd of tertiary capacity, and 0 AF of additional storage. When implemented, Phase 1 would result in an estimated total discharge reduction of 1,073 AFY for all the WWTPs combined, compared to the No Action Alternative (see Table 3.4-11, Water Quality).

Table 3.4-12 in **Section 3.4, Water Quality** presents the anticipated monthly change in discharge for each WWTP under Phase 1, compared to both existing conditions and the No Action Alternative. A discussion of impacts by Member Agency is provided below.

### **LGVSD/NMWD**

Under Phase 1, LGVSD would deliver 202 AFY of tertiary treated recycled water to the Hamilton Field urban areas in southern Novato. Compared to the CEQA baseline, Phase 1 would provide 202 AFY of recycled water, with a corresponding reduction in discharge. Analysis of Phase 1 recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When incorporated into projected 2020 flow conditions, Phase 1 would reduce 2020 discharge by an estimated 548 AFY. When compared to the No Action Alternative (NEPA Baseline), the estimated net reduction in discharge would be 38 AFY.

This incremental reduction of treated effluent would be distributed over discharge months during the wet season, and is not expected to result in a substantial overall reduction in the amount of special-status fish species habitat or species abundance in Miller Creek. Discharge is currently restricted during summer months; therefore, local habitat conditions are adapted to fluctuating discharge levels. Furthermore, San Pablo Bay is a highly dynamic, tidally-influenced system and

the incremental loss of treated wastewater is not expected to result in changes to the abundance or composition of special-status fish species in the Bay. Thus, the reduction of LGVSD's WWTP discharge would be a less-than-significant impact.

#### **Novato SD/NMWD**

Compared to the CEQA baseline, Phase 1 would provide 542 AFY of recycled water, with a corresponding reduction in discharge. Analysis of Phase 1 recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When incorporated into projected 2020 flow conditions, Phase 1 this would reduce 2020 discharge an estimate 1,983 AFY. When compared to the No Action Alternative (NEPA baseline), the net reduction in discharge would be an estimated 151 AFY.

This incremental reduction of treated effluent would be distributed over discharge months during the wet season, and is not expected to result in a substantial overall reduction in the amount of special-status fish species habitat or species abundance. Discharge is currently restricted during summer months; therefore, local habitat conditions are adapted to fluctuating discharge levels. San Pablo Bay is a highly dynamic, tidally-influenced system and the incremental loss of treated wastewater is not expected to result in changes to the abundance or composition of special-status fish species in the Bay. Thus, the reduction of Novato SD's WWTP discharge would be a less-than-significant impact.

#### **SVCS**

Compared to the CEQA baseline, Phase 1 would provide 874 AFY of recycled water, with a corresponding decrease in discharge. Additionally, SVCS would provide flows to the Napa Salt Ponds, of up to 3,460 AFY (depending upon year type). Analysis of Phase 1 recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When incorporated into projected 2020 flow conditions, Phase 1 this would reduce 2020 discharge by an estimated 1,452 AFY. Compared to the No Action Alternative (NEPA baseline), Phase 1 would not reduce SVCS discharge, as these projects would likely be implemented by SVCS under the No Action Alternative.

Under Phase 1, SVCS would deliver 874 AFY of tertiary treated recycled water to the Sonoma Valley Recycled Water Project, and additional tertiary treated recycled water to the Napa Salt Marsh Restoration Area. Phase 1 of the proposed project would reduce SVCS's discharge from storage facilities in the fall.<sup>6</sup> This incremental change in discharge of treated effluent would only occur during the wet season and is not expected to result in a substantial overall reduction in the amount of special-status fish species habitat or species abundance in Schell Slough, downstream sloughs, and lower Sonoma Creek. Discharge is currently restricted during summer months; therefore, local habitat conditions are adapted to fluctuating discharge levels. Furthermore, San Pablo Bay is a highly dynamic, tidally-influenced system and the incremental loss of treated wastewater is not expected to result in changes to the abundance or composition of special-status

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<sup>6</sup> SVCS would retain its National Pollutant Discharge Elimination System (NPDES) Permit to discharge between November and April.

fish species in the Bay. Thus, the changes in SVCSD's WWTP discharge would be a less-than-significant impact.

### **Napa SD**

Compared to the CEQA baseline, Phase 1 would provide 2,137 AFY of recycled water, with a corresponding decrease in discharge. Analysis of Phase 1 recycled water use and corresponding changes in discharge assumed 2020 inflow and discharge conditions for the WWTP, which would increase over time. When incorporated into projected 2020 flow conditions, Phase 1 this would reduce 2020 discharge by an estimated 2,137 AFY. Compared to the No Action Alternative (NEPA baseline), Phase 1 would reduce Napa SD discharge by an estimated 1,073 AFY.

This incremental reduction in treated effluent discharge would be spread over the winter discharge months, is not expected to result in a substantial overall reduction in the amount of special-status fish species habitat or species abundance in the Napa River. Furthermore, San Pablo Bay is a highly dynamic, tidally-influenced system and the incremental loss of treated wastewater is not expected to result in changes to the abundance or composition of special-status fish species in the Bay. Thus, changes in Napa SD's WWTP discharge would be a less-than-significant impact.

### ***Alternative 1: Basic System (Program Level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Table 3.2-5 provides a summary of discharge change by WWTP. The Basic System would result in a total discharge reduction of 1,806 AFY compared to the CEQA Baseline. Compared to 2020 discharge conditions, the Basic System would result in a total estimated discharge reduction of 9,305 AFY from all of the WWTPs combined.

Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage. The Basic System would result in an estimated total discharge reduction of 4,177 AFY from all of the WWTPs combined, compared to the No Action Alternative (NEPA Baseline).

### **LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD**

Impacts to special-status fish from operation of the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the reduction in treated effluent discharge during winter months, under this alternative. Please refer to the impacts discussed under Phase 1.

### ***Alternative 2: Partially Connected System (Program Level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Provision of this amount of recycled water would result in an

estimated total discharge reduction of 4,803 AFY from existing conditions for all of the WWTPs (see **Table 3.2-6**). Compared to 2020 discharge conditions, the Partially Connected System would result in an estimated total 2020 discharge reduction of 12,222 AFY from all of the WWTPs combined.

Compared to the No Action Alternative (NEPA Baseline), Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage. The Partially Connected System would result in an estimated total 2020 discharge reduction of 7,174 AFY from all of the WWTPs combined, compared to the No Action Alternative (NEPA Baseline).

#### **LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD**

Impacts to special-status fish from operation of the proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the reduction in treated effluent discharge during winter months, under this alternative. For the SVCSD, potential discharge to Schell Slough and Hudeman Slough, would reduced to zero, due to the provision of recycled water for irrigation and to the Napa Salt Ponds.<sup>7</sup> This incremental change in discharge of treated effluent would only occur during the wet season and is not expected to result in a substantial overall reduction in the amount of special-status fish species habitat or species abundance in Schell Slough, downstream sloughs, and lower Sonoma Creek. Discharge is currently restricted to zero during summer months; therefore, local habitat conditions are adapted to fluctuating discharge levels. Furthermore, San Pablo Bay is a highly dynamic, tidally-influenced system and the incremental loss of treated wastewater is not expected to result in changes to the abundance or composition of special-status fish species in the Bay. This seasonal change discharge may result in some seasonal changes to species' composition in the tidally influenced areas over time, but that the overall effect would be a shift toward more natural/historic conditions. Thus, the changes in SVCSD's WWTP discharge would be a less-than-significant impact.

#### **Alternative 3: Fully Connected System (Program Level)**

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Provision of this amount of recycled water would result in a total discharge reduction of 5,949 AFY from existing conditions for all of the WWTPs (see **Table 3.2-7**). Compared to 2020 discharge conditions, the Fully Connected System would result in a total estimated 2020 discharge reduction of 13,368 AFY from all of the WWTPs combined.

Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage. Provision of this amount of recycled water

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<sup>7</sup> SVCSD would retain its National Pollutant Discharge Elimination System (NPDES) Permit to discharge between November and April.

would result in a total estimated discharge reduction of 8,320 AFY from all of the WWTPs combined (see Table 3.2-7).

#### **LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD**

Impacts to special-status fish from operation of the proposed facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the reduction in treated effluent discharge during winter months, under this alternative. Please refer to the impacts discussed under Phase 1. For the SVCSD, potential discharge to Schell Slough and Hudeman Slough, would reduced to zero, due to the provision of recycled water for irrigation and to the Napa Salt Ponds.<sup>8</sup> This incremental change in discharge of treated effluent would only occur during the wet season and is not expected to result in a substantial overall reduction in the amount of special-status fish species habitat or species abundance in Schell Slough, downstream sloughs, and lower Sonoma Creek. Discharge is currently restricted during summer months; therefore, local habitat conditions are adapted to fluctuating discharge levels. Furthermore, San Pablo Bay is a highly dynamic, tidally-influenced system and the incremental loss of treated wastewater is not expected to result in changes to the abundance or composition of special-status fish species in the Bay. This seasonal change in discharge may result in some seasonal changes to species' composition in the tidally influenced areas over time, but that the overall effect would be a shift toward more natural/historic conditions. Thus, the changes in SVCSD's WWTP discharge would be a less-than-significant impact.

#### ***Mitigation Measures***

No mitigation measures are required.

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#### **Impact 3.5.4: Impacts on Special-status Invertebrates. Construction of Proposed Project facilities could impact special-status invertebrates including Myrtle's silverspot butterfly, Opler's longhorn moth, Monarch butterfly wintering sites, Ricksecker's water scavenger beetle and California brackishwater snail. (Less than Significant with Mitigation)**

Project activities such as earthmoving, grading, and trenching have the potential to result in direct mortality of these species.

#### ***No Project Alternative***

The proposed project would not be implemented under the No Project Alternative, therefore no impacts would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

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<sup>8</sup> SVCSD would retain its National Pollutant Discharge Elimination System (NPDES) Permit to discharge between November and April.

### **No Action Alternative**

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.5-1, No Action). Under future baseline (2020) conditions, it is anticipated that invertebrates in region would likely be continued to be protected under existing or new regulations.

Under the No Action Alternative, no additional project elements proposed in the four recycled water service areas would directly or indirectly impact special-status invertebrates. Impacts on Ricksecker's water scavenger beetle could occur in the SVCSD and Novato SD areas, and impacts on California brackishwater snail could occur in the Napa SD area. No impacts would be incurred to Myrtle's silverspot butterfly, Opler's longhorn moth or wintering monarch butterflies. Impacts would be less-than-significant with the implementation of mitigation measures. A discussion of individual Member Agencies is provided below.

#### **LGVSD/NMWD**

No project facilities would be constructed under the No Action Alternative, therefore no impact on special-status invertebrates would occur.

#### **Novato SD/NMWD**

Under the No Action Alternative, recycled water facilities would be constructed in the Novato North Service Area (see 2.7.1 Project Description, Phase 1 Implementation Plan, Novato Sanitary District, Novato North Service Area). Pipelines would be installed within existing roadways but would cross one drainage where, if present, impacts on Ricksecker's water scavenger beetle could occur. No impacts would occur to Myrtle's silverspot butterfly, Opler's longhorn moth, or California brackishwater snail due to an absence of habitat in the action area. Monarch butterfly wintering sites are not known to occur in the Novato Sanitary District Wastewater Facility Plan Project EIR action area.

#### **SVCSD**

Under the No Action Alternative, Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP) would be implemented. As discussed in the SVRWP EIR (ESA, 2006), which included Alignment 1A in a larger pipeline analysis, construction of these facilities would result in temporary impacts to wetland/water features and drainages/associated riparian vegetation near project components, and impacts on Ricksecker's water scavenger beetle could occur, if present. No impacts would occur to California brackishwater snail due to an absence of appropriate habitat in the action area. Myrtle's silverspot butterfly, Opler's longhorn moth, and monarch butterfly wintering sites are not known to occur in the service area and no impacts are expected.

The No Action Alternative would also include construction of water delivery project components analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (the Sonoma Pipeline) (JSA, 2003). Approximately 4.3 miles of pipeline would be installed, and impacts on California brackishwater snail, if present, could occur. No impacts would occur to Ricksecker's water scavenger beetle due to an absence of appropriate habitat in the action area. Myrtle's silverspot butterfly, Opler's longhorn moth, and monarch wintering sites are not known to occur in the Napa Salt Marsh Restoration Area and no impacts would occur to these species.

### **Napa SD**

No project facilities would be constructed under the No Action Alternative, therefore no impacts would occur to special-status invertebrates.

### **Phase 1**

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to special-status species from operation of the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

Under Phase 1, the potential for project impacts on Ricksecker's water scavenger beetle and California brackishwater snail are unknown but are presumed to increase with the number of stream crossings. One hundred and two stream crossings would occur under this alternative. Little is known about the ecology of these species and not all drainages would provide appropriate habitat. The project could impact Ricksecker's water scavenger beetle at drainage crossings in the SVCSD, Novato SD and Napa SD areas. Impacts on California brackishwater snail could occur in the SVCSD and Novato SD areas. Myrtle's silverspot butterfly, Opler's longhorn moth and monarch butterfly wintering sites are not known to occur in the Phase 1 action area. Impacts related to Phase 1 would be significant prior to mitigation, but implementation of **Mitigation Measure 3.5.3** would reduce Phase 1 impacts on special-status invertebrates to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

### **LGVSD**

Ricksecker's water scavenger beetle, California brackishwater snail, Myrtle's silverspot butterfly, Opler's longhorn moth and monarch butterfly wintering sites are not known to occur in this service area. Area drainages are not expected to provide habitat for California brackishwater snail or Ricksecker's water scavenger beetle.

