Appendix J

Minimization and Mitigation Summary

Project Features and Minimization Measures

Circulation

SR-12 / North Kelly Road

- Northbound Approach of North Kelly Road: Convert the northbound right turn lane on North Kelly Road to a shared through-right lane, and widen the north leg of the intersection to provide a second northbound receiving lane (with a 100 meter merge).
- Westbound Approach of SR-12: Add a westbound right turn lane approximately 180 to 200 meters in length with a 50 meter taper.

SR-29 / SR-12 Interchange (Tight Diamond Alternative)

- Widen the SR-12 overcrossing to accommodate a second westbound left turn lane (westbound SR-12 to southbound SR-29 on-ramp) and widen the southbound on-ramp to accommodate two lanes and merging.

Visual/Aesthetics

Landscape Unit 1: Jameson Canyon

- Provide Oak tree mitigation planting/revegetation in project ROW throughout project corridor. (VM-2)
- Use architectural design measures for MSE grade-separation walls. (VM-3)
- Provide Oak tree mitigation planting/ revegetation in project ROW; concentrated planting of oak and other native vegetation adjoining turnouts. (VM-2b)
- Use architectural design measures for turn-out cut-slope retaining walls (VM-4)
- Provide replacement planting and architectural design measures for retaining wall. (VM-5b)
- Utilize context-sensitive cut-slope retaining wall design measures to be developed in coordination with local jurisdictions. (VM-6)

Landscape Unit 2: Napa River Floodplain to Kelly Road

- Relocate entry gateway as part of the project right-of-way acquisition process. (VM-7)
- Provide Oak tree mitigation planting/ revegetation in project ROW; concentrated planting of oak and other native vegetation adjoining turnouts. (VM-2 and VM-2b)
- Provide replacement and mitigation tree screening in the project ROW in the front of the affected residence. (VM-8)

Landscape Unit 3: SR 29 Corridor

- Revegetate SRs 29/12 Interchange with Oak and other native species on both interior and exterior interchange embankments to create a landscape buffer between the interchange structure and surrounding land uses, to enhance the gateway image of the interchange, and to enhance vividness and intactness within the interchange. (VM-9)
- Utilize architectural and landscape design enhancement of SR 12/29 Interchange. (VM-10)

All Landscape Units

- Use architectural design treatment of center median barriers to decrease visual mass, reflectivity, and color contrast. (VM-1)
- Provide replacement planting within proposed new project ROW. (VM-5a)
- Limit all construction lighting to within the area of work and avoid light trespass through directional lighting, shielding, and other measures as needed. (VM-12)

***Construction-Related Measures*:**

- Clean and grub only within excavation and embankment slope limits as identified during project design.
- Protect existing vegetation outside of cleaning and grubbing limits from the contractor's operations, equipment and material storage.
- Do not store unsightly material and equipment within the foreground of the highway. Where such siting is unavoidable, material and equipment shall be visually screened.
- Use visually opaque screening for construction, staging, and storage areas whereever they will be exposed to public view for extended periods of time.
- Revegetate all areas disturbed by construction, staging and storage following completion construction.
- Place fill stockpiles, if required, outside of the visual foreground of SR 12.

<u>Water Quality</u>

Construction Site BMPs

- Utilize temporary silt fence, stockpile cover, stabilized construction entrance/exit and temporary soil stabilizers, and other measures in combination to prevent and minimize soil erosion and sediment discharges during construction.

Permanent Design Pollution Prevention BMPs

- Utilize erosion control netting in combination with hydroseeding as source controls. The biodegradable netting is effective in providing good initial mechanical protection while seed applied during the hydroseeding operation germinates and establishes itself. Other forms of source control such as tacked straw may also be used when applicable.
- Use Sediment controls such as biodegradable fiber rolls to retain sediments and to help control runoff from disturbed slope areas.
- Use outlet protection and velocity dissipation devices placed at the downstream end of culverts and channels.