**Novato SD**

Phase 1 pipelines involve seven stream crossings as stated previously under Impact 3.5.1, Phase 1. Crossings could result in impacts on Ricksecker's water scavenger beetle but they are not known to occur in the action area. California brackishwater snail could be present in Miller Creek, but the project crossing occurs upstream in a segment that may not have enough tidal influence to provide appropriate habitat and they are not known to occur in the action area. Little is known about the ecology of Ricksecker's water scavenger beetle and California brackishwater snail and project impacts are unknown. Myrtle's silverspot butterfly, Opler's longhorn moth and monarch butterfly wintering sites are not known to occur in the action area, and no impacts would occur to these species.

**SVCS**

Phase 1 pipelines involve forty-eight stream crossings as stated previously under Impact 3.5.1, Phase 1. Ricksecker's water scavenger beetle is not known to occur in the action area, but they could be present at low-flow stream crossings. Little is known about the ecology of the beetle and project impacts on this species are not known.

California brackishwater snail is known to tolerate a wide range of salinities and occur only in permanently submerged brackish areas. This species is not known to occur in the project vicinity, but they could be present in Huichica Creek at the pipeline crossing or present in an unnamed tributary traversing the pipeline at the Napa Salt Marsh Restoration Area. Project impacts on this species are not known.

Myrtle's silverspot butterfly, Opler's longhorn moth and monarch butterfly wintering sites are not known to occur in the action area, and no impacts would occur to these species.

**Napa SD**

Phase 1 pipelines involve thirty-two stream crossings as stated previously under Impact 3.5.1, Phase 1. Ricksecker's water scavenger beetle is not known to occur in the action area, but could be present at stream crossings. No impacts would occur to California brackishwater snail due to an absence of appropriate habitat in the action area. Myrtle's silverspot butterfly, Opler's longhorn moth and monarch butterfly wintering sites are not known to occur in the action area, and no impacts would occur to these species.

***Alternative 1: Basic System (Program level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to special-status species from operation of the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion

to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Under the Basic System, the potential for project impacts on Ricksecker's water scavenger beetle and California brackishwater snail are unknown but are presumed to increase with the number of stream crossings. Eighty stream crossings would occur under this alternative. Little is known about the ecology of these species and not all drainages would provide appropriate habitat. The project could impact Ricksecker's water scavenger beetle at drainage crossings in the SVCSD, Novato SD and Napa SD areas and the California brackishwater snail at drainage crossings in SVCSD and Novato SD recycled water service areas. Myrtle's silverspot butterfly, Opler's longhorn moth and monarch butterfly wintering sites are not known to occur in the Basic System action area. Impacts related to the Basic System would be significant prior to mitigation, but implementation of **Mitigation Measure 3.5.3** would reduce impacts on special-status invertebrates to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD**

No additional pipelines are proposed under the Basic System beyond those identified in Phase 1. Impacts would be limited to those identified for the Phase 1 projects.

#### **Novato SD/NMWD**

The Basic System pipelines involve five additional and twelve cumulative stream crossings as stated previously under Impact 3.5.1, the Basic System. Impacts under the Basic System would be similar to those identified for the No Action Alternative and Phase 1 projects.

#### **SVCSD**

The Basic System pipelines involve twelve additional and sixty cumulative stream crossings as stated previously under Impact 3.5.1, the Basic System. Impacts under the Basic System would be similar to those identified for the Phase 1 project.

#### **Napa SD**

The Basic System pipelines involve sixteen additional and forty-eight cumulative stream crossings as stated previously under Impact 3.5.1, the Basic System. Impacts under the Basic System would be similar to those identified for the Phase 1 project. California brackishwater snail is not known to occur in the Napa River, but its presence in the Petaluma River suggests the Napa River could provide habitat.

#### ***Alternative 2: Partially Connected System (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to special-status species from operation of the proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Under the Partially Connected System, the potential for project impacts on Ricksecker's water scavenger beetle and California brackishwater snail are unknown but are presumed to increase with the number of stream crossings. Two hundred and seventeen cumulative stream crossings would occur under this alternative. The project could impact Ricksecker's water scavenger beetle at drainage crossings in the SVCSD, Novato SD and Napa SD recycled water service areas and California brackishwater snail at the Petaluma River crossing in the Novato SD recycled water service area. Monarch butterfly wintering sites are known to occur in the LGVSD recycled water service area, but are not expected in the project ROW. Myrtle's silverspot butterfly and Opler's longhorn moth are known to occur in the Novato SD recycled water service area but their habitat is not expected in the project ROW. Implementation of Mitigation Measure 3.5.3 would reduce the Partially Connected System impacts on special-status invertebrates to a less-than-significant level. A brief discussion of impacts by member agency is provided below.

#### **LGVSD/NMWD**

The Partially Connected System pipeline involves six stream crossings as stated previously under Impact 3.5.1, the Partially Connected System. No impacts on special-status invertebrates are expected in this recycled water service area. Coastal salt marsh borders San Pedro Road to the north and south in some Las Gallinas areas, but California brackishwater snail is not expected in the project ROW. Monarch butterfly wintering sites are known to occur in the action area within 600 feet of the alignment but would not be impacted by the project.

#### **Novato SD/NMWD**

The Partially Connected System pipelines involve forty additional and fifty-two cumulative stream crossings as stated previously under Impact 3.5.1, the Partially Connected System. Impacts would be similar to those identified for the prior projects. California brackishwater snail is known to occur in the Petaluma River and could be impacted by the project. Myrtle's silverspot butterfly is known to occur in the action area about 0.25 mile from the alignment. However, this species occurs on nearby slopes co-located with its host plant *Viola* and habitat is not expected in the project ROW. Opler's longhorn moth is known to occur in the project vicinity, but occurs in the hills nearly 1.5 miles east of the alignment co-located with its host plant California buttercups and is not expected in the project right-of-way. Marin blind harvestman and Ubick's gnaphosid spider are known to occur in serpentine rock outcrops at Mt. Burdell and are mapped along a 0.75 mile segment of San Marin Drive (CDFG, 2008). This segment is beyond the action area and these species would not be impacted by the project.

#### **SVCSD**

The Partially Connected System pipelines involve twelve additional and seventy-two cumulative stream crossings as stated previously under Impact 3.5.1, the Partially Connected System.

Impacts would be similar to those identified for the prior projects. No impacts would occur to California brackishwater snail due to an absence of habitat in the project alignment.

### **Napa SD**

The Partially Connected System pipelines involve twenty-four additional and seventy-two cumulative stream crossings as stated previously under Impact 3.5.1, the Partially Connected System. Impacts would be similar to those identified for the prior projects. California brackishwater snail is not known to occur in the Napa River, but its presence in the Petaluma River suggests the Napa River could provide habitat.

### ***Alternative 3: Fully Connected System (Program level)***

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to special-status species from operation of proposed facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Under the Fully Connected System, the potential for project impacts on Ricksecker's water scavenger beetle and California brackishwater snail are unknown but are presumed to increase with the number of stream crossings. Two hundred and forty cumulative stream crossings would occur under this alternative. The project could impact Ricksecker's water scavenger beetle at drainage crossings in the SVCSD recycled water service areas and California brackishwater snail at the Petaluma River crossing in the Novato SD recycled water service area. Monarch butterfly wintering sites are known to occur in the LGVSD recycled water service area, but are not expected in the project ROW. Myrtle's silverspot butterfly and Opler's longhorn moth are known to occur in the Novato SD recycled water service area but their habitat is not expected in the ROW. Implementation of Mitigation Measure 3.5.3 would reduce the Fully Connected System impacts on special-status invertebrates to a less-than-significant level. A brief discussion of impacts by member agency is provided below.

### **LGVSD/NMWD**

No Fully Connected System pipelines are proposed for the LGVSD area. No impacts on special-status invertebrates are expected in this recycled water service area under any alternatives.

### **Novato SD/NMWD**

No Fully Connected System pipelines are proposed for the Novato SD area; impacts would be limited to those incurred under the Partially Connected System.

### **SVCS**

The Fully Connected System pipelines involve twenty-three additional and ninety-five cumulative stream crossings as stated previously under Impact 3.5.1, the Fully Connected System. Myrtle's silverspot butterfly and Opler's longhorn moth occur upslope approximately 1 mile west of the proposed alignment, co-located with their respective host plants, and are not expected in the project right-of-way. Impacts would be similar to those identified for the prior projects.

### **Napa SD**

No Fully Connected System pipelines are proposed for the Napa SD area; impacts would be limited to those incurred under the Partially Connected System.

### **Mitigation Measures**

**Mitigation Measure 3.5.3** would reduce potential impacts on special-status invertebrates to a less-than-significant level.

Implementation of **Mitigation Measure 3.5.5** for the protection of California red-legged frogs and **Mitigation Measure 3.5.1** for protection and restoration of wetlands would protect special-status invertebrates that could potentially be impacted by the project. No specific mitigation is required.

**Impact Significance after Mitigation:** Less than Significant.

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**Impact 3.5.5: Impacts on Western Pond Turtle. Construction of the proposed project has the potential to impact western pond turtles in upland and aquatic habitat. (Less than Significant with Mitigation)**

### **No Project Alternative**

No project facilities would be constructed under the No Action Alternative, therefore no impacts would occur to western pond turtle. For a discussion of the No Project under future conditions, see No Action Alternative below.

### **No Action Alternative**

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.5-1, No Action). Under future baseline (2020) conditions, biological conditions within the region are anticipated to remain unchanged from existing conditions.

Under the No Action Alternative, no additional project elements proposed in the four recycled water service areas would directly or indirectly impact western pond turtle. Impacts identified in the SVRWP and Novato SD EIRs would still occur and would be less-than-significant with the implementation of mitigation measures. A brief discussion of impacts by member agency is provided below.

#### **LGVSD/NMWD**

No project facilities would be constructed under the No Action Alternative, therefore no impact on western pond turtle would occur.

#### **Novato SD/NMWD**

Under the No Action Alternative, recycled water facilities would be constructed in the Novato North Service Area (see 2.7.1 Project Description, Phase 1 Implementation Plan, Novato Sanitary District, Novato North Service Area). Pipelines would be installed within existing roadways, but if installed in the road shoulder or in the road ROW where wetlands and lacustrine habitat could be present adjacent to roadways, especially along rural portions of Atherton and Olive Avenues, then western pond turtle could be impacted, if present.

#### **SVCS**

Under the No Action Alternative, Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP) would be implemented. As discussed in the SVRWP EIR (ESA, 2006), which included Alignment 1A in a larger pipeline analysis, construction of these facilities would result in temporary impacts to wetland/water features and drainages/associated riparian vegetation near project components, and implementation of the No Action Alternative could result in impacts to western pond turtle, if present.

The No Action Alternative would also include construction of approximately 8.5 miles of water delivery project components analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (the Sonoma Pipeline) (JSA, 2003). Approximately five wetland areas occur near or within the construction corridor for the alignment and western pond turtle, if present, could be impacted by implementation of the No Action Alternative.

#### **Napa SD**

No project facilities would be constructed under the No Action Alternative, therefore no impact on western pond turtle would occur.

#### ***Phase 1 (Project Level)***

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to western pond turtle from the project facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

#### **LGVSD, Novato SD, SVCSD, and Napa SD**

Under Phase 1, the Basic System, the Partially Connected System and the Fully Connected System, the project has the potential to impact western pond turtle in all four project service areas. Implementation of **Mitigation Measure 3.5.4** would reduce these impacts to a less-than-significant level.

Western pond turtles have the potential to occur in freshwater drainages throughout the action area including the 113 identified perennial and ephemeral drainages, and nearby irrigation ponds. Because the proposed project expects to bridge or bore beneath drainages, there are few anticipated project impacts on aquatic habitat. Potential impacts on aquatic habitat would probably only occur in the event of an accidental materials release during construction. In such an instance, if pond turtles were present, potential impacts could arise from exposure to spill materials and increased human presence during cleanup.

Turtles and their upland breeding sites could additionally be encountered in upland habitats. This presents the potential to inadvertently harm migrating or breeding turtles, or their nests. The potential loss or disturbance of western pond turtles and their habitat is potentially significant but mitigable.

#### ***Alternative 1: Basic System (Program level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to western pond turtle from the project facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative.

#### ***Alternative 2: Partially Connected System (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to western pond turtle from the project facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative.

### ***Alternative 3: Fully Connected System (Program level)***

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to west pond turtle from the project facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative.

### ***Mitigation Measures***

**Mitigation Measure 3.5.5:** The appropriate Member Agency shall implement protection measures to avoid and minimize impacts to western pond turtles.

- When working within 200 feet of stream crossings, all construction personnel shall receive awareness training relating to the protection of western pond turtles, in accordance with the SAAs. Also, to minimize the likelihood of encountering turtles in upland areas near stream crossings, construction footprints shall be minimized to the greatest extent feasible. Based on reconnaissance-level surveys, if staging and construction activities occur principally within or immediately adjacent to project alignment roads the project will be outside of principal pond turtle habitat.
- Within 48 hours prior to the start of construction activities, a qualified biologist shall perform pond turtle surveys within suitable habitat within projected work areas. If a pond turtle nest is located within a work area, a biologist with the appropriate permits may move the eggs to a suitable facility for incubation, and release hatchlings into the creek system in late fall.

The measures proposed for protection of aquatic species and red-legged frogs (**Mitigation Measures 3.5.2 and 3.5.6**) will additionally protect western pond turtles during construction.

**Impact Significance after Mitigation:** Less than Significant.

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### **Impact 3.5.6: Impacts on California Red-legged Frog. Construction of the Proposed Project has the potential to affect California red-legged frogs, if present. (Less than Significant with Mitigation)**

Trenchless crossing methods (e.g., suspending pipes from bridges or directional drilling) would be employed at streams known or presumed to support California red-legged frog, if flowing or

standing water is present at the time of construction. Construction methods in the vicinity of these crossing sites for installation of pipelines would be minimally invasive, utilizing open trench methods either within or adjacent to roadways.

Used as a standard for red-legged frog mitigation, the USFWS (1999) Programmatic Biological Opinion for impacts on red-legged frogs during Corps-permitted activities identifies typical impacts that could occur as a result of construction in streams that support red-legged frog. Assuming that the identified creeks will be traversed by trenchless techniques (e.g., directional drilling), impacts on California red-legged frogs would generally be avoided but may include:

1. Injury or mortality from being crushed by earth moving equipment, debris, and worker foot traffic;
2. Work activities, including noise and vibration causing frogs to leave suitable habitat;
3. Mortality as a result of the accidental spill of hazardous materials or careless fueling or oiling of vehicles or equipment near sensitive upland or aquatic habitats, or;
4. Injury or mortality as a result of handling, containment, or transport of individuals from active work locations.

### ***No Project Alternative***

No project facilities would be constructed in this recycled water service area under the No Action Alternative, therefore no impacts would occur to California red-legged frog. For a discussion of the No Project under future conditions, see No Action Alternative below.

### ***No Action Alternative***

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.5-1, No Action). Under future baseline (2020) conditions, the California red-legged frog within the region would likely be continued to be protected under existing or new regulations anticipated to remain unchanged.

Under the No Action Alternative, no additional project elements proposed in the four recycled water service areas would directly or indirectly impact California red-legged frog. Impacts on California red-legged frog identified in the SVRWP EIR would still occur and would be less-than-significant with the implementation of mitigation measures. A brief discussion of impacts by member agency is described below.

**LGVSD/NMWD**

No project facilities would be constructed under the No Action Alternative, therefore no impact would occur.

**Novato SD/NMWD**

Under the No Action Alternative, recycled water facilities would be constructed in the Novato North Service Area (see 2.7.1 Project Description, Phase 1 Implementation Plan, Novato Sanitary District, Novato North Service Area). California red-legged frog is not reported from the North Novato Service Area and no impacts are expected.

**SVCS**

Under the No Action Alternative, Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP) would be implemented. As discussed in the SVRWP EIR (ESA, 2006), which included Alignment 1A in a larger pipeline analysis, construction of these facilities would result in temporary impacts to wetland/water features and drainages/associated riparian vegetation near project components, and impacts would occur to red-legged frog, if present.

The No Action Alternative would also include construction of water delivery project components analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (the Sonoma Pipeline) (JSA, 2003). Red-legged frog is not known from the valley floor and no impacts to this species are expected.

**Napa SD**

No project facilities would be constructed under the No Action Alternative, therefore no impact would occur.

**Phase 1**

Compared to the CEQA Baseline Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 4.3 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to California red-legged frogs from the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

Under Phase 1, the project could impact California red-legged frog in the SVCS action area. Implementation of **Mitigation Measure 3.5.5** will reduce potential impacts on California red-legged frog to a less-than-significant level. A detailed discussion of impacts by member agency is provided below.

**LGVSD/NMWD, Novato SD/NMWD and Napa SD**

California red-legged frog is not known to occur in the Phase 1 action area of Novato SD or Napa SD. This species has not been found on the eastern side of Sonoma Valley and no impacts are expected to occur.

**SVCS**

The only known populations of California red-legged frog in the action area are from the immediate vicinity of the Sonoma County Transfer Station located on the west side of Highway 116 a distance of 0.8 miles from the nearest pipeline alignment, and from a ponded portion of adjacent Champlin Creek. Champlin Creek is an ephemeral drainage that drains to Rodgers Creek just south of Watmaugh Road, and then into Fowler Creek. During high flow periods there is habitat continuity among these three drainages that may provide red-legged frog dispersal. This species could additionally occur in Sonoma Creek; however, when found in stream habitats red-legged frogs occur more characteristically in lower order tributary drainages such as Champlin Creek and not in large downstream reaches.

Based on the distribution of red-legged frog in the action area and potential habitat, this species may be expected near the Fowler Creek crossing sites, Rodgers Creek crossing sites, and less likely (due to habitat discontinuity) at the Schell Creek crossing site located west of the SVCS wastewater treatment facility. Red-legged frogs are also considered unlikely in Nathanson Creek and Arroyo Seco due to discontinuity with known red-legged frog populations.

In the absence of specific protocol-level surveys to establish species presence or absence at these locations, red-legged frogs are presumed present within available aquatic habitat and adjoining upland environs.

***Alternative 1: Basic System (Program level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to California red-legged frog from operation of proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

**LGVSD/NMWD, Novato SD/NMWD, SVCS, and Napa SD**

Under the Basic System, no impacts on California red-legged frog are expected. No Basic System pipelines are proposed in the LGVSD area. California red-legged frog is not known to occur along the additional SVCS, Novato SD and Napa SD recycled water service area pipelines that

would be constructed under the Basic System. Therefore, no additional impacts would occur beyond those identified for Phase 1 and no mitigation is necessary.

### ***Alternative 2: Partially Connected System (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to California red-legged frog from operation of proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative

Under the Partially Connected System, California red-legged frog is known to occur near pipelines in the Novato SD recycled water service area and could be present in the project ROW. Red-legged frog is not known to occur along the Partially Connected System pipelines in the LGVSD, SVCSD and Napa SD recycled water service areas. Implementation of **Mitigation Measure 3.5.6** will reduce potential impacts on California red-legged frog to a less-than-significant level. A brief discussion of impacts by member agency is described below.

#### **LGVSD/NMWD, SVCSD/NMWD, and Napa SD**

California red-legged frog is not known to occur along the proposed LGVSD recycled water service area pipeline, nor along the additional SVCSD and Napa SD pipelines that would be constructed under the Partially Connected System. Therefore, no additional impacts would occur beyond those identified under the Basic System and no mitigation is necessary.

#### **Novato SD/NMWD**

California red-legged frog is known to occur in the Sears Point area in a stockpond upstream from Tolay Creek, in the hills owned by Sears Point Raceway. In south Petaluma, two other occurrences are from roadside drainages and impoundments along Lakeville Highway. California red-legged frog could be present in the project ROW and in the absence of specific protocol-level surveys to establish species presence or absence at these locations, red-legged frogs are presumed present in roadside drainages.

### ***Alternative 3: Fully Connected System (Program level)***

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to California red-legged frog from operation of proposed facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative.

Under the Fully Connected System, no additional impacts on California red-legged frog are expected beyond those identified under the Partially Connected System and no additional mitigation is required. A discussion of impacts by Member Agency is provided below.

#### **LGVSD and Napa SD**

No Fully Connected System pipelines are proposed in the LGVSD area. California red-legged frog is not known to occur along the additional Napa SD pipelines that would be constructed under the Fully Connected System. Therefore, no additional impacts would occur beyond those identified under the Partially Connected System and no mitigation is necessary.

#### **Novato SD/NMWD**

California red-legged frog is known to occur within 400 feet of the Fully Connected System alignment in a stockpond upstream from Tolay Creek, adjacent to the Sears Point Raceway, but is not expected in the project right-of-way. No additional impacts are anticipated beyond those identified under the Partially Connected System, therefore no additional mitigation is necessary.

#### **SVCS**

California red-legged frog is known to occur in drainages crossed by the Fully Connected System pipelines connecting south Sonoma to Sears Point. The pipeline in this reach crosses Tolay Creek and several other unnamed tributaries, and additional impacts are anticipated beyond those identified in the Partially Connected System.

### ***Mitigation Measures***

**Mitigation Measure 3.5.6:** The appropriate Member Agency shall implement the following protection measures to avoid and minimize impacts on California red-legged frog.

- 1) The implementation of measures identified for the protection of special-status fish and California freshwater shrimp would also protect California red-legged frogs within aquatic habitat. All protection measures identified in **Mitigation Measure 3.5.2** shall be applied to the protection of red-legged frogs at sites that provide potential aquatic habitat for this species. These include informal USFWS consultation, avoiding aquatic habitat, establishing a suitable buffer from the aquatic habitat (e.g., 50 feet), and implementing a worker education program.
- 2) All work activities within or adjacent to aquatic habitat that is potentially occupied by red-legged frogs will be completed between May 1 and November 1.
- 3) A qualified biological resource monitor will conduct a training session for construction personnel working in upland habitat near potentially occupied drainages, as per conditions of the SAAs.

- 4) All trash that could attract predators will be regularly contained and removed from the work site.

In the event trenchless methods cannot be employed, the project proponent would obtain appropriate permit authorizations and implement construction methods per applicable Streambed Alteration Agreements.

**Impact Significance after Mitigation:** Less than Significant.

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**Impact 3.5.7: Impacts on Threatened and Endangered Marsh Birds. Construction of the proposed project has the potential to affect western snowy plover, California black rail and California clapper rail and their habitat in and near the project alignments. (Less than Significant with Mitigation)**

If nesting rails are present, the construction of the project could result in adverse effects, including loss of individuals, loss of breeding habitat, temporary flight, and/or the abandonment of territories or nests. Construction activities associated with the project would involve removing wetland habitat to accommodate the outfall structure at the Napa Salt Marsh Restoration Area, operating heavy equipment, generating loud noises, and temporary human presence in and adjacent to tidal marsh.

***No Project Alternative***

The proposed project would not be implemented under the No Project Alternative, therefore no impact is expected. For a discussion of the No Project under future conditions, see No Action Alternative below.

***No Action Alternative***

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.5-1, No Action).

Under future baseline (2020) conditions, threatened and endangered species within the region would likely be continued to be protected under existing or new regulations.

Under the No Action Alternative, no additional project elements proposed in the four recycled water service areas would directly or indirectly impact California black rail, California clapper rail, or western snowy plover. Impacts would still occur on California black rail, California clapper rail, and western snowy plover present at the Napa Salt Marsh Restoration area and would

be less-than-significant with the implementation of mitigation measures. A brief discussion of impacts by member agency is described below.

#### **LGVSD/NMWD**

No project facilities would be constructed under the No Action Alternative, therefore no impact on California black rail and California clapper rail would occur. Western snowy plover is not known to occur in this action area.

#### **Novato SD/NMWD**

Under the No Action Alternative, recycled water facilities would be constructed in the Novato North Service Area (see 2.7.1 Project Description, Phase 1 Implementation Plan, Novato Sanitary District, Novato North Service Area). California black rail, California clapper rail, and western snowy plover are not known from this specific action area and no impacts to these species are expected.

#### **SVCS**

Under the No Action Alternative, Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP) would be implemented. As discussed in the SVRWP EIR (ESA, 2006), which included Alignment 1A in a larger pipeline analysis, construction of these facilities would result in temporary impacts to freshwater wetland features that do not support California black rail, California clapper rail, or western snowy plover.

The No Action Alternative would also include construction of water delivery project components analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (the Sonoma Pipeline) (JSA, 2003). Approximately 4.0 miles of pipeline would be installed parallel to an existing pipe that extends between SVCS WWTP and the SVCS storage ponds, located near the intersection of Northwestern Pacific Railroad and Ramal Road. A pump station would be installed at the pond site. From the ponds, an additional 4.5 miles of new pipeline would be constructed along the NWPRRA railroad tracks to convey water to the salt pond mixing chamber (Option A). Two Alternative Routes (Option B and Option C) consist of a pipeline that would traverse north from the existing reservoirs to Ramal Road, extend east along Ramal Road and then south along Buchli Station Road toward the salt ponds. Option C deviates south from Ramal Road to feed an existing winery reservoir before joining Buchli Station Road.

Approximately five wetland areas occur near or within the construction corridor for the alignment extending from Sonoma to the Napa Salt Marsh and could be impacted by implementation of the No Action Alternative. The Napa Salt Marsh Restoration Plan EIR also identified direct impacts on coastal salt marsh from construction of a proposed outfall structure, but a site assessment based on recent pipeline specifications indicates that only approximately 0.06 acre of degraded levee habitat would be impacted.

Western snowy plover nests on salt pond levees at the Napa Salt Marsh Restoration Area, and California clapper rail and California black rail occur in tidal marshes immediately adjacent to the pipeline alignment. Pipeline installation would occur primarily within a salt pond levee not

presently known to host nesting western snowy plover, but the pipe would extend for some distance into the marsh and an outfall structure would be constructed, resulting in both direct habitat impacts to these species and indirect disturbances. Western snowy plovers nest on the northwestern levee of Salt Pond 7A and on levees at the northwest end of Fly Bay at distances varying from 0.9 miles to within 170 feet of the alignment. California clapper rail and black rail are present in the tidal marsh that occurs at the base of the levee access road within feet of the project, and could be impacted by the proposed project.

Option A follows an old railroad alignment that borders sensitive coastal salt marsh to the south for most of its length. In contrast, Options B and C traverse vineyards to the north and do not border sensitive salt marsh habitat. Option A would likely result in greater impacts to salt marsh species than Options B and C. All Options converge at Buchli Station Road to head south and enter the Napa Salt Marsh Restoration Area where California clapper rail, California black rail, and western snowy plover are known to occur. Pipeline installation would occur within a levee access road and, with construction proposed outside the breeding season, no direct impacts to the species are expected.