Permanent Treatment BMPs

- Incorporate biofiltration swales where drainage ditches are being proposed to convey pavement runoff without large amount of off-site shed and where access for maintenance is feasible. Biofiltration strips will be provided in locations where side slopes are 4(H):1(V) or flatter and a minimum width (in direction of flow) of 3.6 m (12 ft) can be obtained within State right of way.
- Review the feasibility of a possible infiltration/ detention basin in the southwest quadrant of the interchange during design.

<u>Noise</u>

Construction Noise

- Avoid construction activities during nighttime and weekends, when possible.
- Consider constructing noise barriers as first items of work, where feasible.
- Use stockpiled dirt as earth berms, where feasible.
- Erect temporary noise barriers, if necessary.
- Keep noisy equipment and haul roads away from sensitive receptors, where feasible.
- Keep the community informed of upcoming especially noisy construction activities and establish a field office to handle noise complaints.

<u>Biology</u>

Natural Communities

- Modify design to avoid sensitive habitat including coast live oak and coast live oak – willow riparian habitat and reduce the impact below the level of significance.
- Designate any sensitive habitats observed within the temporary work area as an environmentally sensitive area (ESA), and use orange construction fencing and placement of signs to prohibit intrusion into the ESAs.

- Show the location of all ESAs on project construction drawings and monitoring the ESAs during construction.

- ***Wetlands and Waters***
- Conduct wetland assessments in parcels for which access was not previously obtained in order to refine the delineation, and reduce the potential amount of impact. Additional wetland delineations will be conducted by Caltrans prior to project construction as part of the USACE jurisdictional determination.
- To the maximum extent practicable, avoid wetlands and other waters of the U. S. in the temporary work area. Designate all wetlands and waters within the temporary work area as an ESA and protect them with appropriate fencing and signage. Show all ESAs on the final construction drawings.
- Perform all work in accordance with a SWPPP. Implement BMPs—including the use of silt fences, sandbags, detention basins, and other means as appropriate—to prevent erosion into onsite or offsite waters of the U. S. including wetlands.
- Restore the topography and grade to pre-construction conditions in wetland and other waters areas that are temporarily affected. Replant or reseed these areas, following all grading and earthwork, with the appropriate plant species, if determined necessary, or monitor following construction to ensure that vegetation comparable to the pre-existing condition has naturally regenerated.
- Tally unavoidable wetland and other waters losses estimated to occur, once additional wetland investigations are performed or that occur during construction, and incorporate into project permits and compensatory mitigation documents and requirements as appropriate.

Plant Species

Native Trees Including Oaks

- Modify design of the proposed project to avoid native oak and riparian tree species and reduce the impact below the level of significance.
- Designate any individual native oak woodland or riparian trees greater than 4 inches diameter at breast height observed within the temporary work area as an ESA and protect with orange construction ESA fencing and signage.
- Show the location of all ESAs on project construction drawings and monitor the ESAs during construction.
- Address permanent impacts to native oak woodland and riparian trees on an acreage basis as part of the oak woodland and riparian habitat mitigation effort rather than replacing individual trees on a stem basis.

Landscaping

- Replant landscaping tree species onsite following construction. A separate landscaping plan will be prepared for the installation of landscaping species within the project BSA.
- Alternatively, make up for the loss of landscaping tree species by adding the total number of landscaping trees to be affected to the total number of trees to be planted in the oak woodland and riparian habitat mitigation areas, and selecting an appropriate native species as a substitute.

Special Status Plant Species

- If special-status plant species are identified during preconstruction surveys:
- Modify design to avoid the species and reduce the impact below the level of significance.
- Designate any special status plant populations observed within the permanent impact area or temporary work area as an ESA, and delimit the ESA with orange construction fencing and signage.
- Show the location of all ESAs on project construction drawings and monitor them during construction.

Animal Species

Foothill Yellow-Legged Frogs

- Conduct pre-construction surveys for Foothill Yellow-Legged Frog (FYLF) in or near the suitable creek and riparian habitat.
- Relocate any FYLF that are encountered during project activities.
- Obtain letter of authorization from CDFG to relocate any FYLF.

Northwestern and Southwestern Pond Turtle (Clemmys marmorata)

- Conduct pre-construction surveys for western pond turtles prior to the start of any construction activities for the proposed project.
- Obtain a letter of authorization from CDFG to relocate Northwestern ans Southwestern Pond Turtles or other State Species of Concern associated with this project.