### **Napa SD**

No project facilities would be constructed under the No Action Alternative, and no impacts on California black rail, California clapper rail or western snowy plover would occur.

### ***Phase 1 (Project level)***

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to threatened and endangered species from the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

Under Phase 1, impacts on western snowy plover, California clapper rail, and California black rail could occur at the Napa Salt Marsh Restoration Area within the SVCSD recycled water service area. Impacts could also occur in the Novato SD service area at the Novato Creek stream crossings. Pipeline alignments in the LGVSD service area do not traverse appropriate habitat for these species, and they are not known from the Napa SD Phase 1 action area. A discussion of impacts by member agency is described below.

### **LGVSD/NMWD**

Phase 1 pipelines, including Options A through C, traverse agricultural fields and ruderal areas that do not provide habitat for California clapper rail, California black rail, or western snowy plover. No impacts to these species are expected.

### **Novato SD/NMWD**

Habitat is absent for western snowy plover in the Novato SD Phase 1 action area. California clapper rail are known to occur in Novato Creek downstream from Highway 101, east of the railroad crossing and in the proximity of the Novato Creek stream crossings. California black rail have similar habitat requirements and can be expected where clapper rail are present. Impacts to California clapper rail and California black rail are anticipated at the Novato Creek Phase 1 stream crossing.

### **SVCS**

Under Phase 1, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

### **Napa SD**

Habitat is absent for western snowy plover and California clapper rail in the Napa SD Phase 1 action area. Black rail are occasionally found in upland freshwater marshes but are not known to occur along Napa SD Phase 1 pipelines. No impacts to these species are anticipated.

### ***Alternative 1: Basic System (Program- level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to threatened and endangered species from the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative.

Under the Basic System, California clapper rail and California black rail could be impacted in the Novato SD area. Implementation of **Mitigation Measure 3.5.6** would reduce impacts on threatened and endangered marsh birds to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

### **LGVSD/NMWD, SVCS, and Napa SD**

Basic System pipelines are not proposed for the LGVSD service area. Coastal salt marsh habitat is absent in the SVCS and Napa SD Basic System action areas. Black rail are occasionally found in upland freshwater marshes but are not known to occur along proposed pipeline routes. Western snowy plover nesting habitat is not known to occur along the Basic System pipeline routes.

### **Novato SD/NMWD**

California clapper rail and California black rail are known to occur in the action area where the pipeline approaches the Petaluma River, and could be impacted by the project.

### ***Alternative 2: Partially Connected System (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to threatened and endangered species from the proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Under the Partially Connected System, California clapper rail and California black rail could be impacted in the LGVSD and Novato SD areas. Black rail could be impacted in the SVCSD and Napa SD areas. Implementation of **Mitigation Measure 3.5.6** would reduce the Partially Connected System impacts on threatened and endangered marsh birds to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD**

Only the Partially Connected System pipeline is proposed in this recycled water service area. California clapper rail and California black rail are known to occur in marshes immediately adjacent to the LGVSD alignment. These species are not expected in the project right-of-way but could experience indirect project impacts due to noise disturbance and construction traffic.

#### **Novato SD/NMWD**

In addition to impacts incurred under the Basic System, California clapper rail and California black rail are known to occur in the action area where the Partially Connected System pipeline approaches and crosses the Petaluma River. These species could be impacted by the project.

#### **SVSD and Napa SD**

Habitat is absent for western snowy plover and California clapper rail in the SVCSD and Napa SD Partially Connected System action area. Black rail are not known or expected from the action area. No impacts on these species are anticipated.

### ***Alternative 3: Fully Connected System (Program level)***

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to threatened and endangered species from the proposed facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative.

Under the Fully Connected System, California black rail could be impacted in the Novato SD area. Implementation of **Mitigation Measure 3.5.6** would reduce impacts on threatened and endangered marsh birds to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD, SVCSD/NMWD, and Napa SD**

No Fully Connected System pipelines are proposed for the LGVSD and Napa SD area. No impacts would be incurred in the Napa SD recycled water service area under any alternatives, and impacts in the LGVSD recycled water service area are limited to those incurred under the Partially Connected System. Habitat is absent for western snowy plover and California clapper rail in the SVCSD Fully Connected System action area. Black rail are not known or expected from the action area. No impacts to these species are anticipated.

#### **Novato SD/NMWD**

In addition to impacts incurred under the Partially Connected System, California black rail are known to occur in Tolay Creek marsh, which is bisected by Highway 121 north of Highway 37. The pipeline would be installed in the existing roadway of Highway 121 through Sears Point. However, this was a 1977 record and the species may not longer be present. Habitat is not expected in the project ROW, but the project could result in indirect disturbance impacts to the species if present.

#### ***Mitigation Measures***

**Mitigation Measure 3.5.7: Impacts to Threatened and Endangered Marsh Birds.** To minimize the likelihood of project effects on threatened and endangered marsh birds, the following reasonable and prudent measures would be implemented by the appropriate Member Agency:

- Protocol-level surveys will be conducted in locations with suitable habitat to determine species presence or absence.
- Agency consultation will be initiated.
- Construction activities will occur during the non-breeding season, September 15 through January 31. The combined breeding season for all three species extends from February 1 through September 14.
- Construction personnel will receive environmental awareness training specific to the identification of clapper rails, black rails, western snowy plover and their habitat.
- Any clapper rail and western snowy plover activity will be immediately reported to the USFWS; black rail activity will be reported to the CDFG.

- Construction activities will be constrained to the smallest area possible to minimize marsh disturbance.

**Impact Significance after Mitigation:** Less than Significant.

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**Impact 3.5.8: Impacts on Burrowing Owl. Construction of the proposed project could result in direct and indirect impacts to burrowing owls, if present in portions of the project alignment. (Less than Significant with Mitigation)**

If present, project construction, site clearing and grubbing, noise disturbances and/or increased human presence could have direct or indirect impacts on burrowing owl. Disturbances could result in nest abandonment by adults, and could potentially cause reproductive failure and loss of young.

***No Project Alternative***

The proposed project would not be implemented under the No Project Alternative, therefore no impact is expected. For a discussion of the No Project under future conditions, see No Action Alternative below.

***No Action Alternative***

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.5-1, No Action).

Under future baseline (2020) conditions, burrowing owl in the region would likely be continued to be protected under existing or new regulations.

Under the No Action alternative, no additional project elements proposed in the four recycled water service areas would directly or indirectly impact burrowing owl. Impacts on burrowing owl identified in the SVRWP EIR would still occur and would be less-than-significant with the implementation of mitigation measures. A discussion of individual Member Agencies is provided below.

**LGVSD/NMWD**

No project facilities would be constructed under the No Action Alternative, therefore no impact would occur.

### **Novato SD/NMWD**

Under the No Action Alternative, recycled water facilities would be constructed in the Novato North Service Area (see 2.7.1 Project Description, Phase 1 Implementation Plan, Novato Sanitary District, Novato North Service Area). Burrowing owls are present at Gness Field approximately 1.0 miles to the north, but are not known from or expected in the action area.

### **SVCSD**

Under the No Action Alternative, Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP) would be implemented. As discussed in the SVRWP EIR (ESA, 2006), which included Alignment 1A in a larger pipeline analysis, construction of these facilities could result in impacts to burrowing owl. Potential nesting habitat was identified in grasslands between Highway 116 and the SVCSD wastewater treatment plant.

The No Action Alternative would also include construction of water delivery project components analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (the Sonoma Pipeline) (JSA, 2003). Burrowing owl populations are documented 0.67 mile south of this alignment connecting the SVCSD area to the Napa Salt Marsh Restoration Area.

Within the core of the SVCSD, open grasslands were identified in two locations: between Highway 116 and the SVCSD wastewater treatment facility and between Hyde Road and the wastewater treatment facility. The likelihood of encountering burrowing owls in these agricultural areas is considered low due to historic and/or ongoing cultivation.

### **Napa SD**

No project facilities would be constructed under the No Action Alternative, therefore no impact would occur.

### ***Phase 1 (Project level)***

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to burrowing owl from the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

Burrowing owl could potentially be present in the SVCSD and Novato SD Phase 1 action areas. Implementation of **Mitigation Measure 3.5.8** would reduce potential impacts on burrowing owl to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

### **LGVSD/NMWD, Napa SD**

Implementation of Phase 1 would entail construction of a pipeline from the Recycled Water Treatment Facility at LGVSD WWTP to the Hamilton Field area and Reservoir Hill Tank by one of Options A, B or C. Options A and B traverse agricultural fields that are regularly cultivated and would not support burrowing owl. Option C traverses the levee of Miller Creek, heavily overgrown with fennel but bordered by grazing areas to the west and a rarely-driven dirt road to the north. Burrowing owl was known from this area in the early 1980s (CDFG, 2008) but has not been recently observed. The berm between Miller Creek and the dirt road offers a narrow strip of potential habitat, and ruderal grazing areas to the west offer fair quality habitat, but no owls or small mammal burrow complexes were observed during field surveys.

### **Novato SD/NMWD**

Burrowing owl is known from Gness Field, 0.67 mile north of the nearest pipeline alignment, but is not known from the action area. No impacts to this species are expected.

### **SVCS**

Under Phase 1, impacts in the SVCS would be equivalent to those under the No Action Alternative.

### **Napa SD**

Burrowing owl is known from one location in south Napa, but is not known from the action area. No impacts to this species are anticipated.

### ***Alternative 1: Basic System (Program level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to burrowing owl from the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative.

Under the Basic System, burrowing owl could be impacted in the Novato SD and Napa SD recycled water service areas. Implementation of **Mitigation Measure 3.5.7** would reduce potential impacts on burrowing owl to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

### **LGVSD and SVCS**

No Basic System pipelines are proposed for the LGVSD area. The Basic System pipelines in the core SVCS area near suitable habitat for burrowing owl are short offshoots of Phase 1 pipelines and are adequately covered in the Phase 1 discussion above.

### **Novato SD//NMWD**

In addition to impacts incurred under Phase 1, the Basic System pipelines in Novato SD traverse off-road open areas that could provide habitat for burrowing owl. Areas appear to be farmed for hay, and regular mowing and tilling would discourage burrowing owls from using this area, but areas that are grazed have the potential for impacts.

### **Napa SD**

Burrowing owl is not known to occur along the Basic System pipelines in this recycled water service area, but undescribed populations could be present in off-road or farm road alignments.

### ***Alternative 2: Partially Connected System (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to burrowing owl from the proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative.

Under the Partially Connected System, burrowing owl could be impacted in the SVCSD and Novato SD recycled water service areas. Implementation of **Mitigation Measure 3.5.7** would reduce potential impacts on burrowing owl to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

### **LGVSD/NMWD**

Only the Partially Connected System pipeline is proposed in this recycled water service area. Burrowing owl is not known to occur along the proposed pipeline and additional impacts are not expected.

### **Novato SD/NMWD**

In addition to impacts incurred under the Basic System, the Sears Point area supports two populations of burrowing owl within 0.7 miles of the proposed alignment but they are not likely to be impacted due to their distance from proposed activities. A possibly extirpated population occurs within the alignment just south of the Lakeville Highway/ Highway 37 junction; if still present, this population would be impacted by the project.

Grasslands north of Hamilton Field could support unknown populations of burrowing owl and be impacted by off-road alignments.

### **SVCS**

In addition to impacts incurred under the Basic System, an off-road alignment extending east from Highway 116 south of Bonness Road and an off-road arm alignment extending west from Highway 116 approximately 1 mile south of Meadowlark Lane would pass through open areas of sloping grasslands that could support undescribed populations of burrowing owl.

### **Napa SD**

Burrowing owl is not known to occur along proposed in-road alignments and impacts on this species are not expected.

### ***Alternative 3: Fully Connected System (Program level)***

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to burrowing owl from the proposed facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative.

Under Fully Connected System, burrowing owl is not known to occur along additional pipelines from the four recycled water service areas but habitat is present in the SVCS and Novato SD areas. If present, implementation of **Mitigation Measure 3.5.7** would reduce potential impacts on burrowing owl to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

### **LGVSD/NMWD and Napa SD**

No Fully Connected System pipelines are proposed for the LGVSD and Napa SD areas. No impacts on burrowing owl are expected in the LGVSD recycled water service area under any alternatives, and impacts in the Napa SD recycled water service area would be limited to those incurred under the Basic System.

### **Novato SD/NMWD**

In addition to impacts incurred under the Partially Connected System, an off-road alignment would occur briefly between Tolay Creek Rd. and Reclamation Rd. south of Sears Point, passing through open areas that could support undescribed populations of burrowing owl. If present, this species could be impacted by the project.

### **SVCS**

In addition to impacts incurred under the Partially Connected System, off-road alignments near Lomita Ave., Norblum Rd., Davenport Rd., and Fowler Creek Rd. pass through dry, hilly areas

that could support undescribed populations of burrowing owl. If present, this species could be impacted by the project.

### ***Mitigation Measures***

**Mitigation Measure 3.5.8:** The following measures to avoid, minimize, or mitigate impacts on burrowing owls would be incorporated into the project by the appropriate Member Agency:

- In areas identified to provide potential burrowing owl habitat, preconstruction surveys for burrowing owls would be conducted by a qualified biologist 14-30 days prior to the start of construction. Surveys would cover grassland areas within 500-foot buffer and check for adult and juvenile burrowing owls and their habitat.
- Construction exclusion areas would be established around the occupied burrows in which no disturbance would be allowed to occur. During the non-breeding season (September 1 through January 31), the exclusion zone would extend 160 feet around occupied burrows. During the breeding season (February 1 through August 31), exclusion areas would extend 250 feet around occupied burrows. Passive relocation of owls is not proposed.
- A qualified biologist (the on-site monitor or otherwise) will monitor owl activity on the site to ensure the species is not adversely affected by the project.

**Impact Significance after Mitigation:** Less than Significant.

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**Impact 3.5.9: Impacts on Nesting Birds. Construction of the proposed project has the potential to affect nesting birds including Swainson's hawk, willow flycatcher, sharp-shinned hawk, Cooper's hawk, tri-colored blackbird, Bell's sage sparrow, golden eagle, northern harrier, California yellow-warbler, white-tailed kite, California horned lark, salt marsh common yellowthroat, loggerhead shrike, San Pablo song sparrow, California thrasher, rookeries, and additional bird species protected by California Fish and Game Code Section 3503 and the federal Migratory Bird Treaty Act (16 USC, Sec. 703, Supp. I, 1989). (Less than Significant with Mitigation)**

Potential nesting habitat for numerous common and special-status birds occurs in and adjacent to the Proposed Project facilities and throughout the action area. Potential nesting sites include large trees, riparian corridors, streamside vegetation, shrubs, and open grasslands. Project activities, such as earthmoving, grading, and trenching during the nesting season (generally February 1 to August 31) have the potential to result in direct mortality of these species. In addition, human disturbances and construction noise have the potential to cause indirect impacts due to nest abandonment and death of young, or loss of reproductive potential at active nests located near project activities. If ground-disturbing activities (i.e., ground clearing, trenching, or grading, including removal or trimming of trees or shrubs), are scheduled to occur outside the nesting season (September 1 through January 28), no mitigation is required. However, if activities would

occur from February 1 to August 31, then implementing **Mitigation Measure 3.5.8** would reduce potential impacts to a less-than-significant level.

### ***No Project Alternative***

The proposed project would not be implemented under the No Project Alternative, therefore no impact is expected. For a discussion of the No Project under future conditions, see No Action Alternative below.

### ***No Action Alternative***

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.5-1, No Action).

Under future baseline (2020) conditions, nesting birds within the region would likely be continued to be protected under existing or new regulations.

A brief discussion of impacts by member agency is provided below. Implementation of **Mitigation Measure 3.5.9** would reduce Phase 1 impacts on nesting birds to a less-than-significant level.

### **LGVSD/NMWD**

No project facilities would be constructed under the No Action Alternative, therefore no impact on nesting birds would occur.

### **Novato SD/NMWD**

Under the No Action Alternative, recycled water facilities would be constructed in the Novato North Service Area (see 2.7.1 Project Description, Phase 1 Implementation Plan, Novato Sanitary District, Novato North Service Area). Roadside vegetation offers suitable habitat for many birds, and impacts to nesting birds are anticipated.

### **SVCS**

Under the No Action Alternative, Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP) would be implemented. As discussed in the SVRWP EIR (ESA, 2006), which included Alignment 1A in a larger pipeline analysis, construction of these facilities could impact nesting birds. No specific nests are known from the action area.

The No Action Alternative would also include construction of water delivery project components analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (the Sonoma Pipeline)

(JSA, 2003). A northern harrier nest occurs on Coon Island 0.6 miles southeast of the Napa Salt Marsh pipeline; at this distance, no direct or indirect impacts are anticipated. Tri-colored blackbird, salt marsh common yellowthroat, and San Pablo song sparrow are known to occur in marshes adjacent to the Napa Salt Marsh pipeline alignment and could be impacted by Option A, B, and C pipeline installation.

Option A follows an old railroad alignment that borders undeveloped areas for most of its length. In contrast, Options B and C traverse vineyards to the north, a monoculture that offers little habitat value and would not support as many breeding birds. Option A would likely result in greater impacts to breeding birds than Options B and C.

### **Napa SD**

No project facilities would be constructed under the No Action Alternative, therefore no impact on nesting birds would occur.

### ***Phase 1 (Project level)***

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to nesting birds from the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

Under Phase 1, one specific nest is known to occur in the recycled water service areas. Impacts on nesting birds are presumed to increase as additional pipelines are introduced under each alternative. Implementation of **Mitigation Measure 3.5.9** would reduce Phase 1 impacts on nesting birds to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

### **LGVSD/NMWD**

Specific nests and rookeries are not known to occur in the action area, but nesting birds may be present and could be impacted by pipeline installation.

### **Novato SD/NMWD and Napa SD**

Specific nests and rookeries are not known to occur in the action area, but nesting birds may be present and could be impacted by pipeline installation.

### **SVCS**

Under Phase 1, impacts in the SVCS would be equivalent to those under the No Action Alternative.

### ***Alternative 1: Basic System (Program level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to nesting birds from the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative.

In addition to specific nests identified in Phase 1, one specific nest is known to occur in the recycled water service areas under the Basic System. Impacts on nesting birds are presumed to increase as additional pipelines are introduced under each alternative. Implementation of **Mitigation Measure 3.5.9** would reduce Phase 1 impacts on nesting birds to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

#### **LGVS/D and SVCS/D**

No Basic System pipelines are proposed for the LGVS/D area. Specific nests and rookeries are not known to occur along proposed SVCS/D recycled water service area pipelines, but nesting birds may be present and could be impacted by the project.

#### **Novato SD/NMWD**

San Pablo song sparrow is known to occur in tidal marshes in the recycled water service area and could be impacted where the pipeline crosses the Petaluma River.

#### **Napa SD**

Tricolored blackbird and salt marsh common yellowthroat are known to occur in various locations along the Napa River and could be impacted where the pipeline crosses the river. Nesting golden eagles were described in a large eucalyptus tree in 2003, approximately 200 feet from the Stanley Crossroad alignment (CDFG, 2008) and the project could result in indirect impacts.

### ***Alternative 2: Partially Connected System (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to nesting birds from the proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative.

In addition to specific nests identified in the Basic System, two specific nests or rookeries are known to occur in the recycled water service areas under the Partially Connected System. Impacts on nesting birds are presumed to increase as additional pipelines are introduced under each alternative. Implementation of **Mitigation Measure 3.5.9** would reduce Phase 1 impacts on nesting birds to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD**

Only the Partially Connected System pipeline is proposed in this recycled water service area. San Pablo song sparrow and tricolored blackbird are known to occur in marshes in China Camp State Park and along San Pedro Road, and could be present in the ROW. A great blue heron rookery was described on private land within 0.3 miles of the alignment and although not directly impacted by pipeline installation, the rookery could be adversely affected by construction noise.

#### **Novato SD/NMWD**

In addition to specific impacts incurred under Phase 1, tricolored blackbird and salt marsh common yellowthroat are known to occur in marshes in the action area and could be impacted where the pipeline crosses Petaluma River.

#### **SVCS**

In addition to specific impacts incurred under Phase 1, salt marsh common yellowthroat is known to occur in marshes neighboring the action area. Habitat is not expected in the project ROW and direct impacts on the species are not anticipated.

#### **Napa SD**

In addition to specific impacts incurred under Phase 1, tricolored blackbird and salt marsh common yellowthroat are known to occur in marshes in the action area and could be impacted where the pipeline crosses the Napa River. The state-threatened Swainson's hawk nests in an oak tree approximately 200 feet from the alignment near Soscol Ferry Road and could be impacted by the project.

#### ***Alternative 3: Fully Connected System (Program level)***

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to nesting birds from the proposed facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative.

Under Fully Connected System, no additional nests are identified beyond those previously described. Impacts on nesting birds are presumed to increase as additional pipelines are introduced under each alternative. Implementation of **Mitigation Measure 3.5.9** would reduce Phase 1 impacts on nesting birds to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD, SVCSD, and Napa SD**

The Fully Connected System pipelines are not proposed for the LGVSD and Napa SD areas. Impacts in these recycled water service areas would be limited to those incurred under the Partially Connected System. Specific nests and rookeries are not known to occur in the SVCSD recycled water service area, but nesting birds may be present and could be impacted by the project.

#### **Novato SD/NMWD**

In addition to specific impacts incurred under the Partially Connected System, salt marsh common yellowthroat and San Pablo song sparrow are known to occur in marshes south of Sears Point. Pipeline installation would occur along a dirt farmroad outside of appropriate habitat and these species would not be directly impacted by the project.

#### ***Mitigation Measures***

**Mitigation Measure 3.5.9:** To avoid disturbing common and special-status nesting birds, the following protection measures shall be implemented:

- Whenever feasible, vegetation shall be removed during the non-breeding season (generally defined as September 1 to January 31).
- For ground disturbing activities occurring during the breeding season (generally defined as February 1 to August 31), a qualified wildlife biologist will conduct preconstruction surveys of all potential nesting habitat for birds within 500 feet of earthmoving activities.
- If active bird nests are found during preconstruction surveys, a 500-foot no-disturbance buffer will be created around active raptor nests during the breeding season or until it is determined that all young have fledged. A 250-foot buffer zone will be created around the nests of other special-status birds. These buffer zones are consistent with CDFG avoidance guidelines; however, they may be modified in coordination with CDFG based on existing conditions at work locations.
- If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation is required. Trees and shrubs that have been determined to be unoccupied by special-status birds or that are located at least 500 feet from active nests may be removed.

**Impact Significance after Mitigation:** Less than Significant.

**Impact 3.5.10: Impacts on Salt Marsh Harvest Mouse and Suisun Ornate Shrew. Construction of the proposed project has the potential to affect salt marsh harvest mouse and suisun ornate shrew and their habitat in and near the project alignments. (Less than Significant with Mitigation)**

Impacts may include the temporary removal of vegetation, direct mortality from equipment, entrapment in pipe sections or trenches, and harassment due to noise or vibration.

***No Project Alternative***

The proposed project would not be implemented under the No Project Alternative, therefore no impact is expected. For a discussion of the No Project under future conditions, see No Action Alternative below.

***No Action Alternative***

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.5-1, No Action).

Under future baseline (2020) conditions, the salt marsh harvest mouse and suisun ornate shrew in the region would likely be continued to be protected under existing or new regulations. A discussion of individual Member Agencies is provided below.

**LGVS/NMWD**

No project facilities would be constructed under the No Action Alternative, therefore no impact would occur.

**Novato SD/NMWD**

Under the No Action Alternative, recycled water facilities would be constructed in the Novato North Service Area (see 2.7.1 Project Description, Phase 1 Implementation Plan, Novato Sanitary District, Novato North Service Area). Salt marsh harvest mouse and Suisun ornate shrew are not present in this action area.

**SVCS**

Under the No Action Alternative, Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP) would be implemented. Salt marsh harvest mouse and Suisun ornate shrew are not present in this action area.

The No Action Alternative would also include construction of water delivery project components analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (the Sonoma Pipeline)

(JSA, 2003). Impacts on salt marsh harvest mouse and suisun ornate shrew identified in that EIR would still occur.

None of Options A, B or C traverse appropriate habitat for salt marsh harvest mouse and suisun ornate shrew until they converge to enter the Napa Salt Marsh Restoration Area.

### **Napa SD**

No project facilities would be constructed under the No Action Alternative, therefore no impact would occur.

### ***Phase 1 (Project level)***

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to harvest mouse and shrew from the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

Under Phase 1, salt marsh harvest mouse and Suisun ornate shrew could be impacted in the SVCSD recycled water service area. Implementation of **Mitigation Measure 3.5.9** would reduce potential Phase 1 impacts on salt marsh harvest mouse and Suisun ornate shrew to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

### **LGVSD/NMWD**

Pipeline alignments in the LGVSD service area do not traverse appropriate habitat for salt marsh harvest mouse and Suisun ornate shrew. No impacts to these species are expected.

### **Novato SD/NMWD and Napa SD**

Pipelines bordering coastal salt marshes in Novato pipelines would be installed in existing roadways; this vegetation community is not expected in the project ROW and no impacts are anticipated. No habitat is present in the Napa SD area.

### **SVCSD**

Under Phase 1, impacts in the SVCSD would be equivalent to those under the No Action Alternative.

### ***Alternative 1: Basic System (Program level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline),

Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to harvest mouse and shrew from the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative.

Under the Basic System, salt marsh harvest mouse and Suisun ornate shrew could be impacted in the Novato SD recycled water service area. Implementation of Mitigation Measure 3.5.9 would reduce potential the Basic System impacts on salt marsh harvest mouse and Suisun ornate shrew to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD, SVCSD, and Napa SD**

Additional Basic System pipelines are not proposed for LGVSD. Coastal salt marsh habitat is absent from the SVCSD and Napa SD the Basic System recycled water service areas and no additional impacts would occur.

#### **Novato SD/NMWD**

Coastal salt marsh habitat is present where the Basic System pipeline crosses the Petaluma River. Salt marsh harvest mouse are known to occur in the Petaluma River near the action area and could be impacted by the project. Suisun ornate shrew are not known to occur in the action area and are not distributed west of the Petaluma River (CDFG, 2008).

#### ***Alternative 2: Partially Connected System (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to harvest mouse and shrew from the proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative.