Birds

- Adhere to the Migratory Bird Treaty Act (MBTA), which recommends that unavoidable nesting habitat for Cooper's hawk, loggerhead shrike, and other protected bird species be removed in the non-nesting season between *October 1 and February 15*.
- Allow no one to destroy or dislodge any bald or golden eagle nest without a permit.
- Stop construction-related work—if a golden eagle nest is found and avoidance is not possible, or if any Threatened or Endangered species nest is found—and consult with USFWS before proceeding.
- Conduct pre-construction nesting surveys to identify and remove nearby bird nests or to prevent nesting, as necessary. Take additional reasonable measures to avoid and minimize unnecessary disruptions to the normal behavior patterns of protected bird species that include, but are not limited to, breeding, feeding, and sheltering.
- Conduct shrub and tree trimming and/or removal activities, to the extent practicable, from September through January, outside the nesting season (generally between February 1 and August 31).
- Retain a qualified wildlife biologist, familiar with the species and habitats in the BSA, to conduct preconstruction surveys for nesting birds within suitable nesting habitat in the BSA, if shrub and tree removal is scheduled to occur during the nesting season. The nesting bird surveys should be conducted within one week before initiation of construction activities within those habitats. If no active nests are detected during surveys, construction may proceed.
- Allow construction activities begun prior to the breeding season to continue until there is a determination that an active migratory bird nest is subject to abandonment because of the construction activities.
- Establish a no-disturbance buffer around migratory bird nests—if construction activities are scheduled to occur during the breeding season, and if surveys indicate that migratory bird nests would be directly affected by construction activities—to avoid disturbance or destruction of the nest until after the breeding season or after a wildlife biologist determines that the young have fledged (usually late-June to August).
- Inspect culverts prior to the nesting season and dislodge or destroy any inactive nests. Install bird exclusion netting to prevent birds (especially cliff swallows) from building new nests inside the culverts.

- Establish a minimum 300 m (984 ft) buffer zone from the periphery of great blue heron colonies in which no human activity takes place during the courtship and nesting seasons (February through August). Monitor and observe this buffer zone for disturbance. Stop construction activities if the rookery is likely to abandon nesting.
- Avoid all non-essential construction activities (e.g., equipment storage, meetings) in the vicinity of nest sites immediately adjacent to the BSA. Allow construction activities to proceed if the biological monitor has verified that the individual is not likely to abandon the nest during construction. Replant vegetation to minimize impacts on potential nesting habitat (trees) within the BSA.

Bats

- Conduct pre-construction surveys—no more than fourteen days prior to tree removal and project construction to avoid loss of individuals or active roost sites—to determine if bat roosts occur within the project footprint.
- Remove or restrict access to potential special-status bat roost sites.
- Identify appropriate protection measures, which may include non-disturbance buffers to protect roost sites, exclusion from roost sites, or removal of unoccupied roost sites, if roost sites are determined to be present within the project area and avoidance is not possible, thereby minimizing impacts to these species. Roost removal or relocation of a state species of concern associated with this project will require a letter of authorization from the CDFG Region 3 Office.
- Take additional reasonable measures to avoid and minimize unnecessary disruptions to the normal behavior patterns, which include, but are not limited to, breeding, feeding, and sheltering, of special-status bats.

Threatened and Endangered Plants

- If a preconstruction survey finds these species in the project Biological Study Area:
- Make minor design modifications to avoid impacts to the species;
- Designate any federally-listed plants and/or populations observed within the temporary work area as an ESA with orange construction fencing and placement of signage to avoid the ESA;
- Show the location of all ESAs on project construction drawings and monitor them during construction.
- Implement reasonable and prudent measures to minimize and avoid take of listed species for permanent impacts to suitable habitat or individual plants.