Under the Partially Connected System, salt marsh harvest mouse and Suisun ornate shrew could be impacted in the Novato SD recycled water service area. Implementation of **Mitigation Measure 3.5.9** would reduce potential the Basic System impacts on salt marsh harvest mouse and Suisun ornate shrew to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD, SVCSD, and Napa SD**

LGVSD pipelines would be installed in the existing roadway. Coastal salt marsh habitat is absent from the SVCSD and Napa SD areas. No impacts are expected.

### **Novato SD/NMWD**

In addition to impacts incurred under the Basic System, coastal salt marsh habitat is present as the pipeline crosses the Petaluma River and the project could impact salt marsh harvest mouse and Suisun ornate shrew at this location. Salt marsh harvest mouse is known to occur in the Petaluma River, and both salt marsh harvest mouse and Suisun ornate shrew are known to occur in the Sears Point area.

Implementation of **Mitigation Measure 3.5.9** would reduce the Partially Connected System impacts on salt marsh harvest mouse and Suisun ornate shrew to a less-than-significant level.

### ***Alternative 3: Fully Connected System (Program level)***

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to harvest mouse and shrew from the proposed facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. No Fully Connected System impacts on Salt marsh harvest mouse and Suisun ornate shrew are anticipated and no additional mitigation is required. A discussion of impacts by Member Agency is provided below.

### **LGVSD/NMWD, SVCSD, and Napa SD**

No Fully Connected System pipelines are proposed for LGVSD or Napa SD and no impacts on salt marsh harvest mouse and Suisun ornate shrew are expected in these service areas under any alternatives. Coastal salt marsh habitat is absent in the SVCSD Fully Connected System recycled water service area.

### **Novato SD/NMWD**

Salt marsh harvest mouse and Suisun ornate shrew are known to occur in coastal salt marsh habitat near Sears Point, but the pipeline would be installed in existing dirt farm roads outside of coastal salt marsh habitat and no impacts are expected.

### ***Mitigation Measures***

**Mitigation Measure 3.5.10:** The appropriate Member Agency shall implement protection measures to avoid and minimize impacts on salt marsh mammals during construction.

Where avoidance of sensitive habitat is not feasible (e.g., by bridging or bore and jack), consultation with CDFG and/or USFWS would be initiated. If species are present or presumed to be present after informal consultation with USFWS and/or CDFG, then a formal consultation and Biological Assessment in support of a Biological Opinion would be required. Such a consultation would proceed as part of the Corps 404 permitting program.

To avoid potential impacts on salt marsh harvest mouse and Suisun ornate shrew, a qualified biologist shall conduct specific preconstruction surveys prior to project initiation, following USFWS survey guidelines. The project proponent shall install exclusionary fences to prevent species movement into the action area, and a biologist with the appropriate permits to relocate these species shall live-trap mice and shrews within the enclosure and move these animals outside the fence. The biological monitor shall inspect these fences to ensure their integrity, and shall conduct an education workshop for contractors employees outlining species' biology, legislative protection, and construction restrictions to reduce potential impacts.

**Impact Significance after Mitigation:** Less than Significant.

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**Impact 3.5.11: Impacts on Special-Status Bats. Construction of the proposed project has the potential to affect roosting or breeding special-status bats in and near the project alignments. (Less than Significant with Mitigation)**

Bridges and large trees throughout the action area provide potential habitat for roosting and breeding bats. Potential direct impacts to special-status bats include removal of roost sites during site clearing and grubbing activities. Indirect impacts include increased noise and human presence during construction, with the possibility of temporary nest or roost abandonment.

***No Project Alternative***

No project would be implemented under No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

***No Action Alternative***

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.5-1, No Action).

Under future baseline (2020) conditions, special-status bats within the region would likely be continued to be protected under existing or new regulations. A discussion of individual Member Agencies is provided below.

**LGVSD/NMWD**

No project facilities would be constructed under the No Action Alternative, therefore no impact on special-status bats would occur.

**Novato SD/NMWD**

Under the No Action Alternative, recycled water facilities would be constructed in the Novato North Service Area (see 2.7.1 Project Description, Phase 1 Implementation Plan, Novato Sanitary District, Novato North Service Area). No impacts on special-status bats are anticipated.

**SVCS**

Under the No Action Alternative, Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP) would be implemented. As discussed in the SVRWP EIR (ESA, 2006), which included Alignment 1A in a larger pipeline analysis, construction of these facilities could result in impacts to special-status bats.

The No Action Alternative would also include construction of water delivery project components analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (the Sonoma Pipeline) (JSA, 2003). No special-status bats are known from the action area.

**Napa SD**

No project facilities would be constructed under the No Action Alternative, therefore no impact on special-status bats would occur.

***Phase 1 (Project level)***

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to special-status bats from the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

**LGVSD/NMWD**

No special-status bats are known from the LGVSD service area. However, large eucalyptus trees are abundant in this rural environment, and could provide potential habitat for bats.

**Novato SD/NMWD, Napa SD**

Bridge crossings could provide suitable nesting and roosting habitat, and Sonoma Creek, Novato Creek, Napa River and other perennial drainages provide a required nearby water source. No roosting habitat is known to occur in these action areas.

**SVCS**

Special-status-bat roosts are present in the SVCS recycled water service area. Bat surveys have not been conducted; however, roosting pallid bats have been identified under Sonoma Creek

Bridge within the alignment (CNDDDB, 2008) and could be impacted by the project. A roosting population has also been identified within 0.4 mile of the alignment at Riverside Drive Bridge, but may not be affected by the project and the project has the potential to impact special-status bats in all recycled water service areas. Implementation of **Mitigation Measure 3.5.10** would reduce potential impacts on special-status bats to a less-than-significant level. A brief discussion by member agency is provided below.

### ***Alternative 1 (Program level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to special-status bats from the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

### **LGVSD, Novato SD, SVCSD, and Napa SD**

Please refer to the discussion above.

### ***Alternative 2 (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to special-status bats from the proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

### **LGVSD/NMWD, Novato SD/NMWD, SVCSD, and Napa SD**

Please refer to the discussion above.

### ***Alternative 3 (Program level)***

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to special-status bats from the proposed facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

**LGVSD, Novato SD, SVCSD, and Napa SD**

Please refer to the discussion above.

***Mitigation Measures***

**Mitigation Measure 3.5.11:** The appropriate Member Agency shall implement protection measures to avoid and minimize impacts on special-status bats in and near project facilities during construction.

Concurrent with breeding bird surveys (**Mitigation Measure 3.5.8**), a qualified biologist will conduct preconstruction surveys for special-status bats at each bridge crossing location and in rural (i.e., non-road) areas where any large trees (e.g., > 24 inch diameter at breast height) will be removed. If an active roost is observed, a suitably-sized buffer (e.g., 100 to 150 feet) will be placed around the roost if it appears that trenching or other project activities may cause abandonment. Demolition activities must cease until juvenile bats are self-sufficient and will not be directly or indirectly impacted by activities.

**Impact Significance after Mitigation:** Less than Significant.

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**Impact 3.5.12: Impacts on American Badger. Construction of the proposed project has the potential to affect American badger and its habitat in and near the project alignments. (Less than Significant with Mitigation)**

Project activities, including grading, stockpiling, and other site disturbances along pipeline alignments would disturb annual grasslands and potentially eliminate badger dens. This species may be present on the site at any time of the year, and the removal of active dens could result in the direct mortality of individual badgers that are denning in action area grasslands, if present when activities occur.

***No Project Alternative***

The proposed project would not be implemented under the No Project Alternative, therefore no impact is expected. For a discussion of the No Project under future conditions, see No Action Alternative below.

***No Action Alternative***

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.5-1, No Action).

Under future baseline (2020) conditions, the American badger within the region would likely be continued to be protected under existing or new regulations. A discussion of individual Member Agencies is provided below.

#### **LGVSD/NMWD**

No project facilities would be constructed under the No Action Alternative, therefore no impact to American badger would occur.

#### **Novato SD/NMWD**

Under the No Action Alternative, recycled water facilities would be constructed in the Novato North Service Area (see 2.7.1 Project Description, Phase 1 Implementation Plan, Novato Sanitary District, Novato North Service Area). Pipeline alignments would be installed within existing roadways and impacts to American badger are not expected.

#### **SVCS**

Under the No Action Alternative, Alignment 1A of the Sonoma Valley Recycled Water Project (SVRWP) would be implemented. As discussed in the SVRWP EIR (ESA, 2006), which included Alignment 1A in a larger pipeline analysis, construction of these facilities could result in impacts to American badger in grassland habitats.

The No Action Alternative would also include construction of water delivery project components analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (the Sonoma Pipeline) (JSA, 2003). This low-elevation coastal scrub habitat would not provide suitable habitat for American badger, however impacts on American badger could occur in upland grassland pipeline routes.

#### **Napa SD**

No project facilities would be constructed under the No Action Alternative, therefore no impact to American badger would occur.

#### ***Phase 1***

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to American badger from construction of the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative.

Under Phase 1, American badger could be impacted in the SVCSD recycled water service area. Implementation of **Mitigation Measure 3.5.12** would reduce potential Phase 1 impacts on American badger to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD**

Proposed alignments in the LGVSD service area traverse coastal baylands and cultivated farmland in areas east of Highway 101. These areas are isolated from oak woodlands to the west. This isolation, combined with the intensely cultivated nature of the open space, would not result in appropriate habitat for badger. No impacts to this species are anticipated in the service area or under any alignment Option.

#### **Novato SD/NMWD**

Phase 1 pipelines south of Hamilton Field traverse an expanse of open area and annual grasslands. However, no American badger occurrences are known to occur in the action area, and though American badger was historically present in Marin County and habitat is available along portions of this off-road pipeline alignment, this area is isolated by Highway 101 from undeveloped hills to the west. Impacts on American badger are not anticipated.

#### **SVCSD**

Off-road pipelines in the SVCSD area traverse ruderal grazing areas and non-native grasslands and could impact American badger. American badger is known to occur in the action area (C. Alvarado, pers. comm., 2009) and fair-quality habitat is available along portions of off-road pipeline alignments. Off-road pipelines in Sonoma occur between Watmaugh and Imperial Roads, east of 8<sup>th</sup> Street, between Arnold and Watmaugh, between first and fourth street, and between Specht and Imperial east of Highway 12. The remaining off-road pipelines were surveyed either on foot or from the road, and while most land parcels have been converted to vineyards or croplands, some remaining parcels are ruderal grazing lands and annual grassland that provide moderate habitat for American badger. Under Phase 1, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

#### **Napa SD**

Phase 1 pipelines are in road rights-of-way and are not expected to impact American badger.

#### ***Alternative 1: Basic System (Program level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline),

Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to American Badger from construction of the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative.

Under the Basic System, American badger could be impacted in the SVCSD, Novato SD and Napa SD recycled water service areas. Implementation of **Mitigation Measure 3.5.12** would reduce potential Phase 1 impacts on American badger to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD**

Under the Basic System, project construction would involve increasing tertiary treatment capacity at the LGVSD WWTP by 0.3 mgd through onsite improvements. No additional Basic System pipelines are proposed for the LGVSD.

#### **Novato SD/NMWD**

American badger is not known along proposed the Basic System pipeline routes, but in addition to impacts incurred under Phase 1 there is a low potential to impact American badger along an alignment that traverses off-road towards Black Point to deliver water to the Stonetree Golf Club. While open areas appear to be farmed for hay and regular mowing and tilling would prevent badgers from using this area, grazing areas could support American badger.

#### **SVCSD**

American badger is not specifically known to occur along proposed Basic System pipeline routes, but in addition to impacts incurred under Phase 1 there is a low potential to impact American badger along an off-road alignment that extends east from Arnold Drive south of Cypress. While this area appears to have been largely converted to vineyards, grazing and open grassland areas could support badger.

#### **Napa SD**

American badger is not known to occur along proposed the Basic System alignments but there is a low potential to impact American badger along an alignment that follows an existing dirt farm road across grazing and open grassland areas that could support badger.

#### ***Alternative 2: Partially Connected System (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to American badger from construction of proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative.

Under the Partially Connected System, American badger could be impacted in the SVCSD and Napa SD recycled water service areas. Implementation of **Mitigation Measure 3.5.12** would reduce potential Phase 1 impacts on American badger to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD**

Only the Partially Connected System pipeline is proposed for this recycled water service area. The pipeline traverses dry, sloping grasslands off-road for a short distance from San Pedro Rd. to Biscayne Dr. and while Marin County is within this species' described range, this area is isolated from undeveloped hills to the west by Highway 101. Therefore, impacts on American badger are not expected.

#### **Novato SD/NMWD**

American badger is not known to occur along proposed pipelines, but in addition to impacts incurred under the Basic System, badger could be present in grazing areas along a 1 mile alignment through Sears Point. The potential for impacts is reduced by Highway 37, which interrupts the habitat continuity by reducing access to undeveloped hills to the north.

Impacts on American badger are not anticipated along several lengthy, off-road the Partially Connected System pipelines that traverse the Bel Marin Keys area then head south to Hamilton Field and farther south to agricultural areas, passing through grassland and grazing areas. Occurrences are not known along the proposed alignments, and though American badger was historically present in Marin County and habitat is available along portions of this off-road pipeline alignment, this area is isolated by Highway 101 from undeveloped hills to the west.

#### **SVCSD**

American badger is not known to occur along proposed alignments, but in addition to impacts incurred under the Basic System, American badger may be present in dry grasslands along off-road alignments extending east from Highway 116 south of Bonness Road and west from Highway 116 approximately 1 mile south of Meadowlark Lane.

#### **Napa SD**

American badger is not known to occur in the action area, but in addition to impacts incurred under the Basic System, badger may be present in dry, open areas along an off-road alignment south of Soscol Ferry Rd. This alignment would traverse east from the Napa River across Highway 121 and into the hills, generally paralleling Suscol Creek.

### **Alternative 3: Fully Connected System (Program level)**

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to American badger from construction of project facilities under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative.

Under the Fully Connected System, American badger could be impacted in the SVCSD and Novato SD recycled water service areas. Implementation of **Mitigation Measure 3.5.12** would reduce potential Phase 1 impacts on American badger to a less-than-significant level. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD**

No Fully Connected System pipelines are proposed in the LGVSD area.

#### **Novato SD/NMWD**

American badger is not known to occur in the action area, but in addition to impacts incurred under the Partially Connected System, badger could be present along an off-road alignment between Tolay Creek Rd. and Reclamation Rd. at Sears Point.

#### **SVCSD**

American badger is known to occur in the action area (C. Alvarado, pers.comm., 2009). In addition to impacts incurred under the Partially Connected System, badger may be present in dry, hilly areas along off-road alignments near Lomita Ave., Norblum Rd., Davenport Rd., and Fowler Creek Rd.

#### **Napa SD**

No Fully Connected System pipelines are proposed for the Napa SD area and impacts would be limited to those incurred under the Partially Connected System.

### **Mitigation Measures**

**Mitigation Measure 3.5.12:** To avoid and minimize impacts on badgers, the appropriate Member Agency shall implement preconstruction surveys prior to ground clearing and grading in annual grasslands habitat or areas that are known or suspected to support badger.

- Within 30-days prior to ground-clearing, a qualified biologist shall survey areas that provide potential badger habitat that occur within 100-feet of project activities. If no evidence of badgers presence is detected, no further mitigation is required. If active badger dens are identified within the action area, badgers will be passively relocated. If identified, vacated dens shall be temporarily covered using plywood sheets or

similar materials to prevent badgers from returning to the action area during construction.

**Impact Significance after Mitigation:** Less than Significant.

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**Impact 3.5.13: Impacts on Rare Plants. Project construction could result in impacts to listed and other special-status plants. (Less than Significant with Mitigation)**

The following listed and special-status plants have been identified as having at least a low potential to occur in the action area and are discussed in this impact section: Sonoma sunshine, soft bird's beak, Contra Costa goldfields, two-fork clover, franciscan onion, Napa false indigo, Mt. Tamalpais manzanita, narrow-anthered California brodiaea, Point Reyes bird's beak, dwarf downingia, Napa western flax, delta tulle pea, legenera, Mason's lilaeopsis, Suisun marsh aster, saline clover, and oval-leaved viburnum.

***No Project Alternative***

The proposed project would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

***No Action Alternative***

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.5-1, No Action).

Under future baseline (2020) conditions, rare plants in the region would likely be continued to be protected under existing or new regulations. A discussion of individual Member Agencies is provided below.

**LGVSD/NMWD**

There would be no project facilities constructed under the No Action Alternative, therefore no impact on listed and other special-status plant species known to occur in the project vicinity would occur.

**Novato SD/NMWD**

If the project is not implemented in the Novato SD, no pipelines would be constructed that could impact listed and other special-status plant populations. Pipelines identified in the Novato

Sanitary District Wastewater Facility Plan Project EIR would still be constructed, but those findings concluded that no habitat existed in that action area for rare plants.

### **SVCS**

Rare plant surveys conducted for the SVRWP along Alignment 1A concluded that no impacts on listed or other special-status plants would occur.

Under the No Action Alternative, the Napa Salt Marsh Restoration Project would include construction of approximately 4.3 miles of pipeline, departing southeast from central Sonoma and traversing off-road between Ramal Road and Buchli Station Road, then turning south along Buchli Station Road to the salt pond access road levee and terminating at the mixing ponds. Two unverified populations of soft bird's beak are reported by the CNPS along this pipeline route (CDFG, 2008). The first occurs near Bentley's Wharf where the pipeline would intersect soft bird's beak habitat at Huichica Creek, south of the railroad tracks and west of Salt Pond 7A. This population is believed to be extirpated. The second population is an undated record immediately to the east of the proposed pipeline terminus at the mixing ponds, near Fly Bay, for which more detailed information was not available. This mapped soft bird's beak population occurs in the action area in the Napa-Sonoma Marshes Wildlife Area Huichica Creek Unit, though its specific distribution and the potential for project impacts are not known because the site was not accessible for surveys. This population could be impacted by the project, and more specific surveys are required to determine the extent of the anticipated impact.

A possibly extirpated population of two-fork clover occurs in the vicinity of the railroad track and salt pond access road junction. First observed in 1952, a follow-up survey along the railroad tracks in April 1987 found no plants. Habitat to the northeast of the railroad tracks is upland grassland and to the northwest is managed vineyards; south of the railroad tracks the habitat is managed marsh. The specific distribution and the potential for project impacts are unknown because the site was not accessible for surveys. This population could be impacted by the project.

An extant population of delta tule pea occurs about 160 feet southeast of where the off-road pipeline would intersect with Huichica Creek and could be impacted by the project. Several other extant populations occur in the vicinity of the Napa Salt Marsh Restoration area but are not in the project alignment.

### **Napa SD**

No project facilities would be constructed under the No Action Alternative, therefore no impact on listed and other special-status plant species known to occur in the project vicinity would occur.

### ***Phase 1 (Project level)***

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects

would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to rare plants under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Under Phase 1, pipeline alignments could impact soft bird's beak, two-fork clover and delta tulle pea in the SVCSD recycled water service area; Mt. Tamalpais manzanita in the Novato SD recycled water service area; and Suisun marsh aster in the Napa SD recycled water service area. Pending the findings of focused botanical surveys, as-yet unidentified populations of rare plants could be impacted by the project. Implementation of **Mitigation Measure 3.5.13** would reduce potential Phase 1 impacts to a less-than-significant level.

### **LGVSD/NMWD**

Phase 1 pipeline alignments, including Options A through C, would be installed in existing dirt roadways or within levee berms adjacent to chaparral/coastal scrub and agricultural fields. Mt. Tamalpais manzanita grows in chaparral, and valley and foothill grasslands and is known to occur in the LGVSD service area. This species could be impacted if present in the project right-of-way.

### **Novato SD/NMWD**

If the Phase 1 project is implemented in the Novato SD, impacts on Mt. Tamalpais manzanita could occur. Mt. Tamalpais manzanita grows in chaparral, and valley and foothill grasslands, a habitat type found adjacent to the main stem of the Phase 1 pipelines through Novato (CDFG, 2008) though they are not expected in the project ROW. Focused botanical surveys are pending in this service area; thus, a small though unknown number of Mt. Tamalpais manzanita could be impacted during construction. Impacts on Tiburon buckwheat are unlikely based on known occurrences.

### **SVCSD**

Under Phase 1, impacts related to the SVRWP and the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative if Alternative A is the preferred Napa Salt Marsh pipeline alignment. The construction of Options B or C is expected to result in fewer potential impacts to rare plants since they traverse the disturbed soils of monocultural vineyards where rare plants would not be expected.

### **Napa SD**

If the Phase 1 project is implemented in the Napa SD, Suisun marsh aster could be impacted. Suisun marsh aster was observed in 1992 in a ditch and railroad berm parallel with the west boundary of the Napa Golf Course at Kennedy Park. The southern pipeline portion cuts through moist areas in the off-road portion between Imola and Hwy. 121 that could potentially be habitat for Suisun marsh aster.

No other rare plants are known to occur in the action area. Napa western flax and delta tulle pea occur in the project vicinity, but appropriate habitat does not occur along pipeline routes. Holly-leaved ceanothus, Brewer's western flax, and narrow-anthered California brodiaea are unlikely in the action area based on known distribution.

### ***Alternative 1: Basic System (Program level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to rare plants under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Under the Basic System, pipeline alignments could impact Mt. Tamalpais manzanita in the Novato SD recycled water service area and Suisun marsh aster in the Napa SD recycled water service area. No the Basic System pipelines are proposed in the LGVSD recycled water service area. Focused botanical surveys have not been conducted in the Novato SD and Napa SD recycled water service areas, but were conducted for the Basic System pipelines in the SVRWP EIR and no rare plants were found in the action area. Pending the findings of focused surveys, as-yet unidentified rare plant populations could be impacted by the proposed project. Implementation of Mitigation Measure 3.5.13 would reduce potential impacts to a less-than-significant level.

### **LGVS/NMWD**

Under the Basic System, project construction would involve increasing tertiary treatment capacity at the LGVSD WWTP by 0.3 mgd through onsite improvements.

### **Novato SD/NMWD**

In addition to Phase 1 impacts previously described, implementation of the Basic System could impact Mt. Tamalpais manzanita. Generally known to occur in Novato though not specifically known to occur in the action area, construction of a pipeline connecting the Ignacio Treatment Plant to the Stone Creek Golf Course could result in project impacts on a small but unknown number of Mt. Tamalpais manzanita.

### **SVCS**

Implementation of the Basic System would result in no additional impacts beyond No Action and Phase 1 impacts previously described. The Basic System pipelines are identical to pipelines analyzed in the SVRWP EIR, for which rare plant surveys were conducted and none were found in the action area.

## **Napa SD**

In addition to Phase 1 impacts previously described, implementation of the Basic System could impact Mason's lilaepsis. Mason's lilaepsis occurs in various places along Napa River and habitat is present where the pipeline crosses the river, but it is not specifically known to occur in the project alignment. Suisun marsh aster habitat is present in brackish marshes throughout the eastern action area; known populations occur within 1.5 miles of the project but are not known specifically from the alignment. Delta tule pea is present in various locations along the Napa River and habitat is available where the pipeline crosses the river, but is not known specifically from the alignment. No other rare plant populations are known in the pipeline right-of-way. Pending the results of focused botanical surveys, Mason's lilaepsis, Suisun marsh aster, delta tule pea, Contra Costa goldfields and two-fork clover could occur in the action area. Impacts on alkali milk-vetch, big-scale balsamroot, and Point Reyes checkerbloom are unlikely based on known occurrences.

### ***Alternative 2: Partially Connected System (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to rare plants under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Under the Partially Connected System, pipeline alignments could impact Point Reyes bird's beak in the LGVSD recycled water service area; Sonoma sunshine in the SVCSD recycled water service area; and delta tule pea, Mason's lilaepsis, and Suisun marsh aster in the Napa SD recycled water service area. Focused botanical surveys have not been conducted for the Partially Connected System pipelines in any service areas and specific surveys are required to determine the extent of the anticipated impact. Implementation of Mitigation Measure 3.5.13 would reduce potential impacts to a less-than-significant level.

## **LGVSD/NMWD**

The Peacock Gap Golf Course area would be served by a single Partially Connected System pipeline extending from the LGVSD WWTP to the golf course. An extant population of Point Reyes bird's beak occurs within 0.1 mile of San Pedro Road but is not expected in the project right-of-way. No other rare plant populations are known in or adjacent to the pipeline alignment.

## **Novato SD/NMWD**

Implementation of the Partially Connected System is not likely to result in impacts beyond those previously described for Phase 1 and the Basic System. Extant populations of Marin western flax occur at Mt. Burdell in the general vicinity of the Partially Connected System pipelines, but the

action area along San Marin Drive is a built-up residential neighborhood on both sides of the road and would not result in additional impacts on rare plants.

### **SVCS**

In addition to Phase 1 and the Basic System impacts previously described, implementation of the Partially Connected System could impact Sonoma sunshine. A known population of Sonoma sunshine is mapped on either side of Bonneau Road (CDFG, 2008), an area that was not surveyed for rare plants in the SVRWP EIR. Review of satellite imagery suggests habitat occurs on the north side of the road and Sonoma sunshine is not expected in the action area. No other rare plant populations are known in the pipeline alignment. Pending the results of focused surveys, impacts on unknown populations of dwarf downingia and saline clover could occur; impacts on pappose tarplant are unlikely based on known distribution. Under the Partially Connected System, impacts related to the Napa Salt Marsh Restoration Project would be equivalent to those under the No Action Alternative.

### **Napa SD**

In addition to Phase 1 and the Basic System impacts previously described, implementation of the Partially Connected System could impact delta tule pea, Mason's lilaepsis and Suisun marsh aster. The Partially Connected System pipeline traverses through a population of delta tule pea on the east side of the Napa River (CDFG, 2008) and could result in project impacts. Habitat for Mason's lilaepsis is present where the Partially Connected System pipeline crosses the Napa River, and Suisun marsh aster habitat is present in brackish marshes throughout the eastern action area.

No other rare plant populations are known in the pipeline alignment. An extant population of Contra Costa goldfields occurs 0.12 mile north of the proposed alignment and an extant population of legenera occurs within 0.4 mile of the pipeline, but these species would not be impacted by the project. Pending the results of focused botanical surveys, as-yet unidentified populations of delta tule pea, legenera, Suisun marsh aster, Contra Costa goldfields, narrow-anthered California brodiaea, and dwarf downingia could be impacted. Alkali milk-vetch, big-scale balsamroot, holly-leaved ceonothus, Greene's narrow-leaved daisy, California beaked-rush, and Point Reyes checkerbloom are unlikely in the action area based on known occurrences and distribution.