Vernal Pool

- Modify design to avoid the species and reduce the impact below the level of significance.
- Avoid all construction activities in the temporary work area with federally-listed, large branchiopod habitat to the maximum extent practicable. Designate any identified federally-listed, large branchiopod habitat within the temporary work area as an ESA and protect them with appropriate fencing and signage. Show all ESAs on the final construction drawings.
- Perform all work in accordance with the Storm Water Pollution Prevention Plan (SWPPP). Implement Best Management Practices (BMPs) and use silt fences, sandbags, detention basins, and other means as appropriate to prevent erosion into any identified federally-listed, large branchiopod habitat.
- Restore the topography and grade to pre-construction conditions in vernal pool areas that are temporarily affected. Replant or reseed these areas, following all grading and earthwork, with the appropriate plant species, if determined necessary, or monitor following construction, to determine that vegetation comparable to the pre-existing condition has naturally regenerated.
- Tally unavoidable vernal pool losses during construction and incorporate into project permits and compensatory mitigation documents and requirements as appropriate.

California Red-Legged Frogs (CRLF)

- Restrict work in ephemeral drainages and seasonal wetlands until the summer and/or early autumn months (June 15 through October 15).
- Install ESA fencing and implement storm water BMPs to avoid project-related impacts to CRLF habitat.
- Conduct pre-construction surveys for CRLF prior to the start of any construction activities in or near suitable habitat.
- Stop construction activities, if CRLF are observed during pre-construction surveys, until the CRLF are relocated by a permitted biologist.
- Utilize avoidance and minimization measures to reduce impact on creeks and riparian areas. Restore temporarily disturbed areas.

Invasive Plants

- Conduct pre-construction surveys within the project area for invasive species of highest concern and depict the pre-construction weed surveys on maps.

- Do not allow disposal of soil and plant materials from any areas that support CDFA List A or Cal-IPC List 1 invasive species into natural habitats such as coast live oak woodland, coast live oak-willow riparian forest, or within or directly adjacent to wetlands or other waters.
- Cerify erosion control species as “weed free” to reduce the chances of introducing a new invasive species to the project BSA, or spreading an existing invasive species into unoccupied areas. Use only non-invasive native and/or non-native species for erosion control or landscaping.
- Pressure wash or steam clean all construction equipment prior to initial entry to the project limits if CDFA List A plants are identified during future surveys, or another invasive habitat threat is identified (e.g., such as the sudden oak death fungal pathogen).
- Implement other measures as required by CDFA or other agencies to prevent the spread of pathogens or invasive plants.

Compensatory Mitigation

Biology

Natural Communities

- Loss of individual oak and riparian trees:
- Prepare an Oak Woodland and Riparian Habitat Mitigation Plan that details coast live oak woodland and coast live oak, willow riparian habitat restoration activities, and includes details on native oak woodland and riparian tree species planting. These plans will be submitted to the resource agencies for their review before restoration activities are initiated. In addition to planting details such as the species planted and planting densities, the restoration plan will include information on performance criteria, monitoring, annual reporting, and remedial actions, should monitoring determine that the success criteria have not been achieved.

Wetlands and Waters

- Create on-site roadside ditch wetland or other waters prior to project completion and complete prior to the beginning of the wet season (typically October 31st) to minimize the potential for onsite or offsite erosion into other wetland features,.
- Require the contractor to use standard erosion control measures (BMP) and prepare a SWPPP, and implement the SWPPP during construction to ensure that sedimentation into adjacent wetlands and other waters does not occur and affect adjacent resources. Monitor erosion control measures during construction and remedy if found insufficient.
- Create wetland habitat as compensation for permanent impacts. This may be accomplished through habitat creation at either an on- or off-site location or through restoration, preservation, or a combination of these two approaches.
- Create wetland and other waters habitat through steps outlined in a Conceptual Wetland Restoration Plan that will be prepared and submitted in support of obtaining the project permits, agreements, waivers, or approvals from the USACE, CDFG, and RWQCB.
- Use a mitigation ratio ranging from between 1:1 to 3:1 (mitigation to impact) on an acreage basis, either on-site or off-site, for the creation of wetland resources. The exact mitigation ratio (acreage basis) will be dependent on the type and habitat quality of the wetlands and other waters impacted, the quantity and location of affected wetlands resources, the location of the proposed creation, and the outcome of agency discussions.