### ***Alternative 3: Fully Connected System (Program level)***

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to rare plants under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Under the Fully Connected System, Franciscan onion and Napa false indigo occur in the pipeline route in the SVCSD recycled water service area and would likely be impacted by the project. Focused botanical surveys have not been conducted for the Fully Connected System pipelines in any service areas; pending the results of focused plant surveys, as-yet unidentified rare plant populations could be impacted by the proposed project. Implementation of **Mitigation Measure 3.5.13** would reduce potential impacts to a less-than-significant level.

#### **LGVSD/NMWD**

No Fully Connected System pipelines are proposed for this area.

#### **Novato SD/NMWD**

Implementation of the Fully Connected System is not likely to result in impacts beyond those previously described for Phase 1, the Basic System, and the Partially Connected System.

#### **SVCSD**

In addition to No Action, Phase 1, the Basic System, and the Partially Connected System impacts previously described, implementation of the Fully Connected System could impact populations of Franciscan onion and Napa false indigo that occur in the alignment. No other rare plants are known to occur in the pipeline alignment, but historical populations of oval-leaved viburnum occurred in the immediate vicinity of pipelines, narrow-anthered California brodiaea occurs 1.5 miles east of pipelines in northern Sonoma, and dwarf downingia occurs 0.7 miles outside the project alignment in the Sonoma Valley Regional Park. No impacts on these species are expected. Pending the findings of rare plants surveys, as-yet unidentified populations of Franciscan onion, Napa false indigo, narrow-anthered California brodiaea, dwarf downingia, and oval-leaved viburnum could occur in the action area. Impacts on Sonoma canescent manzanita, Sonoma ceanothus, and Jepson's leptosiphon are unlikely based on distribution and known occurrences.

#### **Napa SD**

No Fully Connected System project is proposed in the Napa SD area.

### ***Mitigation Measures***

**Mitigation Measure for Impact 3.5.13. Impacts on Rare Plants.** Before the initiation of any vegetation removal or ground-disturbing activities in areas that provide suitable habitat for special-status plants, the following measures shall be implemented by the appropriate Member Agency:

- A qualified botanist will conduct appropriately-timed surveys for special-status plant species, including those identified in Table 3.5.1, in all suitable habitat that would be potentially disturbed by the project.
- Surveys shall be conducted following CDFG- or other approved protocol.
- If no special-status plants are found during focused surveys, the botanist shall document the findings in a letter to the appropriate agencies and no further mitigation will be required.

If special-status plants are found during focused surveys, the following measures shall be implemented:

- Information regarding the special-status plant population shall be reported to the CNDDDB.
- If the populations can be avoided during project implementation, they shall be clearly marked in the field by a qualified botanist and avoided during construction activities. Before ground clearing or ground disturbance, all on-site construction personnel shall be instructed as to the species' presence and the importance of avoiding impacts to this species and its habitat.
- If special-status plant populations cannot be avoided, consultations with CDFG and/or USFWS would be required. A plan to compensate for the loss of special-status plant species could be required, detailing appropriate replacement ratios, methods for implementation, success criteria, monitoring and reporting protocols, and contingency measures that would be implemented if the initial mitigation fails; the plan would be developed in consultation with the appropriate agencies prior to the start of local construction activities.
- If mitigation is required, the project proponent shall maintain and monitor the mitigation area for 5 years following the completion of construction and restoration activities. Monitoring reports shall be submitted to the resource agencies at the completion of restoration and for 5 years following restoration implementation. Monitoring reports shall include photo-documentation, planting specifications, a site layout map, descriptions of materials used, and justification for any deviations from the mitigation plan.

**Impact Significance after Mitigation:** Less than Significant.

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**Impact 3.5.14: Impacts on Heritage and Other Significant Trees. The proposed project could affect heritage and other significant trees. (Less than Significant with Mitigation)**

#### ***No Project Alternative***

The proposed project would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

#### ***No Action Alternative***

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity,

and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.5-1, No Action).

Under future baseline (2020) conditions, significant and other heritage trees in the region would likely be continued to be protected under existing or new regulations. A discussion of individual Member Agencies is provided below.

#### **LGVSD/NMWD**

No project facilities would be constructed under the No Action Alternative, therefore no impact on heritage and other significant trees would occur.

#### **Novato SD/NMWD**

If the project is not implemented in the Novato SD, no pipelines would be constructed and no impacts would occur to heritage and other significant trees. Pipelines identified in the Novato Sanitary District Wastewater Facility Plan Project EIR would still be constructed, but tree and vegetation removal were not identified in that EIR.

#### **SVCS**

Under the No Action Alternative, pipeline Alignment 1A would still be constructed, and heritage or other significant trees identified in that EIR could be impacted by that project.

Under the No Action Alternative, the Napa Salt Marsh Restoration Project would include construction of approximately 4.3 miles of pipeline parallel to an existing pipeline that extends between SVCS WWTP and the SVCS storage ponds located near the intersection of Northwestern Pacific Railroad and Ramal Road. From the ponds an additional 4.5 miles of new pipeline would be constructed to convey water to the salt pond mixing chamber in one of three alternative pipeline routes (see **Chapter 2, Project Description**). The Option A salt pond pipeline was discussed and analyzed under the Napa River Salt Marsh Restoration Project EIR/EIS (JSA, 2003). Impacts on heritage and other significant trees identified in that EIR would still occur.

The Napa Salt Marsh pipeline could impact heritage trees at the Huichica Creek riparian stream crossing under both Options A and B.

#### **Napa SD**

No project facilities would be constructed under the No Action Alternative, therefore no impact on heritage and other significant trees would occur.

#### ***Phase 1 (Project level)***

Compared to the CEQA Baseline, Phase 1 projects would provide 46 miles of new pipeline, 1,655 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28 miles of new pipeline, 743 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The impacts to heritage and other significant trees from the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

**LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD**

No trees have been identified for removal as a result of the proposed project. However, a moderate number of relatively large valley oak, coast live oak, California bay, blue oak, madrone, eucalyptus, sycamore, cypress, acacia and other species occur near roads and in off-road areas proposed for pipeline construction and in the vicinity of project components. It is likely that some trees will need to be trimmed or removed, some of which may be considered significant to the Counties of Marin, Sonoma and Napa. Implementation of **Mitigation Measure 3.5.14** will reduce potential impacts to a less-than-significant level.

***Alternative 1: Basic System (Program level)***

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,158 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65 miles of new pipeline, 1,246 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The impacts to heritage and other significant trees from proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

**LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD**

Please refer to discussion above under Phase 1.

***Alternative 2: Partially Connected System (Program level)***

Compared to the CEQA Baseline, the Partially Connected System would provide 139 miles of new pipeline, 3,454 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122 miles of new pipeline, 2,542 HP of pumping capacity, treatment facilities providing 15.4 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to heritage and other significant trees from proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

**LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD**

Please refer to discussion above under Phase 1.

### **Alternative 3: Fully Connected System (Program level)**

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135 miles of new pipeline, 3,907 HP of pumping capacity, treatment facilities providing 20.3 mgd of tertiary capacity, and 2,155 AF of storage.

The impacts to heritage and other significant trees under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

#### **LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD**

Please refer to discussion above under Phase 1.

### **Mitigation Measures**

**Mitigation Measure 3.5.14:** The following measures shall be implemented by the appropriate Member Agency to avoid or reduce impacts to heritage or other significant trees:

1. Prior to the commencement of construction activities, trees necessary to remove or at risk of being damaged will be identified.
2. A certified arborist will inventory these trees, with the results of the inventory providing species, size (diameter at breast height, or *dbh*), and number of protected trees. Also, in consultation with the appropriate County, the arborist will determine if any are heritage or landmark trees.
3. If any protected trees are identified that will be potentially removed or damaged by construction of the proposed project, design changes will be implemented where feasible to avoid the impact.
4. Any protected trees that are removed will be replaced per applicable City and County tree protection ordinances. Foliage protectors (cages and tree shelters) will be installed to protect the planted trees from wildlife browse. The planted trees will be monitored as required by the ordinance, or regularly during a minimum two-year establishment period and maintenance during the plant establishment period will include irrigation. After the establishment period, the native tree plantings are typically capable of survival and growth without supplemental irrigation.

**Impact Significance after Mitigation:** Less than Significant.

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## **3.5.4 Impact Summary by Service Area**

**Table 3.5-10** provides a summary of potential project impacts related to biological resources.

**TABLE 3.5-10  
POTENTIAL IMPACTS AND SIGNIFICANCE – BIOLOGICAL RESOURCES**

Proposed Project	Impact by Member Agency Service Areas			
	LGVSD/ NMWD	Novato SD/ NMWD	SVCSD	Napa SD/ Napa County
<b>Impact 3.5.1: Wetlands, Streams and Riparian Habitats.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	LSM
Phase 1	LSM	LSM	LSM	LSM
Alternative 1: Basic System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM
<b>Impact 3.5.2: Special-status Fish and California Freshwater Shrimp.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	NI	LSM
Phase 1	LSM	LSM	LSM	LSM
Alternative 1: Basic System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM
<b>Impact 3.5.3: Long-term Impacts to Special-status Fish.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LTS	LTS	LTS
Phase 1	LTS	LTS	LTS	LTS
Alternative 1: Basic System	LTS	LTS	LTS	LTS
Alternative 2: Partially Connected System	LTS	LTS	LTS	LTS
Alternative 3: Fully Connected System	LTS	LTS	LTS	LTS
<b>Impact 3.5.4: Special-status Invertebrates.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	NI	LSM	LSM	LSM
Alternative 1: Basic System	NI	LSM	LSM	LSM
Alternative 2: Partially Connected System	NI	LSM	LSM	LSM
Alternative 3: Fully Connected System	NI	LSM	LSM	LSM
<b>Impact 3.5.5: Western Pond Turtle.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	LSM	LSM	LSM	LSM
Alternative 1: Basic System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM
<b>Impact 3.5.6: California Red-legged Frog.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	NI	NI
Phase 1	NI	LSM	NI	NI
Alternative 1: Basic System	NI	LSM	NI	NI
Alternative 2: Partially Connected System	NI	LSM	LSM	NI
Alternative 3: Fully Connected System	NI	LSM	LSM	NI

**TABLE 3.5-10 (Continued)**  
**POTENTIAL IMPACTS AND SIGNIFICANCE – BIOLOGICAL RESOURCES**

Proposed Project	Impact by Member Agency Service Areas			
	LGVSD/ NMWD	Novato SD/ NMWD	SVCS	Napa SD/ Napa County
<b>Impact 3.5.7: Threatened and Endangered Marsh Birds.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	NI	LSM	LSM	NI
Alternative 1: Basic System	NI	LSM	LSM	NI
Alternative 2: Partially Connected System	LSM	LSM	LSM	NI
Alternative 3: Fully Connected System	LSM	LSM	LSM	NI
<b>Impact 3.5.8 Burrowing Owl.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	NI	LSM	NI
Phase 1	LTS	LSM	LSM	NI
Alternative 1: Basic System	LTS	LSM	LSM	LTS
Alternative 2: Partially Connected System	LTS	LSM	LSM	LTS
Alternative 3: Fully Connected System	LTS	LSM	LSM	LTS
<b>Impact 3.5.9 Nesting Birds.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	LSM	LSM	LSM	LSM
Alternative 1: Basic System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM
<b>Impact 3.5.10: Salt Marsh Harvest Mouse and Suisun Ornate Shrew.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	LSM	NI
Phase 1	NI	LSM	LSM	NI
Alternative 1: Basic System	NI	LSM	LSM	NI
Alternative 2: Partially Connected System	NI	LSM	LSM	NI
Alternative 3: Fully Connected System	NI	LSM	LSM	NI
<b>Impact 3.5.11: Special-Status Bats.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	NI	NI
Phase 1	LTS	LSM	NI	NI
Alternative 1: Basic System	LTS	LSM	NI	NI
Alternative 2: Partially Connected System	LTS	LSM	NI	NI
Alternative 3: Fully Connected System	LTS	LSM	NI	NI
<b>Impact 3.5.12: American Badger.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	NI	NI
Phase 1	NI	LSM	NI	NI
Alternative 1: Basic System	NI	LSM	LTS	LTS
Alternative 2: Partially Connected System	NI	LSM	LTS	LSM
Fully Connected System	NI	LSM	LSM	LSM

**TABLE 3.5-10 (Continued)  
POTENTIAL IMPACTS AND SIGNIFICANCE – BIOLOGICAL RESOURCES**

Proposed Project	Impact by Member Agency Service Areas			
	LGVSD/ NMWD	Novato SD/ NMWD	SVCS	Napa SD/ Napa County
<b>Impact 3.5.13: Rare Plants.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	NI	NI
Phase 1	LTS	LSM	LSM	LTS
Alternative 1: Basic System	LTS	LSM	LSM	LSM
Alternative 2: Partially Connected System	LTS	LSM	LSM	LSM
Alternative 3: Fully Connected System	SM	LSM	LSM	LSM
<b>Impact 3.5.14: Heritage and Other Significant Trees.</b>				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	NI	LSM	NI	NI
Phase 1	LSM	LSM	LSM	LSM
Alternative 1: Basic System	LSM	LSM	LSM	LSM
Alternative 2: Partially Connected System	LSM	LSM	LSM	LSM
Alternative 3: Fully Connected System	LSM	LSM	LSM	LSM

NI = No Impact  
 LTS = Less than Significant impact, no mitigation required  
 LSM = Less than Significant with Mitigation  
 SU = Significant Unavoidable impact  
 N/A = Not Applicable

### 3.5.5 References

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