- Prepare a Conceptual Wetland and Other Waters Creation Plan that follows guidelines established by the USACE. The Plan would include discussions of the annual reporting requirement, a monitoring plan, and remedial measures, should monitoring determine that success criteria are not being achieved. The Caltrans District 4 Office of Biological Sciences and Permits will plan and implement the on-site mitigation, in conjunction with the Caltrans District 4 Office of Landscape Architecture.
- Accomplish compensatory mitigation by purchasing mitigation credits at a wetland mitigation bank that serves Solano and Napa Counties. Currently, there is only one USFWS approved active mitigation bank that services Solano and Napa Counties—the Elsie Gridley Multi-Species Conservation Bank. However, other banks nearby the project vicinity are pending or proposed and it is possible a suitable bank would be active at the time the mitigation credits are required. Additional mitigation opportunities may be available with the Solano Land Trust south of the project in Lynch Canyon.

Special Status Plant Species

- If special-status plant species are encountered during the preconstruction surveys, the appropriate compensatory mitigation will be developed and implemented in coordination with the appropriate resource agencies. If the project cannot be redesigned to completely avoid or minimize the impact to the species, significant impacts to the plant population will be mitigated through:
- Develop and implement a Rare Plant Relocation Plan, which would describe relocation to an agency-approved suitable location.
- Preserve an existing population of the species at a ratio of at least 1:1 (a ratio of species habitat affected to species habitat preserved) or higher, as determined appropriate based on the quality of the habitat and species impacted and the quality of the preserved habitat.
- Coordinate and consult with USFWS and CDFG for a determination of the likelihood of adverse effects and development of appropriate mitigation.
- Restorate areas of temporary disturbance to the pre-existing grade and reseed with a site-specific mix of native vegetation if determined appropriate; or salvage the topsoil within the plant population, store it, and reinstall the topsoil following construction.

Bats

- Any bat roost that is identified during pre-construction surveys will be restricted or removed, and any special-status bat that is encountered during project related activities would be relocated to minimize impacts to special-status bat species. If any roost sites are removed or restricted, or if special-status bat species are relocated or otherwise affected by project activities, the appropriate compensatory mitigation will be developed and implemented, and would include the construction and placement of bat boxes or other suitable roost structures.

Vernal Pool Animal Species

- To mitigate the potential permanent impacts of the proposed project on listed branchiopods, Caltrans would purchase approximately 13.35 acres of vernal pool construction and/or vernal pool preservation credits. This vernal pool preservation and creation would constitute adequate compensation for adverse effects to branchiopod species. This compensation would include:
- Purchase of mitigation credits at an existing bank or banks, or
- Purchase and preservation of a parcel with suitable habitat submitted to the USFWS for approval, or
- A combination of these two approaches.

California Red-Legged Frogs

- Propose compensatory mitigation for temporary impacts to combined aquatic habitat at 1.1:1. At this ratio, offsite mitigation at 0.1:1 would require 0.26 ha (0.65 ac), for the Tight Diamond Alternative and 0.25 ha (0.61 ac) for the Single-Point Alternative. An additional 2.64 ha (6.51 ac) or 2.49 ha (6.15 ac) will be restored onsite at the ratio of 1:1 for temporary impacts to CRLF combined aquatic habitat. Temporary disturbance to CRLF upland dispersal habitat will be mitigated through restoration of on-site habitats.
- Purchase a combined total habitat of at least 57.87 ha (143.00 ac) to mitigate the potential permanent impacts of the proposed project to CRLF. This total would include 52.47 ha (129.65 ac) of upland habitat credits and 5.14 ha (12.70 ac) of wetland construction and/or wetland preservation credits. This upland preservation and wetland preservation and creation would constitute adequate compensation for adverse effects to CRLF. This compensation would include:
    - Purchase of mitigation credits at an existing bank or banks, or
    - Purchase and preservation of a parcel with suitable habitat submitted to the USFWS for approval, or

- A combination of these two approaches.

Caltrans has considered purchasing and conserving land as compensatory mitigation that may support CRLF. Additional mitigation opportunities may be available with the Solano Land Trust south of the project in Lynch Canyon, or through established or future mitigation banks.